

**The Pew Home Visiting
Data for Performance
Initiative:
Phase II Final Report on
Feasibility Study**

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TABLE OF CONTENTS

Acknowledgements	2
Executive Summary	4
Research Questions	4
Study Sample and Design	5
Key Findings	5
Revised List of Indicators and Descriptive Variables	6
Advancing Our Recommendations	8
Conclusion	9
Overview	10
Phase II of the Pew Home Visiting Data for Performance Initiative	11
Purpose of This Report	12
Data Pilot Goals	13
Data Pilot Process	13
Pilot Site Recruitment	13
Sampling	14
Project Activities and Deliverables	16
Findings	18
Feasibility of Implementing Pew’s Recommended Home Visiting System Performance Indicators	18
Feasibility of Collecting and Analyzing Pew’s Recommended Home Visiting System Descriptive Factors	21
Barriers and Facilitators to Implementing Pew’s Recommended Home Visiting System Performance Indicators	24
Cross Cutting Barriers	24
Crosscutting Facilitators	26
Variable-Specific Barriers	26
Barriers and Facilitators to Implementing Pew’s Recommended Home Visiting System Descriptive Factors	29
Recommendations	35
Crosscutting Recommendations	35
Recommended Changes to Performance Indicators	36
Advancing These Recommendations	40
Conclusion	44
Appendix A:	46
List Of Data Pilot Sites & Team Members	46
Appendix B:	47
List Of Hv Phase Ii Data Pilot Advisors Names & Titles	47
Appendix C: Recommended Revisions To Indicators	48
Appendix D: Recommended Revisions to Descriptive Factors	54

EXECUTIVE SUMMARY

The Pew Home Visiting Data for Performance Initiative (DPI) for Home Visiting offers an important opportunity for states to coalesce around a small set of desired outcomes for the purposes of demonstrating the collective impact of investments in early home visiting. During Phase I, the initiative team, working in partnership with state leaders, national researchers, and several national home visiting models, identified a set of nine indicators that states might adopt to determine whether their goals are being achieved across their full portfolio of home visiting programs regardless of funding source. These indicators, summarized in Figure 1, focused on the more proximate and achievable outcomes likely to be realized through high quality early childhood home visiting and build on data that states and programs are already collecting. Phase II of the initiative focused on two specific activities:

1. Creating a shared understanding of how best to capture impacts in two additional performance areas—parental capacity and child development—central to the mission of nearly all early home visiting programs.
2. Pilot testing the proposed data collection system in a sample of states to determine the plan’s feasibility, identify key implementation challenges encountered by local home visiting programs or state agencies in coordinating their data collection efforts, and test the extent to which administrative data matching techniques can be used to deepen the ability to track home visiting’s proximate and distal impacts while minimizing data collection burden for home visitors.

This report summarizes the results of our pilot test and final list of recommended indicators

Research Questions

Our overarching goal for the feasibility pilot was to assess the practicality of states and large counties implementing Pew’s Home Visiting Data for Performance Initiative recommendations as articulated in Phase I report. To accomplish this goal, we designed an implementation study to help us answer the following research questions:

1. How feasible is it for states/counties to collect and analyze the original 9 home visiting system performance indicators recommended by Pew?
2. How feasible is it for states/counties to collect and analyze the original 16 home visiting system descriptive factors recommended by Pew?
3. What are the facilitators and barriers to states/counties collecting and analyzing the original 9 home visiting system performance indicators recommended by Pew?
4. What are the facilitators and barriers to states/counties collecting and analyzing the original 16 home visiting system descriptive factors recommended by Pew?
5. How feasible is it for states/counties to access home visiting system performance indicator data through administrative data linkage with other service systems’ (e.g., Child Welfare, Vital

Records, Medicaid) electronic records, and how does this compare to the alternative of relying on home visitor case records for this data?

Study Sample and Design

A convenience sample of five states and one large county—Connecticut, Iowa, Kansas, Los Angeles County, Massachusetts, and Oklahoma—participated in the pilot. They each gathered retrospective participant-level data for a cohort of home visiting program participants enrolled in a sample of their local home visiting programs during a 12-month period. The local programs that were selected for analysis by the pilot sites were generally representative of the range of home visiting program models available throughout that state/county, except when access to data was limited by funding source. Four of the six pilot sites were able to provide data on families served by both MIECHV- and non-MIECHV (state)-funded programs. The other two sites were prevented from doing so because of differences in data collection requirements, data collection systems, and, sometimes, data access by funding source. The pilot sites were charged with attempting to capture as many of the Pew home visiting performance indicators and descriptive factors for their sample as possible. At least one indicator was to be captured via electronic linkage with client records from another state/county agency (e.g., child welfare, Medicaid, vital records). Each site recorded the barriers that they encountered in trying to do this, as well as any factors that facilitated their efforts.

Key Findings

The key results of the pilot sites' efforts to implement the Pew DPI recommendations are summarized here:

- Each of the pilot sites were able to capture the majority of Pew's original nine home visiting system performance indicators for their retrospective samples; yet, none of the sites found it feasible to collect data for all nine of the indicators. This limitation is not as grave as it first appears, however, because it pertains to a retrospective sample. Most of the pilot sites recently upgraded their home visiting data collection infrastructure or are in the process of doing so in response to Pew releasing its DPI recommendations in October 2015 and Health Resources and Services Administration (HRSA) releasing the revised MIECHV Benchmarks in 2016. Consequently, their capacity to report data on the Pew performance indicators and descriptive factors going forward is far greater than our study results seem to suggest.
- Several of the pilot sites did not capture Pew's *Interbirth Interval* performance indicator. They questioned whether doing so was worth the effort given that it only applied to a subgroup of families served by their home visiting system (i.e., those enrolled prenatally or shortly after birth who remained in the program for at least a year and half after childbirth) and was not a MIECHV Benchmark requirement.
- The pilot sites were uncertain how to account for mothers and children already receiving treatment prior to being screened for maternal depression or developmental delays when calculating the Maternal Depression Screening and Referral and the *Child Development Screening and Referral* indicators. They recommended that these program participants not be included

when calculating these indicators since there is no reason for home visitors to refer them for services they are already receiving.

- The pilot sites preferred Pew's *Breastfeeding* indicator, which measures this behavior at three months postpartum, over the MIECHV Benchmarks for breastfeeding, which measures this behavior at six months postpartum. They observed that many of the mothers in their home visiting programs must return to low-wage, service sector jobs within six months of childbirth, where it is not easy for these mothers to pump and store breast milk. Nevertheless, the pilot sites were uncomfortable asking their home visiting programs to collect breastfeeding data twice (at three and six months postpartum) because of concerns about data collection redundancy and burden.
- Data from several of the pilot sites indicated that some of the mothers in their home visiting programs quit smoking while pregnant but then start again before they complete the program, although sometimes the amount of their tobacco consumption is reduced. They were not sure how to account for the time variant nature of this outcome when calculating Pew's *Maternal Smoking and Tobacco Use* indicator, which simply asks for the rate of mothers who quit smoking.
- Only two of the pilot sites were able to capture Pew's *Child Maltreatment* indicator, which requires linking home visiting participant records with state/county child protective services records. Those that were successful had preexisting data sharing MOUs before volunteering for the pilot. The others found that negotiating a data sharing MOU with their local child welfare agency was a long and difficult process that sometimes broke down over the child welfare agency's concerns about data privacy. However, they thought that it might be easier to negotiate an MOU of this type for prospective data if families signed consents. While several of the pilot sites defaulted to using home visitor report data to measure child maltreatment outcomes for their retrospective study samples, they were dissatisfied with this alternative because they it prevented them from measuring child maltreatment outcomes after families completed home visiting, which is when research suggests prevention effects tend to appear.
- The pilot sites were able to collect participant-level data for Pew's 16 descriptive factors more reliably than for the nine Pew indicators. Two sites were able to collect all 16 descriptors with a third site collecting all but one descriptor.
- The most difficult descriptive factors for the sites to capture were the number of home visits, supervisor-to-home visitor ratio, and average caseload, all of which describe home visiting program characteristics rather than participant characteristics.
- Lastly, while most of the pilot sites were able to capture *Maternal Race, Maternal Ethnicity, Native Language, Date & Reason for Termination*, and some indicator of father involvement, the response categories for these items varied, making it difficult to aggregate data across pilot sites or to conduct cross-site comparisons.

Revised List of Indicators and Descriptive Variables

Based on these findings, we are recommending several revisions to the original Pew home visiting performance indicators and descriptive factors. These revisions are summarized below, explained in the body of this report, and detailed in Appendices C and D.

Figure 1.
Pew Home Visiting Data for Performance Initiative:
Revised Phase I Recommended Indicators and Descriptive Factors

Original Recommendation	Revision
Performance Indicators	
Maternal Depression Screening and Referral	Exclude mothers already receiving treatment for depression (from the numerator and denominator)
Postpartum Health Care Visit	No change
Interbirth Interval	Recommended but no longer essential
Maternal Educational Achievement	No change
Child Development Screening and Referral	Exclude children already receiving developmental support services (from the numerator and denominator)
Child Development	No change to newly developed indicator
Child Maltreatment	Realign with MIECHV Benchmark which is restricted to <i>investigated</i> reports of child maltreatment
Well-Child Visit	No change
Maternal Smoking or Tobacco Use	Replace with: (1) the percentage of mothers enrolled prenatally who quit smoking/using tobacco and remain tobacco-free throughout their pregnancy and (2) the percentage of enrolled mothers who reduce their amount of tobacco use
Parental Capacity	No change to newly developed indicator
Breastfeeding	Realign with MIECHV Benchmark which currently measures this behavior at six months postpartum

Figure 1, Continued

Original Recommendation	Revision
Descriptive Indicators	
Child Characteristics: Date Of Birth Full-Term Or Preterm Birth	No change
Maternal Characteristics: Date Of Birth Number Of Prior Births Residential Address Or Zip Code	No change
Maternal Characteristics: Race Ethnicity Native Language Contact With Father At Time Of Enrollment	Standardized response categories added
Participant Service Characteristics: Date Of First Home Visit Date Of Subsequent Home Visits	No change
Participant Service Characteristics: Date And Reason For Termination	Standardized response categories added
Program-Level Data Model Or Program	No change
Program-Level Data Number Of Home Visits Supervisor-To-Home Visitor Ratio Average Caseload	Eliminated

Advancing Our Recommendations

We will pursue the following strategies for advancing these recommendations:

- Disseminate the revised Pew DPI recommendations at the 2018 National Summit on Quality in Home Visiting Programs opening plenary session.
- Coordinate with others seeking greater alignment in core outcomes across early childhood programs.
- Work with the National Alliance of Evidence-Based Home Visiting Programs to achieve consensus on core outcomes to measure across models.

- Work with the Association of State and Tribal Home Visiting Initiatives (ASTHVI) to assess uptake of the original and revised recommendations.
- Work with the Association of State and Tribal Home Visiting Initiatives (ASTHVI) and other partners to develop and disseminate a universal consent form for linkage to other service records.
- Partner with the Home Visiting Research Coalition (HVRC) to link states with limited internal research capacity with external research partners.
- Work with vendors of home visiting data collection systems to ensure inclusion of data fields for each of the Pew indicators and descriptive factors component variables.
- Engage the Health Resources and Services Administration (HRSA) Division of Home Visiting and Early Childhood Systems in a Discussion about Revising the MIECHV Benchmark for Breastfeeding.
- Encourage HRSA and the Administration for Children and Families (ACF) to issue guidance about sharing administrative records regarding mutual program participants.

Conclusion

Revising the DPI indicators and descriptive factors in this way will increase the feasibility, and thus the likelihood, of state/counties adopting these measures, sharpen the indicators' ability to capture outcomes for which home visiting programs should be held accountable, and increase the comparability of the reported data, making it possible to aggregate performance indicators and participant characteristics across states/counties. By increasing the likelihood that states/counties will adopt the Pew DPI recommendations, the revisions ultimately contribute to our understanding of how home visiting interventions support access to family support services and improvements in critical child and maternal outcomes. We look forward to working closely with other stakeholders to encourage states and counties to adopt the revised Pew DPI framework to measure their home visiting system performance and advance the field.

OVERVIEW

The Pew Home Visiting Data for Performance Initiative (DPI) for Home Visiting offers an important opportunity for states to galvanize around a small set of desired outcomes for the purposes of demonstrating the collective impact of investments in early home visiting. During Phase I, the initiative team, working in partnership with state leaders, national researchers, and several national home visiting models, identified a set of nine indicators that states might adopt to determine whether their goals are being achieved across their full portfolio of home visiting programs, regardless of funding source. These indicators, summarized in Figure 2, focused on the more proximate and achievable outcomes likely to be realized through high-quality early childhood home visiting and build on data that states and programs are already collecting. To effectively monitor performance, they included a mixture of outcome measures and measures of processes used to reach outcomes. In addition, the recommended system included 16 descriptive factors inclusive of several participant demographic characteristics, geographic location, and service delivery information which states could use to more fully understand the differential impact of services on various subpopulations. The project also identified key strategies for enhancing the quality and usefulness of states' home visiting data—including collecting it in its most basic, raw format; at the participant level; and at multiple intervals—and comparing participant outcomes with those of similar families not receiving services. By increasing the rigor of their performance measurement and the utility of their data, states could strengthen the evidence base for home visiting, improve practice, and demonstrate its return on investment.¹

Figure 2.
Pew Home Visiting Data for Performance Initiative:
Phase I Recommended Indicators and Descriptive Factors

Maternal Health and Achievement Indicators

- Maternal Depression Screening and Referral
- Postpartum Health Care Visit
- Interbirth Interval
- Maternal Educational Achievement

Child Health, Development, and Safety Indicators

- Child Development Screening and Referrals
- Child Development (further developed in Phase II)
- Child Maltreatment
- Maternal Smoking and Tobacco Use

¹ The Pew Charitable Trusts (2015). *Using data to measure performance: A new framework for assessing the effectiveness of home visiting*. Philadelphia, PA: Author.

Figure 2, Continued

Parental Skills and Capacity Indicators

- Parental Capacity (further developed in Phase II)
- Breastfeeding

Recommended Descriptive Factors

- Child Characteristics
 - Date of birth
 - Full term versus preterm birth
- Maternal Characteristics
 - Date of birth
 - Number of prior births
 - Race/ethnicity
 - Native language
 - Whether the mom was in contact with the baby's father at time of enrollment
 - Residential zip code
- Participant Service Characteristics
 - Date of first home visit
 - Date of subsequent home visits
 - Date and reason for termination, including successful transitions and early terminations
- Program Data
 - Program model being implemented at site
 - Model expected number of home visits
 - Model supervisor-to-home visitor ratio
 - Average caseload per home visitor

Phase II of the Pew Home Visiting Data for Performance Initiative

The Phase I efforts achieved significant progress in clarifying common outcomes and process indicators in multiple domains. However, fully operationalizing this system in any state requires additional information on how best to capture other important aspects of home visiting performance. It also requires field testing the feasibility of states collecting, managing, and using this information in real time. Phase II of the initiative, launched in February 2016, focuses on two specific activities:

1. Creating a shared understanding of how best to capture impacts in two additional performance areas—parental capacity and child development—central to the mission of nearly all early home visiting programs.
2. Pilot testing the proposed data collection system in a sample of states to determine the plan's feasibility, identify key implementation challenges encountered by local home visiting programs

or state agencies in coordinating their data collection efforts, and test the extent to which administrative data matching techniques can be used to deepen the ability to track home visiting's proximate and distal impacts while minimizing data collection burden for home visitors.

Purpose of This Report

The purpose of this document is to report our recommendations related to the second of these two tasks. Specifically, the document outlines the process we followed to pilot test the feasibility of states/counties collecting and analyzing data for the 9 original home visiting indicators and the 16 descriptive elements recommended by Pew in Phase I of the Initiative. It then details which of the Pew indicators and descriptive elements the pilot sites were (and were not) ultimately able to capture, and the associated barriers and facilitators they encountered while trying to do so. Based on the lessons learned from the pilot sites' experiences, the report concludes with several recommendations for revising the Pew home visiting performance indicators and descriptive elements so that the data collection, analysis, and reporting they call for are not only useful to state and local home visiting systems, but also feasible given the state of the field. The report concludes with specific ideas for advancing these recommendations.

Data Pilot Goals

Our overarching goal for the feasibility pilot was to assess the practicality of states and large counties implementing Pew's Home Visiting Data for Performance Initiative recommendations as articulated in *Pew's Using Data to Measure Performance: A New Framework for Assessing the Effectiveness of Home Visiting* report (2015). To accomplish this goal, we designed an implementation study to help us answer the following research questions:

1. How feasible is it for states/counties to collect and analyze the original 9 home visiting system performance indicators recommended by Pew?
2. How feasible is it for states/counties to collect and analyze the original 16 home visiting system descriptive factors recommended by Pew?
3. What are the facilitators and barriers to states/counties collecting and analyzing the original 9 home visiting system performance indicators recommended by Pew?
4. What are the facilitators and barriers to states/counties collecting and analyzing the original 16 home visiting system descriptive factors recommended by Pew?
5. How feasible is it for states/counties to access home visiting system performance indicator data through administrative data linkage with other service systems' (e.g., child welfare, vital records, Medicaid) electronic records, and how does this compare to the alternative of relying on home visitor case records for this data?

Data Pilot Process

Pilot Site Recruitment

We began our 9-month feasibility study in April 2016 by recruiting a convenience sample of five states and one large county to participate in the pilot. The sites selected were: Connecticut, Iowa, Kansas, Los Angeles County, Massachusetts, and Oklahoma. In order to participate, pilot sites had to be able to retrospectively gather participant-level data for most or all of the nine Pew home visiting data indicators and 16 descriptive factors for a cohort of home visiting program enrollees during a consecutive 12-month period. This time period needed to fall between January 1, 2014 and December 31, 2015. The pilot sites also had to be willing to use (or at least attempt to use) administrative data linkage, rather than home visitor report data, to construct one or more of the nine home visiting indicators. Additionally, each pilot site needed to have either a designated internal data analyst or an external research partner with the skills and committed time to analyze the pilot data within the project time frame.

Sampling

Pilot sites were charged with descriptively analyzing the Pew data indicators and descriptive elements for either the full population of families receiving home visiting services during the 12-month sampling period from 20 different service locations or a random sample of 50 families from each of these service locations ($N \geq 1,000$). Smaller states that did not have 20 different home visiting sites were encouraged to analyze data for families from all of their home visiting service locations receiving services during the 12-month sampling period. To the extent possible, sites were to select program locations that were representative of the state or county's home visiting system portfolio. They were specifically encouraged to include a mix of sites funded both by the federal Maternal Infant Early Childhood Home Visiting (MIECHV) program and by the state or county, if possible, and to include locations offering the home visiting program models that were most widely available in their state/county. [Table 1](#) describes the analytic sample selected by each of the six pilot sites.

The pilot sites selected their 12-month sampling periods based on several factors, most commonly alignment with their fiscal years, the timing of their state/county's transition to a new home visiting data collection system, and changes over time in the comprehensiveness and quality of the home visiting participant data available. While pilot sites were only asked to report data for 20 or fewer service locations, some chose to be more expansive. Consequently, the number of different program locations examined by the six pilot sites ranged from 8 in Kansas to 92 in Oklahoma.

All of the pilot sites opted to analyze the entire population of families served at the program locations they selected rather than a sample. Therefore, the number of families whose data were analyzed ranged from 502 in Connecticut to 17,783 in Los Angeles County. The programs selected for analysis by the pilot sites were generally representative of the range of home visiting program models available throughout their state/county, except when access to data was limited by funding source. Each pilot site reported data for families who participated in at least two of the major national home visiting models. Specifically, all 6 of the pilot sites included data on families served by Parents as Teachers (PAT); 5 sites included data on families served by Healthy Families America (HFA); 4 sites included data on families served by Early Head Start (EHS); 3 sites included data on families served by Nurse Family Partnership (NFP); and 1 site each included data on families served by SafeCare and Healthy Steps².

² Healthy Steps (HS) is a national home visiting program model that once qualified for MIECHV-funding as an evidence-based model, but no longer does.

Table 1: Description of Pilot Site Study Samples

	CT	IA	KS	LAC	MA	OK
Sampling Timeframe	1/1/15-12/31/15 enrollees	7/1/14-6/30/15 enrollees	10/1/14-9/30/15 enrollees	7/1/15-6/30/16 enrollees	10/1/14-9/30/15 enrollees	1/1/15-12/31/15 enrollees
Sample Size	502 families from 18 program sites	927 families from 10 program sites	551 families from 8 program sites	17,783 families from 37 program sites	585 families from 16 program sites	6,753 families from 92 sites
Total Population or Random Sample from Program Sites	Total population (18 out of 58 program sites included, representing each of 5 geographic regions in the state)	Total population (10 out of 145 program sites included; 2 MIECHV-funded only sites, 6 state-funded only sites, & 2 sites funded by a combination of MIECHV & state funds)	Total population (All 8 MIECHV-funded sites included)	Total population (37 out of 73 program sites included; all F5LA-funded sites)	Total population (12 out of 21 MIECHV-funded program sites & 4 out of 11 state-funded sites included)	Total population (All 92 program sites included; 8 MIECHV-funded only sites, 72 state-funded only sites, & 6 sites funded by a combination of MIECHV & state funds)
Home Visiting Models Represented	16 PAT sites 1 NFP sites 1 EHS site	3 HFA 1 HVP ³ 1 S-HC ⁴ 1 GHK ⁵ 2 PAT 1 EHS 1 NFP	4 PAT 2 EHS 2 HFA	14 WB ⁶ 13 HFA 10 PAT	8 HFM ⁷ 4 PAT 2 EHS 1 HFA 1 HS	66 NFP 16 HFA 8 PAT 2 SC
Funding Source(s) for Program Sites	MIECHV, State, & Combination	MIECHV, State, & Combination	MIECHV only	First 5 Los Angeles only	MIECHV & State	MIECHV, State, & Combination

Note: CT=Connecticut; IA=Iowa; KS=Kansas; LAC=Los Angeles County; MA=Massachusetts; OK=Oklahoma; EHS=Early Head Start; GHK=Growing Healthy Kids; HFA=Healthy Families America; HFM=Healthy Families Massachusetts; HS=Healthy Steps; HVP=Home Visitor's Program; NFP=Nurse Family Partnership; PAT=Parents as Teachers; SC=SafeCare; S-HC School-Home Connections; and WB=Welcome Baby

³ Home Visitor's Program (HVP) is a local home visiting program model only available in Iowa.

⁴ School-Home Connections (S-HC) is a local home visiting program model only available in Iowa.

⁵ Growing Healthy Kids (GHK) is a local home visiting program model only available in Iowa.

⁶ Welcome Baby (WB) is a local home visiting program model only available in Los Angeles County.

⁷ Healthy Families Massachusetts (HFM) is an adaptation of the national Healthy Families America (HFA) home visiting model that uses different inclusion criteria. HFM targets first-time parents younger than 20 years old, whereas HFA works with parents of all ages, irrespective of whether they are first-time or more experienced parents. Approximately 83% of the Massachusetts families receiving home visiting services are enrolled in an HFM program.

Additionally, three sites—Iowa, Los Angeles County, and Massachusetts—included data on families served by local program models. Notably, only four of the pilot sites were able to provide data on families served by both MIECHV- and non-MIECHV-funded programs. They were limited by data collection requirements, data collection systems, and sometimes data access differing by funding source. While Connecticut, Iowa, Massachusetts, and Oklahoma were able to report indicator and descriptive data for families served by both MIECHV and non-MIECHV funded programs, Kansas was restricted to reporting data on families served by MIECHV-funded programs only and Los Angeles County was even more limited, reporting data for families served by a singular county funding stream, First 5 Los Angeles.

Project Activities and Deliverables

To facilitate their participation in the pilot study and help address barriers to accessing, collecting, and analyzing their pilot data, all of the pilot sites were offered access to project staff from Chapin Hall and Michigan State University as well as consultants with expertise in administrative data linking. Representatives from all but one of the pilot sites participated in a project kickoff webinar in August 2016 during which they were oriented to the goals of the study and expectations for the participating sites. During this webinar, Drs. Emily Putnam and Reagan Foust from the Children’s Data Network presented strategies that the pilot sites might use to address Institutional Review Board (IRB) apprehension about using identifiable home visiting participant information to link to administrative data records from other state programs. This was a concern because the retrospective design of the study meant that participant consent to access this data had not been obtained. Later in August 2016, each of the pilot sites submitted a *Data Pilot Plan*, summarizing their site’s sampling frame and identifying which of Pew’s recommended home visiting performance indicators and descriptive factors they anticipated being able to access and analyze for the study. Upon approval of their *Data Pilot Plan* by the project’s leadership team, each site was offered \$5,000 in seed funds to support their participation in the pilot. Sites had substantial freedom in how they used these funds, but most chose to spend them on supporting an external research partner and funding travel to attend a two-day Data Camp associated with the pilot that took place at Chapin Hall in May 2017.

In February 2017, the pilot sites reconvened for a conference call that focused on emerging data collection challenges. The following month they submitted a *Mid-Pilot Progress Report*, describing their site’s progress with respect to administrative matching, and any implementation problems they were encountering, particularly challenges related to data quality/validity and missing data. Pilot sites submitted their *Final Data Pilot Report* on May 1, 2017. These reports included a descriptive summary of the Pew home visiting system performance indicators and descriptive factors that each site was ultimately able to produce. For the indicators and descriptive factors that sites could not produce, the sites provided a brief explanation. They also described the major lessons learned about the benefits, challenges, and feasibility of collecting and analyzing home visiting system performance data according to Pew’s initial recommendations.

The pilot study concluded two weeks later when each of the pilot sites sent representatives to a two-day Data Camp that provided a forum for the pilot sites to share their experiences with the project leadership and each other; experiment with using the pilot data that they collected to begin answering more complex

descriptive and inferential home visiting system performance questions; and discuss the implications of their data pilot experiences for updating the Pew Home Visiting Data for Performance Initiative's original recommendations.

The balance of this report discusses what was learned from the pilot sites' written reports and verbal feedback about the feasibility of collecting, analyzing, and reporting the original 9 home visiting system performance indicators and 16 descriptive factors recommended by Pew, and the implications of these findings for revising these recommendations.

FINDINGS

In this section of the report, we begin by describing which of Pew’s recommended indicators and descriptive factors the pilot sites were and were not able to collect and analyze (Research Questions 1 and 2). Then we identify the barriers and facilitators that influenced the pilot sites’ ability to collect and analyze the data needed to derive Pew’s recommended indicators and descriptive factors (Research Questions 3 and 4), distinguishing between barriers and facilitators that applied across multiple indicators or descriptive factors and those that were variable-specific. Lastly, we describe the lessons learned from pilot sites about the feasibility and relative merit of using administrative data linkage versus home visitor case records to access indicator or descriptive factors data (Research Question 5).

Feasibility of Implementing Pew’s Recommended Home Visiting System Performance Indicators

While each of the pilot sites were able to collect data on the majority of Pew’s original 9 home visiting system performance indicators for their retrospective samples, none of the sites found it feasible to collect data for all 9 of the indicators. However, this limitation is not as grave as it first appears, because the sites frequently reported that indicator data that they were unable to access for their retrospective study samples had become, or was about to become, available for newer home visiting enrollees. In several cases, data for the missing indicators were added to the pilot sites’ home visiting case management systems after Pew’s recommended indicators became public in October 2015 or after the U.S. Health Resources and Services Administration (HRSA) released the updated MIECHV benchmarks (many of which mirror Pew’s recommended indicators) in 2016.⁸ Nevertheless, the pilot sites’ experiences suggest that some indicators may be easier for states/counties to measure and report than others. As Table 2 illustrates, sites had the greatest success with the *Maternal Educational Achievement*, *Maternal Depression Screening & Referral*, *Child Development Screening & Referral*, and *Breastfeeding* indicators. The one indicator that all 6 pilot sites were able to measure for their retrospective study samples and report in accordance with Pew’s recommended data definition was the *Maternal Educational Achievement* indicator (i.e., the percentage of mothers who entered home visiting without high school or GED completion who have enrolled in or completed high school or the equivalent).

Each of the 6 sites were also able to collect indicator data for *Maternal Depression Screening and Referral*, *Child Development Screening & Referral*, and *Breastfeeding*, but not always according to the specific indicator definitions recommended by Pew and/or for all the home visiting programs included in their samples. Four of the pilot sites collected the *Well-Child Visits* indicator data according to Pew’s indicator definitions (i.e., the percentage of children participating in home visiting who received their last recommended visit based on the American Academy of Pediatrics “Bright Futures” schedule) across their sample. A fifth site collected a more limited version of this indicator (i.e., the percentage of children

⁸ A detailed comparison between the two measurement systems is outlined in Daro, D., Klein, S., & Burkhardt, T. (2017). *The Pew Home Visiting Data for Performance Initiative: Phase II Final Report on Parental Capacity and Child Development Indicators*. Chicago, IL: Chapin Hall at the University of Chicago.

participating in home visiting who have received at least their annual well-child visit). This measure is functionally comparable to the version recommended by Pew for older children, but is more limited for infants and toddlers, who Bright Futures recommends visit their doctors for check-ups several times a year. Connecticut was able to report the percent of enrolled children who were up to date with immunizations as of their last home visit, but only for participants in their state-funded programs.

Three of the 6 pilot sites reported *Child Development Screening and Referral* data according to Pew's indicator definitions, but one of these sites (Massachusetts) was unable to collect this data for several of the home visiting programs in their sample because these program sites used a data management system that did not require this field. Los Angeles County was able to collect a version of this indicator for its Welcome Baby program participants, but could only report screening (not referral) rates for the rest of the sample. Additionally, Los Angeles County used a more expansive measure of screening based on results from "any objective development screening instrument" than Pew, which specifically measures screenings with the Ages and Stages Questionnaire (ASQ). Iowa only tracked the first part of this indicator (i.e., whether home visiting child participants were screened for delays using the ASQ), not whether children with indicated delays were then referred for follow-up services. However, Iowa has since begun collecting this data.

Four sites were able to collect *Maternal Depression Screening and Referral* indicator data according to Pew's recommendations, but two sites (Iowa and Los Angeles County) were only able to collect the depression screening data, not the referral data. Iowa has since begun collecting the referral data.

With respect to *Breastfeeding*, 3 of the pilot sites collected the necessary data to report on Pew's version of this indicator (i.e., the percentage of mothers enrolled in home visiting during pregnancy who initiate and continue breastfeeding for at least 3 months). However, one of these sites was missing a considerable amount of data since many of its state-funded programs were not required to report on this measure. A fourth site captured this information for participants of MIECHV-funded programs but were restricted to only reporting initiation of breastfeeding for participants of their state-funded programs. Two sites collected data on breastfeeding at 6 months rather than 3 months, which is consistent with the new MIECHV benchmark reporting requirements, and Los Angeles County also collected data on breastfeeding initiation. Additionally, questions were raised about how "breastfeeding" should be operationalized. Massachusetts tracked how many babies were receiving any breast milk, which includes both milk obtained via breastfeeding and breast milk obtained via a bottle.

The pilot sites' ability to report on the remaining Pew home visiting indicators was more sporadic, with at least one site unable to report any data. Half of the pilot sites collected data for Pew's *Maternal Smoking or Tobacco Use* indicator (i.e., the percentage of mothers participating in home visiting who quit smoking or tobacco use following program enrollment). A fourth site collected data on the new MIECHV Benchmark indicator for this area, (i.e., percentage of mothers participating in home visiting who were referred to tobacco cessation services) instead. Both of the 2 remaining sites that were unable to report any data for this indicator area have since begun collecting data on the MIECHV benchmark indicator but not on changes in home visiting participants' actual smoking/tobacco use behavior, as recommended by Pew.

**Table 2 Pew Home Visiting Performance Indicators
Reported by the Pilot Sites**

Pew's Recommended Home Visiting Indicators	CT	IA	KS	MA	OK	LAC
Maternal Depression Screening & Referral: Percentage of mothers who are referred for follow-up evaluation and intervention as indicated by depression screening with a validated tool	●	⊙	●	●	●	⊙
Postpartum Health Care Visit: Percentage of mothers enrolled in home visiting prenatally or within 30 days of giving birth who receive a postpartum visit with a health provider within 60 days following birth	⊙	○	●	●	○	⊙
Interbirth Interval: Percentage of mothers participating in home visiting before the target child is 3 months old who have an interbirth interval of at least 18 months	●	●	○	○	●	⊙
Maternal Educational Achievement: Percentage of mothers who entered home visiting without high school or GED completion who have enrolled in or completed high school or the equivalent	●	●	●	●	●	●
Child Development Screening & Referral: Percentage of children participating in home visiting who are referred for follow-up evaluation and intervention as indicated by developmental screening with the Ages and Stages Questionnaire (ASQ)	●	⊙	●	⊙	●	⊙
Child Maltreatment: Percentage of children participating in a home visiting program reported for child abuse and neglect	⊙	○	●	⊙	●	⊙
Well-Child Visits: Percentage of children participating in home visiting who received their last recommended visit based on the American Academy of Pediatrics "Bright Futures" schedule	⊙	⊙	●	●	●	●
Maternal Smoking or Tobacco Use: Percentage of mothers participating in home visiting who quit smoking or tobacco use following program enrollment	⊙	●	○	●	●	○
Breastfeeding: Percentage of mothers enrolled in home visiting during pregnancy who initiate and continue breastfeeding for at least 3 months	⊙	●	●	●	⊙	⊙

Note: ● = Reported Pew indicator; ⊙ = Reported different version of indicator;
○ = Did not report indicator

Half the sites were able to capture *Interbirth Interval* indicator data. A fourth site (Los Angeles County) was able to report on the percentage of enrolled mothers who reported that they were using family planning methods at their most recent home visit, but not intervals between child births. The two remaining sites were not able to report any data for this indicator area.

Only two sites were able to report *Post-Partum Health Care Visit* indicator data according to Pew's recommendations. Los Angeles County's Post-Partum Health Care Visit indicator was very similar to Pew's but slightly more restrictive, tracking visits occurring 21–56 days, rather than within 60 days, following birth. A fourth site (Connecticut) was able to report *Postpartum Health Care Visit* indicator data for families in MIECHV-funded programs, but not state-funded programs, and this data was user-indicated (yes/no), not derived from actual health visit dates. The remaining two sites were unable to report any *Post-Partum Health Care Visit* indicator data. One of these sites (Iowa) attempted to obtain this data via electronic linkage to home visiting participants' Medicaid records, but was ultimately unsuccessful because bundling of Medicaid services made it impossible to tease out this specific type of service visit from other postpartum health services.

Lastly, only two of the pilot sites, Kansas and Oklahoma, were able to report on the *Child Maltreatment* indicator recommended by Pew (i.e., the percentage of children participating in a home visiting program reported for child abuse and neglect). Three sites used data from home visitor case records based on parent self-report instead of administrative child records to track this indicator area. Two of these sites are continuing to try to obtain child welfare administrative records to triangulate with their home visitor report data, but have not been successful to date. Another site (Los Angeles) was able to report a more restrictive *Child Maltreatment* indicator than the one recommended by Pew for participants of their Welcome Baby program; they reported the percentage of these children enrolled in home visiting services who were removed from the home and placed in out-of-home care after enrollment in home visiting. The remaining pilot site was not able to report any *Child Maltreatment* indicator data. It originally attempted to obtain this data via administrative linkage with the state child welfare agency, but the child welfare agency would only agree to provide data in an aggregated format (not at the participant level) and at a high cost. The site decided that the cost-to-benefit ratio was not worth pursuing this.

Feasibility of Collecting and Analyzing Pew's Recommended Home Visiting System Descriptive Factors

The pilot sites were able to collect participant-level data for Pew's 16 descriptive factors more reliably than for the 9 Pew indicators. Two sites were able to collect all 16 descriptors with a third site collecting all but one descriptor. The following descriptive factors were collected by all 6 pilot sites according to Pew's recommendations: *Mother's Race* and *Native Language*, *Date of First Home Visit*, *Model or Program*, and *Number of Home Visits*, although one site was only able to collect *Number of Home Visits* for their state-funded programs. Additionally, all 6 sites were able to report *Date of Termination* data and some information related to the termination reason. However, Los Angeles County could only provide this data for Welcome Baby program participants and Kansas could only report whether families terminated before or after program completion. Kansas has since begun collecting more detailed information about the circumstances under which families leave home visiting programs. Among the four programs that

collected program termination reasons for their entire samples, there was considerable variety in the response categories that they used.

All 6 sites were able to collect geographic data on family residence, but one site could only collect this data for some of its programs because the data management system used by its other programs did not require this field. Another site was limited to reporting residential county rather than *Residential Zip Code or Address*, as recommended by Pew.

The remaining program-level variables (*Supervisor-to-Home Visitor Ratio* and *Average Caseload, Full-term or Pre-term Birth, Number of Prior Births*, and *Mother's Ethnicity*) were collected by 4 or 5 of the 6 sites, although Connecticut only captured *Average Caseload, Supervisor-to-Home Visitor Ratio*, and *Number of Prior Births* for mothers participating in some or all of their state-funded programs, and Massachusetts was limited to reporting parity (i.e., singleton, twin, or other multiple) rather than mothers' total number of prior births. The one pilot site (Kansas) that was not able to report on *Full-term or Preterm Birth* for its retrospective sample has since begun collecting gestational age data and so will be able to report on this descriptive factor in the future. Data related to both children's and mother's age was collected by all 6 sites; however, 1 site reported the child and mother's ages at enrollment rather than their dates of birth, as recommended by Pew.

The two descriptive factors that the pilot sites had the most difficult time capturing were *Mother's Contact with Father at Time of Enrollment* and *Dates of Subsequent Home Visits*. Three of the 6 sites reported data on whether the mother had contact with the child's father at enrollment, but one of these sites was only able to do this for participants in MIECHV-funded programs. The fourth site tracked mothers' marital status but not contact with the child's father. The fifth site was only able to report on whether the father was present at the hospital during program enrollment and only for one of its models (Los Angeles County's Welcome Baby program), and the sixth site collected no data about the nature of mother's relationship to or with the child's father.

Notably, only half the pilot sites collected the dates of all home visits, with a fourth site collected this information for participants of their state-funded programs but not their MIECHV-funded programs. Two of the pilot sites did not have access to the dates of home visits following the initial visit for any of their program participants. However, one of these sites was still able to estimate program dosage because it collected the total number of home visits per participant, just not the dates of these visits.

Table 3: Descriptive Factors Reported by the Pilot Sites

Pew's Recommended Descriptive Factors	CT	IA	KS	MA	OK	LAC
Child characteristics:						
Date of Birth	●	●	⊙	●	●	●
Full-term or Preterm Birth	●	●	○	●	●	●
Maternal characteristics:						
Date of birth	●	●	⊙	●	●	●
Number of prior births	⊙	●	○	●	●	●
Race	●	●	●	●	●	●
Ethnicity	●	●	○	●	●	●
Native language	●	●	●	●	●	●
Contact with father at time of enrollment	⊙	●	○	⊙	●	●
Residential address/ Zip code	⊙	●	●	⊙	●	●
Participant service characteristics:						
Date of first home visit	●	●	●	●	●	●
Dates of subsequent home visits	⊙	○	○	●	●	●
Date and reason for termination of enrollment, including successful transitions and early terminations	●	●	⊙	●	●	⊙
Program level data:						
Number of home visits	⊙	●	●	●	●	●
Supervisor-to-home visitor ratio	⊙	●	●	○	●	●
Average caseload	⊙	●	●	○	●	●
Model or Program	●	●	●	●	●	●

Note: ● = Reported Pew descriptive factor; ⊙ = Reported different version of descriptive factor or for only part of sample; ○ = Did not report descriptive factor

Barriers and Facilitators to Implementing Pew's Recommended Home Visiting System Performance Indicators

The following facilitating factors and barriers to pilot sites' ability to collect, analyze, and report the home visiting system performance indicators and descriptive factors recommended by Pew emerged from the pilot sites' project reports, consultation calls with project leadership, and/or group discussions during Data Camp. Some of the factors were specific to a given indicator or descriptive factor, while others were crosscutting or pertained to trying to use administrative data linking to capture home visiting performance.

Cross Cutting Barriers

Pilot sites identified several crosscutting barriers to implementing Pew's recommendations regarding the home visiting system performance indicators. These include:

Multiple Home Visiting Management Information Systems with Different Reporting Requirements

Multiple pilot sites relied on more than one electronic management information system (MIS) to track home visiting services and participant outcomes, making it difficult or impossible to create performance indicators that reflected their entire home visiting system. This drove Kansas's decision to only report data for its MIECHV-funded programs and Los Angeles County's decision to only report data for programs funded by First 5 LA. Frequently, sites used one MIS with a more robust set of data elements to track participants of MIECHV-funded programs and another, more streamlined, IS or ISs to track participants of locally funded programs for whom the reporting requirements were simplified. This is why Connecticut was able to report *Maternal Postpartum Visit* indicator data for participants in MIECHV-funded programs but not for participants in its state-funded programs. Further, when pilot sites were successful in compiling data from disparate MISs to create system-level performance indicators, the process was often laborious and time-consuming, causing them to question whether the outcome was worth the effort. Notably, Massachusetts decided to drop its Early Intervention Partnerships Program sites from its sample partway through the pilot because of the amount of time needed to analyze data from the disparate MISs associated with this model.

Different Data Definitions, Data Collection Requirements & Data Collection Schedules Across Programs

Most of the states/counties participating in the pilot did not have fully standardized data collection and reporting requirements for all of their home visiting programs, resulting in unevenness across programs with respect to which indicators were collected, how, when, and how often. Individual program sites generally made data collection decisions based on mandates and recommendations from the state home visiting administrative office, funders, and, when applicable, the national home visiting models with whom they were affiliated. This made it challenging for sites to present aggregated findings represented of their entire home visiting portfolios.

Complexity and Time Involved in Deriving Indicators

Pilot sites reported that deriving some of the Pew indicators was a more complex and time-consuming process than they first imagined. For instance, Massachusetts noted that it had to take into account

seven different variables (i.e., participant identification number, child identification number, date of enrollment, discharge date, child date of birth, date of last home visit, and date of last well-child visit) in order to construct a single indicator, Well-Child Visits, in alignment with Pew's recommendation. The more variables involved in deriving an indicator, the greater the opportunity for error. As noted above, this was a particular concern when sites had to derive indicators across multiple MISs, but sites noted this as a barrier even when working within one data system.

Uncertain Interpretation of Missing Data

Several pilot sites questioned the data quality of some of their performance indicators. The most commonly cited reason for this was uncertainty about how to interpret missing data as there was no way to distinguish between events that did not occur and events that occurred but were not entered into the data system. For instance, when calculating the *Breastfeeding* indicator, Connecticut questioned whether a blank data field meant that a mother was not breastfeeding, that the home visitor was uncertain about whether the mother was breastfeeding, or that the home visitor had just forgotten to fill in the field. Data quality concerns were also raised when sites merged data from different MISs but retained uncertainty about the comparability of the variables being combined across data systems.

Misalignment of MIECHV Benchmarks and Pew Indicators

Although there is considerable alignment between Pew's recommended home visiting indicators and the current MIECHV benchmarks, some differences remain. When these measures were in conflict, pilot sites typically chose to collect the federally required benchmark rather than Pew's recommended indicator. For instance, for its *Maternal Smoking and Tobacco Use* indicator Connecticut collected data on referrals to smoking cessation programs (MIECHV benchmark) in lieu of data on mothers' smoking behavior which is the focus of Pew's data definition for this outcome area. Other pilot sites collected data on breastfeeding 6 months after birth (MIECHV benchmark) rather than 3 months after birth (Pew indicator). Sensitive to the data collection "burden" imposed on service providers, some of the pilot sites noted their reluctance to require providers to collect two different versions of an indicator, one to satisfy MIECHV requirements and one to align with Pew's recommendations. Notably, one of the Pew indicators that the pilot sites most consistently struggled to capture, *Interbirth Interval*, is the only performance indicator recommended by Pew that is completely absent, in any form, from the MIECHV benchmark list.

Stringent Denominator Criteria

Some indicators only applied to a subpopulation of home visiting recipients once exclusion criteria were applied, raising questions about the effort-to-yield ratio of collecting and analyzing this data. For instance, Massachusetts noted that once it applied Pew's exclusions to the *Post-Partum Health Care* indicator (e.g., mothers enrolled in home visiting prenatally or within 30 days of giving birth), fewer than half (46%) of the families in the sample were left in the denominator. Similar concerns were raised for the other indicators that only apply to subpopulations of home visiting participants. These include *Interbirth Interval*, which is restricted to mothers participating in home visiting before the target child is 3 months old; *Maternal Educational Achievement*, which only applies to mothers who entered home visiting without high school or GED completion; *Maternal Smoking and Tobacco Use*, which is restricted to mothers who report smoking or using tobacco at program enrollment; and *Breastfeeding*, which is restricted to mothers enrolled in home visiting during pregnancy.

Crosscutting Facilitators

Three crosscutting factors emerged as facilitators of pilot sites' ability to implement the Pew home visiting performance indicator recommendations: (1) transition to an integrated data system; (2) dedicated time from internal researcher(s) or external research partner; and (3) mandating home visiting programs' participation in performance data collection.

Transition to an Integrated Data System

Some of the pilot sites successfully leveraged their participation in the Pew initiative to facilitate and accelerate transition to a single, integrated home visiting data system. Other sites had already made this transition or were in the process of making it when the pilot began. Those pilot sites able to retrieve and analyze data from a single integrated MIS in order to calculate Pew's recommended indicators found it much easier, and thus more feasible, to implement Pew's home visiting data for performance recommendations.

Dedicated Time from Internal Researcher(s) or External Research Partner

Sites reported that, because of the time and complexity involved in deriving some of the Pew home visiting performance indicators, it was critical to have a skilled internal researcher or external research partner with sufficient time dedicated to the project in order to clean data, merge datasets when necessary, and write code to analyze the data.

Mandating Home Visiting Programs Participation in Performance Data Collection

Pilot sites that had the most success capturing the Pew indicators were greatly helped by administrative mandates to report home visiting data to the state. One of these sites made a policy decision to mandate that any home visiting program accepting state or federal funding had to track and report a common set of participant- and program-level characteristics to the state's home visiting administrative office as a condition of their funding, which meant that state-funded programs had to report the same data elements that MIECHV-funded sites had to report to fulfill the MIECHV benchmark requirements. This both increased the completeness of data collected across the states' home visiting portfolios and helped standardize the specific data elements being captured.

Variable-Specific Barriers

Maternal Depression Screening and Referral

As previously noted, some sites only collected maternal depression screening data, not referral data. Even when pilot sites collected both screenings and referrals, deriving Pew's *Maternal Depression Screening and Referral* indicator proved challenging for several sites. Reasons for this included the previously noted uncertainty about how to interpret missing data; the complexity of calculating this indicator when participants received multiple screens and multiple referrals; screening and referral data being entered into and queried from different spots in a site's MIS; difficulty determining whether a particular referral followed a particular screen, which was laborious to determine when an MIS collected the dates associated with screening and referrals and virtually impossible when an MIS did not; and the related complexity of weeding out data for mothers who were referred for mental health treatment prior to a positive screening for depression.

Additionally, Massachusetts observed in their final report that information about maternal mental health screens and treatment referrals are “divorced from each other both in the user interface (i.e., hard for practitioners to document) and data dumps (i.e., having variables in multiple places, sometimes duplicated, with different variable names makes it hard to analyze).” Instrument uniformity facilitated data analysis for this indicator, (i.e., if all the home visiting programs in the state/county used the Edinburgh Postnatal Depression Scale to screen for maternal depression then only one cut-off had to be applied to the scores to derive the rate of positive screens for the state/county) and separate analyses were not required for the subgroups of mothers who were screened with different instruments.

Postpartum Health Care Visit

Some of the pilot sites did not collect any data for this indicator area or collected it inconsistently across programs or funding sources. Among the pilot sites that collected data on this indicator area for participants in all their programs, some still had trouble calculating the indicator according to Pew’s recommendations. For instance, Massachusetts struggled to derive this variable for a number of families who were missing data on children’s dates of birth. Connecticut only had access to user-indicated data regarding postpartum health visits and no dates. Oklahoma did not collect data on this indicator during the analysis time frame and its efforts to obtain the data retrospectively via administrative data linkage to Oklahoma Medicaid Services was ultimately unsuccessful.

Interbirth Interval

Only half the sites tracked this indicator and most of them found it problematic because of some of the crosscutting barriers previously described. For instance, Massachusetts noted that very few people (less than 17% of their sample) met the denominator criteria (i.e., enrolled prenatally or within 90 days of child’s birth and were still enrolled 18 months after child’s birth); and they could not report a numerator because they lacked consistent data on second births in their MIS because of inconsistent reporting requirements across programs. Some of the sites did not consider this indicator to be a high priority because they were focused on adapting their data collection systems to track the new MIECHV benchmarks, which do not include any reporting requirements related to birth spacing.

Maternal Educational Achievement

All 6 pilot sites were able to report on *Maternal Educational Achievement* for their sample of home visiting participants as defined by Pew, demonstrating the feasibility of this indicator. However, several of the sites expressed uncertainty about how to measure this outcome for mothers who enrolled in school or a GED course after they enrolled in home visiting but dropped out before completing their education. The current Pew indicator definition does not clearly specify whether these mothers should be given “credit” for schooling, even for a time, and therefore be included in the numerator. One site also observed that Pew’s indicator for maternal educational achievement makes no distinction between the educational progress of teen parents currently enrolled in high school and adult parents who dropped out of school, and wondered whether the educational progress of these two distinct groups of mothers should be tracked separately.

Child Development Screening and Referral

As with the *Maternal Depression Screening and Referral indicator*, some sites only collected information on child development screening, not whether screens resulted in referrals to developmental support services. Among the three pilot sites that were able to collect both screening and referral data, a common challenge that emerged concerned how to handle data for children who were already receiving developmental support services before they were screened. The pilot sites suggested that this indicator be revised so that children already receiving developmental services are excluded from the denominator, as home visiting programs would have no reason to re-refer them for services. One site also noted that their state collects data on multiple screens and multiple referrals, making it difficult to discern whether a particular referral followed from a particular screen. This was further complicated by the fact that screening and referral data had to be queried from two different spots in the database, making it easier to report the percent of children screened and the percent of children referred separately, as opposed to combining this data into a single “double-barreled” indicator, as recommended by Pew.

Child Maltreatment

Child maltreatment is the only indicator for which Pew’s definition specifies that data be collected via linkage to administrative data from another service system, and, notably, only 2 of the pilot sites were able to obtain child maltreatment indicator data this way. The most frequently cited obstacle was a lack of cooperation from the state/county child welfare agency in possession of the child welfare report data needed to calculate the indicator. As previously mentioned, Iowa was forced to abandon its hope of obtaining data for this indicator when the state child welfare agency decided against providing the state home visiting office with individual-level child welfare data due to privacy concerns and would only provide aggregated data for a fee that exceeded the state home visiting administrative office’s resources. Another pilot site found that one of its MISs tracked reports to child protective services, but not dates; therefore, the site could determine if a child had ever been reported, but not whether the report happened before or after the family’s involvement in home visiting. Three of the pilot sites were forced to use home visitor records instead of child welfare agency records to measure child maltreatment. They expressed concern that this data was necessarily truncated (i.e., only capturing reports occurring while families were enrolled in home visiting, not after) and, they suspected, subject to social desirability bias. The two sites that were able to implement Pew’s recommendation to capture this indicator via administrative linkage each had a pre-existing data sharing MOU between the state departments responsible for child welfare and home visiting. Some of the pilot sites were unable to execute an MOU of this kind during the 10-month pilot project but continue to pursue this goal. If they are successful, this will indicate that Pew’s *Child Maltreatment* indicator is not unfeasible but requires sufficient time to negotiate and execute the necessary inter-agency data sharing agreements.

Well-Child Visits

Of all the indicators, pilot sites found this one to be the most onerous to derive, largely because it is time and age dependent. Some of the pilot sites learned that only some home visiting models in their state/county tracked well-child visits, while others did not.

Maternal Smoking & Tobacco Use

Similar to *Maternal Educational Attainment*, this indicator raised questions about whether the numerator should “count” (include) mothers who quit smoking/using tobacco at any time during program

participation or only mothers who remained tobacco-free at the end of the data collection period or program termination. Pilot site data confirms that some mothers quit smoking/using tobacco but then start back up again later in the program.

Breastfeeding

This last indicator was viewed by the pilot sites as being one of the easiest and most straightforward to capture. Nevertheless, some of the pilot sites chose to report breastfeeding outcomes at 6 months postpartum, in accordance with the MIECHV benchmark for this indicator area, rather than follow Pew's recommendation to measure this indicator at 3 months postpartum. Nevertheless, there was consensus among the pilot sites that continued breastfeeding for 6 months was not a realistic goal for many of the mothers enrolled in home visiting, given that these women are often employed in low-wage jobs that do not make it easy for them to pump and store breastmilk. The pilot sites thought the 6-month indicator "under counted" the work that mothers enrolled in home visiting programs do to breastfeed for as long as possible given their circumstances and the work that home visitors do to support this. While sites did not want to collect two different breastfeeding indicators because of concerns about redundancy and increasing the data collection burden on home visitors, they expressed hope that HRSA would adopt Pew's 3-month indicator the next time that the MIECHV benchmarks are revised. Another issue that emerged regarding this indicator is the need to clarify that breastfeeding includes feeding infants pumped breastmilk via a bottle, not just from the breast. With respect to data collection facilitators, pilot sites with standardized reporting schedules for this outcome found it easier to analyze the data.

Barriers and Facilitators to Implementing Pew's Recommended Home Visiting System Descriptive Factors

Overall, the pilot sites were able to capture Pew's recommended home visiting Descriptive Factors with greater ease than the Performance Indicators.

Crosscutting Barriers

They did not identify any crosscutting barriers to collecting, analyzing, or reporting these data elements. They did, however, identify four crosscutting factors that facilitated their ability to do so: (1) data on the Descriptive Factors were already being collected by the local program site and recorded in their MIS(s); (2) most of the Descriptive Factors were straightforward to calculate or derive; (3) some sites had a universal client information form that captured all or most of the child- and family-level factors in a consistent format, and (4) some sites were helped by the fact that all of their Descriptive Factors data were accessible through a single database.

Data Already Being Collected

In most cases, the pilot sites were already collecting the Descriptive Factors data and recording them in their MISs in order to comply with the MIECHV Benchmarks and other data reporting requirements, so implementing Pew's recommendations did not result in additional data collection burden for the local programs or the state/county home visiting administrative office. This also meant that code already existed to derive and analyze many of these variables.

Straightforward to Calculate

The pilot sites considered these variables to straightforward to calculate. They rarely required sites to extract data from different parts of state/county home visiting MISs, rarely required more than a couple variables to derive, were mostly fixed rather than time-dependent, and, unlike some of the Performance Indicators, did not require that sites answer double-barreled questions.

Universal Forms

The pilot sites that found it easiest to calculate and report Pew's Descriptive Factors benefitted from the existence of a universal form for new home visiting program enrollees documenting most or all of the individual- and family-level information about home visiting participants that Pew recommends capturing.

Single Database

The pilot sites that used a single database to house information on participants of all of their home visiting programs, regardless of funding source or program model, found that this facilitated their ability to acquire and analyze Pew's individual- and family-level Descriptive Factors.

Variable-Specific Barriers and Facilitators

Child Date of Birth

This Descriptive Factor was easily captured by all but one of the pilot sites, which tracked participants' age at enrollment rather than their dates of birth. Another site reported uncertainty about how to interpret missing data in the case of participants enrolled prenatally, as it was unclear whether data was missing because dates were not properly documented or because the participant was discharged before birth.

Preterm vs. Full-Term Birth

The pilot sites had little difficulty capturing this Descriptive Factor. All but one of the sites were already collecting it. The sixth site did not collect information regarding gestational age at birth (or estimated due date) during the sampling year, but has since begun to do so.

Mother's Date of Birth

As with *Child Date of Birth*, most of the pilot sites found that this Descriptive Factor was easy to capture. However, 1 site was impeded by the fact that their MIS tracked program participants' age at enrollment instead of birth dates.

Number of Prior Births

This factor was easy for sites to analyze and report so long as mothers were asked this question and there was a data field in their MISs to capture the response. Two of the pilot sites did not report this Descriptive Factor because not all of their programs recorded this information. Connecticut only captured mothers' *Number of Prior Births* for its state-funded Parents as Teachers (PAT) sites. Massachusetts also had inconsistent data on this factor and so defaulted to presenting data on parity (i.e., singleton, twins, etc.) instead.

Caregiver Race

Although 1 pilot site observed that this Descriptive Factor was sometimes messy and time-intensive to clean and analyze, all of the sites were able to do so. The response categories for this variable were not predefined by Pew, but all but 1 of the sites opted to use the 2010 U.S. Census response categories: (a)

American Indian/Alaskan Native, (b) Asian, (c) Black or African American, (d) Native Hawaiian/Pacific Islander, (e) White, (f) Multiracial, (g) Other, and (h) Unknown/Missing. The remaining pilot site conflated Hispanicity and race into a single variable.

Caregiver Ethnicity

With the exception of the pilot site that conflated *Caregiver Race* and *Caregiver Ethnicity* (specifically, Hispanicity) into a single variable, the pilot sites were able to capture this Descriptive Factor with relative ease. All of them opted to use the 2010 U.S. Census ethnicity response categories of: (a) Hispanic/Latino, (b) Not Hispanic/Latino, and (c) Unknown.

Native Language

None of the pilot sites had any difficulty obtaining and reporting this information, although they varied in the response categories that they used based on their sample's most common countries of origin and the response categories specified in the MIECHV benchmark reporting instructions.

Contact with Father at Time of Enrollment

One of the more challenging Descriptive Factors for the pilot sites to capture, only two sites reported father involvement in the way that Pew recommended. However, Kansas was the only pilot site that did not track father involvement in any way. The primary barrier that the pilot sites encountered in fully implementing Pew's recommendations for this variable was that their MIS(s) tracked father involvement in some other way. For instance, Massachusetts tracked whether enrolled mothers were married, separated, single/never married, or other, while Iowa used a Likert scale item on the Life Skills Progression Inventory to measure mother's relationship with their "boyfriend, FOB, or Spouse" (ranging from 1 = hostile, violent, or physically abusive family relationships to 5 = very supportive, mutually nurturing family relationships). Although their measurement strategies varied, the pilot sites recognized the value of collecting data on father involvement and thought it would be helpful to foster agreement about response categories to facilitate cross-site comparisons.

Residential Address or Zip Code

Given the nature of home visiting, this data was always available from the local home visiting programs and easy for almost all the pilot sites to capture. However, one site could not report on it because the state's home visiting MIS only recorded participant's county of residence during the sampling period. This would be easy to correct prospectively.

Dates of First Home Visit

None of the pilot sites reported any barriers to capturing or reporting this data.

Dates of Subsequent Home Visits

Half of the pilot sites did not report this Descriptive Factor. In all three cases this was because their MISs simply did not track this information, although one site was able to estimate program dosage anyway by tracking the total number of home visits a family received rather than the dates of the visits. This suggests that some states/counties will have to collect additional detail in their electronic participant records in order to make it feasible for them to report on this Descriptive Factor.

Date and Reason for Termination

Termination dates were universally obtainable for all 6 pilot sites, and 5 of these sites also tracked reasons for termination, although the response options varied considerably, limiting the capacity for cross-site comparison. Multiple MISs with different data collection fields and different reporting requirements for different home visiting programs resulted in one site only being able to report termination reasons for some of their sample.

Number of Home Visits (Program Level)

While most of the pilot sites were able to report this information, it was often time consuming to analyze and some sites questioned the reliability of the data.

Supervisor-to-Home Visitor Ratio (Program Level)

As with the *Number of Home Visits*, most of the pilot sites were able to report *Supervisor-to-Home Visitor Ratio*, but it was often time consuming to analyze and some sites questioned the reliability of the data. One site was unable to report any data related to this factor because their MISs did not include relevant data fields.

Average Caseload (Program Level)

As with the other program level Descriptive Factors, most of the pilot sites were able to report *Average Caseload*, but it was often time consuming to analyze and some sites questioned the reliability of the data. One site was unable to report any data related to this factor because their MISs did not include relevant data fields.

Model or Program

None of the pilot sites reported any obstacles to collecting this data.

Barriers and Facilitators to Collecting Pew's Recommended Home Visiting System Data Via Administrative Data Linkage

One of the key criteria that guided Pew's selection of the home visiting system performance indicators was that they should, whenever possible, "capitalize on available state administrative data, thereby reducing the data collection burden on local programs" (The Pew Charitable Trusts, 2015, p.6). While Pew's *Child Maltreatment* performance indicator is the only one that requires, by definition, that home visiting administrative agencies acquire data by linking participant IDs to administrative records from another state agency, states/counties were encouraged to experiment with acquiring performance data for other indicators this way as well. Consequently, one of the feasibility study's primary research questions is: How feasible is it for states/counties to access home visiting system performance indicator data through administrative data linkage with other service systems' (e.g., child welfare, vital records, Medicaid) electronic records, and how does this compare to the alternative of relying on home visitor case records for this data?" Each of the 6 pilot sites included in this study agreed to attempt to measure at least one of Pew's home visiting system performance indicators via administrative data linkage as a condition of their participation in the pilot. It is therefore informative that only 2 of the pilot sites, Kansas and Oklahoma, were ultimately successful in doing so.

Data Sharing Memorandums of Understanding

The primary facilitator of the pilot sites obtaining home visiting performance data via administrative data linkage was the existence of a data sharing Memorandum of Understanding (MOU) between the home visiting agency and the other state/county agency whose records were to be accessed. Despite good faith efforts by each of the pilot sites, obtaining these MOUs proved to be a complicated and lengthy process for most. None of the pilot sites succeeded in executing a data sharing MOU of this kind during the 10-month project period. The two pilot sites that were able to secure performance data this way had pre-existing MOUs with their state child welfare agencies allowing them to link home visiting and child welfare report records. This highlights the importance of allowing ample time for this process to unfold and planning for the multiple stages involved in this process: relationship and trust building between agencies, initial negotiation of the terms of the MOU, drafting the MOU, having lawyers from both agencies review the MOU, revising the MOU based on the lawyers' feedback, re-review by lawyers, final review, and, hopefully, approval by agency leadership, as well as all of the meetings and conversations that take place along the way to ensure that key stakeholders understand the need for the MOU and support its execution. Several of the pilot sites that were unable to report on the Pew version of this indicator during the pilot continue to pursue MOUs with their child welfare partners because they recognize the value of tracking home visiting participant child maltreatment outcomes in this way.

Data Privacy Concerns and Consent Forms

The primary barrier to the pilot sites using administrative data linkage to measure home visiting system performance was insufficient planning and time, but concerns about data privacy was a close second. Several of the pilot sites were unable to convince their child welfare agency or other state partners (e.g., Medicaid, vital records) to release individual client records given that the retrospective design of the study meant that home visiting participants had not been asked to sign consents specifying that the state could access their other service system records. As part of the project, the pilot sites received coaching from expert consultants from the Children's Data Network (CDN) at the University of Southern California on how to address data privacy concerns regarding administrative data linkage, but the strategies that CDN recommended were not always successful in overcoming resistance from state partner agencies, at least not in the short term. For instance, the pilot sites were informed that this work could be considered an in-house "program evaluation" rather than "research" designed to "develop or contribute to generalizable knowledge" (45 CFR 46⁹) and therefore was not necessarily subject to Institutional Review Board (IRB) approval. Pilot sites were also given sample IRB application language that CDN had used successfully in the past to obtain IRB and government agency approval to access and link client records when obtaining individual client consent to do this retrospectively was not feasible. However, several of the pilot sites found that their state agency partners remained leery of sharing their data despite this feedback, particularly in an identified or even de-identified individual-level format. Some sites had to obtain two

⁹ Title 45 of the Code of Federal Regulations, Public Welfare Department of Health and Human Services Part 46 Protection of Human Subjects (Effective July 14, 2009).

levels of approval before linking their data with records from another state agency, one from an IRB and the other from an internal state agency data privacy review team that was, in at least one instance, more conservative about data sharing than the IRB. Concerns tended to center around the fact that this kind of data linkage involves the use of unique client identifiers in order to perform the initial match, even though these identifiers can be stripped as soon as the data files are linked. Notably, the pilot sites did not conclude from their pilot experience that obtaining home visiting system performance data via electronic linkage to child welfare or other state agency administrative records was unfeasible; rather, they concluded that it may be more effective to attempt this prospectively, aided by the adoption of a standardized consent form that would allow home visiting participants to expressly grant permission to access their records from other state agencies for research and evaluation purposes to address data privacy concerns. There was an interest in receiving sample consent language that would help home visiting participants understand this request, allay ungrounded fears about compromising their privacy, and encourage them to sign the consent.

RECOMMENDATIONS

The results of this study provide reassurance that much of the original Pew “Framework for Using Data to Measure Home Visiting Performance” is feasible for states/counties to implement. However, it also highlights several ways in which the original recommendations should be scaled back, revised, or clarified to help states/counties measure their home visiting systems’ performance in ways that are both meaningful and realistic given the state of the field. Based on the experience of the six pilot sites included in this study, we recommend several revisions, enumerated below, to the Pew Performance Indicators and Descriptive Factors. First, however, we present three crosscutting recommendations for how states/counties can maximize their capacity to collect, analyze and report on the performance of the home visiting systems highlighted by the pilot sites’ experience.

Crosscutting Recommendations

Collect Dates

The experiences of the pilot sites underscore the importance of instructing home visitors to record the dates that critical events—such as maternal depression and child development screenings and referrals or each home visit—occur, not just whether they occurred. It takes no more effort for a home visitor to note the date that a mother had a postpartum health care visit than it does for her to record that “yes” this visit occurred. Without event dates it is not possible to calculate several of the Pew indicators which take into account whether important events, like well-child visits, occur within a reasonable time frame, nor is it possible to determine whether important outcomes occurred before or after home visiting program enrollment. Documenting the date for each completed home visit not only provides an accurate measure of service dosage but also offers a more nuanced understanding of the gaps between home visits and the degree to which visits are provided as recommended by the various national models. Obtaining key event dates requires that home visiting MISs collect this information.

Move to Single Integrated Home Visiting Data Management Information System

The pilot sites that had a single integrated home visiting data management system for all their home visiting programs’ participants had an easier time participating in the data pilot. They did not have to engage in the time-consuming and often complex process of merging datasets, determining which source variables correspond with each other, and writing code to derive indicators that have a consistent meaning regardless of the original MIS their source data was pulled from. Therefore, we highly recommend that states/counties develop or purchase a single integrated home visiting data system or establish data warehouses that captures essential data for all home visiting programs, regardless of model or funding source.

Standardize Reporting Requirements

The only way that states/counties can ensure that they will be able to capture all of Pew’s recommended performance indicators and descriptive factors is if they work with other funders and home visiting stakeholders to agree on a concise list of standardized data elements needed to produce the indicators/descriptive factors that all of their home visiting programs will share with the state/county. Given the substantial overlap between the new MIECHV benchmarks and the Pew indicators, this should

not be difficult to negotiate with MIECHV-funded programs. For state- and county-funded programs, local governments may want to consider replicating Oklahoma’s example and make this data reporting requirement a requisite of program funding.

Enhanced Training of Home Visitors around Data Collection

The ultimate utility of any data collection system depends on the quality of the data entered. Instances in which home visitors misinterpret response choices, fail to ask all relevant questions, or fail to record nonresponses as well as responses, can result in variables that are unreliable or have high levels of missing data. Maximizing the return from investment in more rigorous and consistent measurement approaches requires a comparable investment in staff training and supervision. Improving data quality will require consistent training of all home visitors and supervisors on the importance of accurately documenting participant characteristics, service experience and outcomes. In addition, staff resources need to be invested in insuring that data are regularly checked for completeness and accuracy at the program level before being forwarded to state/county administrators.

Recommended Changes to Performance Indicators

The results of this feasibility study suggest that the Pew home visiting data for performance indicators be revised in the following ways, summarized below and detailed in **Appendix C**.

Maternal Depression Screening and Referral

The pilot sites noted that some mothers in their samples were already receiving mental health treatment for depression before they enrolled in home visiting services and/or before they would normally be screened for this condition. Since it does not make sense to re-refer these mothers for treatment that they are already receiving, we recommend revising Pew’s Maternal Depression Screening and Referral indicator so that both the numerator and the denominator exclude women already receiving treatment for depression.

Interbirth Interval

Pew originally recommended that all states report *Interbirth Interval*—the length of time or spacing between births—as a home visiting system performance indicator because of its association with increased risk of adverse maternal and infant health outcomes, including low birth weight, preterm birth, obstetrical complications, and infant mortality,¹⁰ and the positive association between longer birth intervals and maternal educational achievement, employment, and family self-sufficiency.¹¹ We encourage states/counties to continue to find ways to track this indicator because of its power to predict these important maternal and child outcomes. However, it is clear from our study results that many states/counties are not in a good position to track this indicator for their home visiting participants at this

¹⁰ “Technical Assistance Resource,” Centers for Medicare & Medicaid Services, February 2015, <http://www.medicaid.gov/medicaid-chip-program-information/by-topics/quality-of-care/downloads/strategies-to-improve-postpartum-care.pdf>.

¹¹ Casey Copen, Marie Thoma, and Sharon Kirmeyer, “Interpregnancy Intervals in the United States: Data From the Birth Certificate and the National Survey of Family Growth,” National Vital Statistics Reports 64, no. 3 (2015): 1–11, http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_03.pdf.

time. Their first priority is building their data collection infrastructure to track home visitor indicator areas that overlap with the new MIECHV benchmarks (which do not include birth spacing). Moreover, for states who have primarily invested in home visiting program models that serve postpartum mothers, this indicator is frequently irrelevant and difficult to capture because of its brief measurement window. The numerator, “number of mothers participating in home visiting program before the target child is 3 months who had an interbirth interval of at least 18 months” only applies to families enrolled prenatally or shortly after birth who remained in the program for at least a year and half after childbirth. Some states may have trouble justifying the effort involved in tracking this indicator when it can only be measured for a small percentage of their home visiting population. Therefore, we recommend that *Interbirth Interval* be removed from Pew’s list of essential home visiting system performance indicators now and instead be considered a recommended, but nonessential, home visiting system performance indicator, similar to infant mortality and birth weight. We also encourage states to explore other ways to measure this concept either by implementing post-termination contact with program participants or by tracking subsequent births to program participants through administrative data systems (e.g., Vital Records).

Child Development Screening and Referral

Similar to the *Maternal Depression Screening and Referral* indicator, the pilot sites noted that their samples included children who were already receiving developmental support services (i.e., Early Intervention) when they enrolled in home visiting services and/or before they were scheduled to receive their first developmental screening. It does not make sense to re-refer these children for developmental services that they are already receiving. Therefore, we recommend revising Pew’s Child Development Screening and Referral indicator so that both the numerator and the denominator exclude children who are already receiving developmental support services.

Breastfeeding

The pilot sites expressed a preference for Pew’s *Breastfeeding* indicator, measured 3 months after birth, over the MIECHV benchmark that measures breastfeeding 6 months after birth, because their experience suggests that it is more realistic for the mostly low-income mothers participating in their home visiting programs, many of whom are working in jobs that make it difficult to regularly pump and store breastmilk. When these women are unable to pump at work, they lose their milk supply and cannot continue to breastfeed at home. However, a number of the pilot sites hesitated to ask program sites to collect both indicators because they did not want to overburden home visitors with additional and largely redundant requests. We continue to encourage states/counties to ask mothers about breastfeeding at 3 months postpartum since this only requires one additional data collection point and will probably increase their ability to document program success in this domain, but we agree that sites should not be expected to collect two, highly similar, indicators for this outcome area. Therefore, we recommend that the Pew *Breastfeeding* indicator be brought into alignment with the MIECHV 6-month postpartum breastfeeding benchmark for the time being, but that HRSA swap its less realistic measure for the still challenging, but more achievable, 3-month measure recommended by Pew the next time that the MIECHV benchmarks are updated. We also recommend that this indicator be clarified so that the numerator includes mothers who are feeding their infants pumped breastmilk in a bottle. Otherwise, the breastfeeding goal stands in

opposition to the broader public policy goal of economic self-sufficiency for many families enrolled in home visiting programs.

Maternal Smoking or Tobacco Use

The Pew indicator for *Maternal Smoking or Tobacco Use* is an outcome indicator that captures the rate of mothers who quit smoking while enrolled in a home visiting program whereas the MIECHV breastfeeding benchmark is a process measure that captures the rate of smoking or tobacco-using mothers who are referred to a tobacco cessation program. Some of the pilot sites only collected the MIECHV benchmark data for this indicator. Nevertheless, there was consensus among the pilot sites that Pew should not default to the MIECHV measure for this domain. The pilot sites agreed that states should and could collect data on changes in mothers' actual tobacco use and that this was worth the data collection and analysis effort. However, several of the pilot sites critiqued Pew's measure (quitting) as being overly blunt and noted that it is time dependent (i.e., subject to change at any given moment) and that their data suggests that some mothers quit smoking while pregnant only to resume smoking postdelivery. They also expressed concern that merely tracking quitting may invite data validity problems because of social desirability bias. Therefore, we are recommending that Pew retain but modify this indicator so that it consists of two data items: the percentage of mothers enrolled prenatally who quit smoking/using tobacco and remained tobacco-free throughout their pregnancy and changes in the amount of tobacco mothers use (e.g., the number of cigarettes smoked per week) between enrollment and program completion or the end point of data collection. Because smoking use may well vary over time, we recommend programs consider asking participants questions about their tobacco use at multiple points during the enrollment.

Child Maltreatment

While most of the pilot sites struggled to capture this indicator via linkage to child welfare agency records as suggested by Pew, we recommend that Pew nevertheless retain this indicator. Collecting this data may be difficult, but most of the pilot sites remained hopeful and committed to attempting to do so even when they were unable to achieve this goal during the 10-month pilot. Child maltreatment prevention remains a major selling point for public investment in home visiting services. Several research studies documenting home visiting's child maltreatment prevention effects find that these effects appear after families

complete home visiting,¹² which means that using home visitor reports rather than child welfare records to capture this outcome may very well impede the detection of maltreatment prevention effects. Moreover, a major obstacle that the pilot sites encountered in obtaining this data was the retrospective design of the feasibility study, which meant that they had to convince their child welfare partners to share highly sensitive individual client data without client consent. We anticipate that states/counties will have an easier time convincing their child welfare partners to share this data prospectively if they implement a universal consent process for all home visiting participants that allows the child welfare agency to release information regarding their child welfare involvement status with the understanding that this information will only be used for research and evaluation purposes and any reporting of this data will be completely de-identified and aggregated. While we recommend that states/counties continue to work toward capturing this indicator, we do recommend a minor change to the data definition. In order to more fully align with the MIECHV benchmark for child maltreatment, we recommend that Pew revise this indicator to focus on *investigated* child maltreatment reports.

Recommended Changes to Descriptive Factors

As a whole, the pilot sites had little trouble capturing Pew’s Descriptive Factors and so we recommend only minor revisions. These are described below and detailed in **Appendix D**.

Eliminate Most of the Program-Level Descriptive Factors

Most home visiting MISs are designed to capture participant-level information rather than program-level information, which made it difficult and time consuming for many of the pilot sites to analyze the typical *Number of Home Visits*, *Supervisor-to-Home Visitor Ratio*, and *Average Caseload* for the programs in their samples. Even though several sites succeeded in reporting this information, they lacked confidence in their data’s validity. Thus, the effort-to-benefit ratio for these Descriptive Factors appears lopsided, making it hard to justify asking states/counties to continue to report on them, particularly when

¹² See:

- DuMont, K., Kirkland, K., Mitchell-Herzfeld, S., Ehrhard-Dietzel, S., Rodriguez, M. L., Lee, E., Layne, C., & Greene, R. (2010). “A randomized trial of Healthy Families New York (HFNY): Does home visiting prevent child maltreatment?” Rensselaer, NY: New York State Office of Children & Family Services and Albany, NY: The University of Albany, State University of New York, 2010.;
- Olds, D. L., Eckenrode, J., Henderson, C. R., Kitzman, H., Powers, J., Cole, R., et al. (1997). Long-term effects of home visitation on maternal life course and child abuse and neglect. Fifteen-year follow-up of a randomized trial. *JAMA: The Journal of the American Medical Association*, 278(8), 637–643; and
- Zielinski, D. S., Eckenrode, J., & Olds, D. L. (2009). Nurse home visitation and the prevention of child maltreatment: Impact on the timing of official reports. *Development and Psychopathology*, 21(2), 441–453. doi:10.1017/S0954579409000248

states/counties can use their Model or Program information to obtain these descriptors as reported by the models.

Standardize Response Options

Most of the pilot sites were able to capture *Mother's Race*, *Mother's Ethnicity*, *Native Language*, *Date and Reason for Termination of Enrollment*, and some information about father involvement. However, the potential for aggregating or comparing home visiting system performance across states/counties is hindered by their using different option sets for coding responses. Therefore, we recommend that Pew retain these Descriptive Factors but standardize the response categories for each. *Mother's Race* and *Ethnicity* should include the options that the Office of Management and Budget requires federal agencies, including the U.S. Census Bureau, to use. For race these are: (a) One Race, American Indian/Alaska Native, (b) One Race, Asian, (c) One Race, Black or African American, (d) One Race, Native Hawaiian or Other Pacific Islander, (e) One Race, White, (f) One Race, Some Other Race, and (g) Two or More Races. For ethnicity, these are: (a) Hispanic or Latino, and (b) Not Hispanic or Latino. For both *Mother's Race* and *Mother's Ethnicity*, we recommend inclusion of two additional response categories: "Other" and "Unknown/Did Not Report." For *Native Language*, we recommend that states/counties use the response categories included in the MIECHV benchmark instructions for recording index children's native language: (a) English, (b) Spanish, (c) Arabic, (d) Chinese, (e) French, (f) Italian, (g) Japanese, (h) Korean, (i) Polish, (j) Russian, (k) Tagalog, (l) Vietnamese, (m) Tribal languages, (n) Other, and (o) Unknown/Did Not Report.

Individual states/counties may decide to collect additional detail allowing them to disaggregate any of these categories, but at a minimum they should be prepared to categorize the race, ethnicity, and native language of the mothers participating in their program using these schema. For *Date and Reason for Termination of Enrollment* we suggest the following option set, which aligns with the MIECHV benchmark reporting instructions, be used: (a) currently receiving services, (b) completed program, (c) stopped services before completion, (d) other. For quality assurance purposes, states/counties are encouraged to collect additional detail about families in the "stopped services before completion" category to better understand why some families drop out of their home visiting programs. Lastly, we recommend that sites track contact with the focal child's father using the following option set: (1) Yes, mother was in contact with biological father at time of home visiting program enrollment or (2) No, mother was not in contact with biological father at time of home visiting program enrollment (which includes both situations in which the father is unknown and in which the father is known but not in touch with the mother). As with the other Descriptive Factors discussed here, state/counties may choose to collect additional information about fathers' involvement that allows them to identify subgroups within these two broad categories.

Advancing These Recommendations

Dissemination of Revised Recommendations at the National Summit on Quality in Home Visiting Programs

The Phase II results will be presented at the opening plenary at the National Summit on Quality in Home Visiting Programs scheduled to be held in Washington, DC in January 2018. As part of the panel, the report authors will present the history of the Pew Home Visiting Data for Performance Initiative, the need for home visitors to play a central role in data collection and "telling the story" of the program's impacts, and

a brief summary of Phase II activities. We will introduce participants to the final recommended list of indicators in all domains, including *Parental Capacity* and *Child Development*, and summarize the key lessons learned from the feasibility study. We will be joined by a representative from one of the pilot sites who will underscore the value for states in consistently measuring impacts across multiple home visiting models and, more importantly, the role high-quality data plays in advancing public policy in the area of early childhood. The final presenter will be a representative of the national models, confirming the models' commitment to seeking better cross-model alignment in outcome measures.

Coordinate with Others Seeking Greater Alignment in Core Outcomes Across Early Childhood Programs

A number of efforts are underway to improve the capacity of states to document the collective impacts from their investments in a range of early childhood services, all of which offer an opportunity to extend the use of the Pew Indicators and lessons from our pilot test beyond early home visiting. For example, Child Trends, a nonprofit research organization, has recently been funded by the Heising-Simons Foundation to help states link their home visiting data with state early childhood integrated data systems (ECIDS) or state longitudinal data systems. Child Trends has a rich history through their Early Childhood Data Collaborative on working to include early childhood data into state integrated data systems and is now turning some focus to home visiting data. At the moment, no state has linked their home visiting data to their ECIDS and, as we observed in the pilot project, few states are skilled in linking home visiting participant data with other administrative data systems. The Child Trends project will provide direct technical assistance to a select number of states to help them link their home visiting data with their ECIDS and develop a toolkit of resources to help other states with this process. This may lead to an opportunity to organize a webinar for state home visiting administrators during which Child Trends can share this toolkit.

Similarly, the Pritzker Children's Initiative (PCI) has embarked on a new effort to identify a list of child outcome, state process, and local process measures, which would be used to track progress in jurisdictions participating in the PCI prenatal-3 initiative. The list will include a small core set of required indicators that would be tracked across all participating states and communities and would include a menu of additional metrics that would be tracked where possible and as approved by state or local leadership.

In both of these instances we have shared our recommended indicators with project staff and have encouraged them to incorporate our indicators into their proposed data systems. If requested, we will continue to provide feedback on their recommended procedures paying particular attention to the lessons we have learned from our feasibility study.

Work with the National Alliance of Evidence-Based Home Visiting Programs to Achieve Consensus on Core Outcomes Across Models

The National Alliance of Evidence-Based Home Visiting Models is a partnership among eight national home visiting models engaged in efforts to improve individual program performance by sharing promising and best practices and advocating for greater system integration and alignment. Among the areas of great interest to the models is clarifying common outcome domains and related performance indicators. Model representatives have been active participants in all of the activities related to our Phase II work. Going forward, we will continue to work with the Alliance around issues of measurement, particularly as they

focus on revising their internal data collection systems. If this group of national early home visiting models agree to incorporate consistent measures of core outcomes domains, such as our recommended parental capacity measures, their efforts will increase the likelihood and ability of states to advocate for greater collaboration across their agencies. Similarly, the models can be helpful in revising consent forms to ensure that their program participants understand the rationale for using administrative data sources to track subsequent involvement in child welfare, education, and other social service systems and provide state agencies to conduct such research.

Work with the Association of State and Tribal Home Visiting Initiatives (ASTHVI) to Assess Uptake of Original and Revised Recommendations

We will design a brief survey for state home visiting program administrators to assess which of the Pew indicators and descriptive factors they are currently collecting and the reasoning behind any decisions to not capture an indicator or descriptive factor. We will present the draft survey to the Association of State and Tribal Home Visiting Initiatives (ASTHVI) Data Collection Committee and request their help in disseminating the survey. The survey will serve the dual purposes of educating or reminding state home visiting administrators about the Pew Data for Performance Initiative and the revised recommendations, and its findings will also inform ongoing efforts to support states uptake the Pew DPI recommendations.

Work with the Association of State and Tribal Home Visiting Initiatives (ASTHVI) and Other Partners to Develop and Disseminate a Universal Consent Form for Linkage to Other Service Records

We will encourage the ASHTVI Data Collection committee to work in partnership with the National Alliance of Evidence-Based Home Visiting Models to develop a universal home visiting participant consent form that can be used by any home visiting program to obtain written consent to access home visiting participants' service records from other systems for research and evaluation purposes, including performance reporting. We also will work with this committee to organize a series of webinars for MIECHV grantees and Lead Implementing Agencies (LIAs) about the importance of evaluation and how to train home visiting staff to present the consent to new enrollees so that they are fully informed about the risks and benefits of consenting to allowing administrative data linkage, but in such a way as to allay unfounded fears about data privacy and encourage them to sign the consent.

Partner with the Home Visiting Research Coalition (HVRC) to Link States with Limited Internal Research Capacity with External Research Partners

The survey will help us identify states that are prevented from implementing the Pew DPI recommendations because they lack the internal capacity to manage and analyze the data. We will partner with the Home Visiting Research Coalition (HVRC) network of researchers and practitioners to link these state home visiting administrators to researchers from (local) universities and research-to-practice organizations that can help them analyze their performance data. We will also advocate for federal funding to support these partnerships as a critical infrastructure component necessary for high-quality program development. For instance, we will recommend to HRSA that it include explicit attention to developing a research partner in states' MIECHV implementation plans.

Work with Vendors of Home Visiting Data Collection Systems to Ensure Inclusion of Data Fields for Each of the Pew Indicators and Descriptive Factors Component Variables

While some states/counties design their own web applications for building and managing their home visiting databases, others have invested in commercially available data management software for this purpose or will do so in the future. We will educate vendors of MISs used by state/county home visiting agencies about the Pew Home Visiting DPI and encourage them to include all the requisite data fields in their home visiting MIS packages for calculating the revised Pew indicators and descriptive factors, including fields designed to capture event dates and that include response options recommended by Pew. We will also encourage these vendors to consider designing their products to automatically calculate the Pew indicators and descriptive factors to make it easier for states/counties to use these data.

Engage HRSA in a Discussion about Revising the MIECHV Benchmark for Breastfeeding

The pilot sites agree that Pew's original recommendation to measure breastfeeding at 3 months postpartum is preferable to the MIECHV benchmark breastfeeding measurement time frame of 6 months postpartum given the realities faced by the women their home visiting programs serve. However, they do not want to require their home visiting programs to collect two different indicators for this outcome. We will initiate a dialogue with HRSA's Division of Home Visiting and Early Childhood Systems leadership about the relative merits of the 3-month versus 6-month measurement point and encourage HRSA to consider amending its breastfeeding benchmark to 3 months postpartum at the next available opportunity.

Encourage HRSA and ACF to Issue Guidance about Sharing Administrative Data on Mutual Program Participants

States/counties vary with respect to their understanding of if, when, and how their agencies can or should share administrative service records with each other regarding shared clients. However, states/counties cannot track the Pew *Child Maltreatment* indicator nor provide HRSA with data on the MIECHV child maltreatment benchmark unless their child welfare agency is willing to share information with their home visiting agency about which home visiting enrollees have been reported to child protective services. Their capacity to do this is both a question of law and of political will. We will meet with HRSA's Division of Home Visiting and Early Childhood Systems and ACF Office of Planning, Research, and Evaluation (OPRE) leadership to discuss this matter and advocate for these offices to issue guidance about how state/county child welfare agencies can legally share this information with state/county home visiting agencies.

CONCLUSION

The Pew Home Visiting Data for Performance Initiative (DPI) is designed to offer a starting point for building a consistent and well-researched approach to evaluate early home visiting as a strategy, irrespective of model or funding stream. In October of 2015, the Pew DPI published a list of nine home visiting system performance indicators and 16 descriptive factors that it recommended all states use to measure their home visiting system's performance and to help them demonstrate home visiting's return on investment. In this report, we present findings from a 10-month feasibility study of states/counties' ability to implement these Pew DPI recommendations. Specifically, we describe 5 states' and one large county's efforts to collect, analyze, and report as many of the nine indicators and 16 descriptive factors as possible for a retrospective 12-month sample of home visiting program participants while documenting both the barriers and the facilitating factors that affected their ability to do so.

Each of the pilot sites succeeded in capturing the majority of Pew's recommended indicators and almost all of the descriptive factors; however, none of the pilot sites succeeded in fully implementing Pew's recommendations by capturing all of these variables. Many of the implementation barriers that the pilot sites encountered stemmed from the retrospective design of our study, which involved reporting data for a sample of home visiting participants who enrolled prior to the release of the Pew Home Visiting DPI recommendations in October 2015 and the revised MIECHV benchmarks in 2016. All of the pilot sites subsequently made substantial advancements in their home visiting data collection and reporting infrastructures that enable them to more fully implement the Pew DPI recommendations in ways that are not reflected in our findings. This suggests that the DPI's recommendations are more feasible than our study results seem to suggest at first glance.

Nevertheless, we identified several common barriers to implementing Pew's DPI recommendations that transcend these recent home visiting data infrastructure improvements and call for attention. Based on these findings we are recommending several modifications to Pew's original list of home visiting performance indicators and, to a lesser extent, descriptive factors. These include:

- downgrading the *Interbirth Interval* indicator from an essential indicator to a recommended but nonessential indicator;
- revising the Maternal Depression Screening and Referral and the *Child Development Screening and Referral* indicators to exclude mothers and children who are already receiving treatment services and thus do not need to be referred for treatment;
- short-term realignment of the *Breastfeeding* indicator with the MIECHV breastfeeding benchmark's 6-month postpartum measurement time frame in order to limit data collection redundancy and burden, but only until the next MIECHV benchmark revision when HRSA is encouraged to realign the MIECHV benchmark with Pew's original recommendation to measure breastfeeding at 3 months postpartum;
- modifying the *Maternal Smoking and Tobacco Use* indicator so that it consists of separate indicators for pregnant and nonpregnant mothers: (a) the percentage of mothers enrolled prenatally who quit smoking/using tobacco and remain tobacco-free throughout their pregnancy,

and (b) changes in the *amount* of tobacco that mothers use (e.g., the number of cigarettes smoked per week) between enrollment and the end point of data collection or program completion;

- fully aligning the *Child Maltreatment* indicator with the MIECHV benchmark that focuses on home visiting program participants with *investigated* child maltreatment reports;
- eliminating all of the program-level descriptive factors except *Model or Program* name; and
- standardizing response options for the descriptive factors to facilitate cross-site comparisons.

Revising the DPI indicators and descriptive factors in this way will increase the feasibility and thus the likelihood of state/counties adopting these measures, sharpen the indicators' ability to capture outcomes for which home visiting programs should be held accountable, and increase the comparability of the reported data, making it possible to aggregate and compare performance indicators and participant characteristics across states/counties. By increasing the likelihood that states/counties will adopt the Pew DPI recommendations, the revisions ultimately contribute to our understanding of how home visiting interventions support access to family support services and improvements in critical child and maternal outcomes.

Early home visiting programming has made great strides over the past 20 years in both defining program quality and structure. The core domains and related indicators highlighted by the DPI project reflect a growing consensus regarding the likely ways in which investments in high-quality early home visiting may alter the trajectory of the young children, parents, and families being served. To further advance this discussion, the DPI team will engage in a number of educational, dissemination, and advocacy activities over the next several months. Specifically, we will present the final recommendations individually to a range of key stakeholders currently involved in implementation home visiting programs at both the state and Federal levels. These stakeholders will include:

- National Home Visiting Model Developers participating in the Alliance;
- measurement committee of the Association of State and Tribal Home Visiting Initiatives (ASTHVI);
- Home Visiting Research Coalition (HVRC);
- foundations and think tanks working on related early childhood system performance measurement projects (e.g., Pritzker, Heising-Simon, and Child Trends);
- Maternal, Infant and Early Childhood Home Visiting (MIECHV) central office staff and Regional Project Officers;
- federal Administration of Children and Families (ACF) Office of Planning, Research, and Evaluation (OPRE); and
- federal Health Resources and Services Administration (HRSA) Division of Home Visiting and Early Childhood Systems.

Following discussions with these stakeholder groups, we will discuss the recommendations more broadly via webinars and conference presentations.

APPENDIX A:

LIST OF DATA PILOT SITES & TEAM MEMBERS

Connecticut

- Linda Harris, Program Director, CT Office of Early Childhood
- Cathy Lenihan, Primary Prevention Services Coordinator, CT Office of Early Childhood
- Connie Heye, Epidemiologist, CT Office of Early Childhood
- Wes Younts, Director, Center for Social Research at the University of Hartford
- Marcia Hughes, Research and Evaluation Analyst, Center for Social Research at the University of Hartford
- Allison Joslyn, Project Manager, Center for Social Research at the University of Hartford

Iowa

- Julie Tchoumkeu, IDPH home visitation data manager/QI coordinator:
- Debbie Kane, IDPH MCH Epidemiologist-CDC Assignee:
- Missy Denlinger, ISU PhD student in Human Development and Family Studies:

Kansas

- Jared Barton, Associate Researcher, University of Kansas Center for Public Partnerships and Research (KU-CPPR).
- Sarah Hernandez, Research Project Coordinator at KU-CPPR

Los Angeles County

- Diana Careaga, Senior Program Officer, First 5 Los Angeles
- Sharlene Gozaliens, Senior Public Health Research Associate, LA Best Babies Network

Massachusetts

- Jessica Goldberg, Tufts University, PI
- Rebecca Fauth, Tufts University, Co-PI
- Mariah Contreras, Tufts University, Data Analyst
- Susan Manning, MA Dept. of Public Health, Project Consultant
- Sarita Rogers, Children's Trust of Massachusetts, Project Consultant

Oklahoma

- John Delara- Oklahoma State Department of Health
- Annette Jacobi- Oklahoma State Department of Health
- David Bard- University of Oklahoma Health Sciences Center
- Debra Anderson- Smart Start Oklahoma

APPENDIX B:

LIST OF HV PHASE II DATA PILOT ADVISORS NAMES & TITLES

- Craig LeCroy, Professor, Arizona State School of Social Work
- Kathryn Harding, Senior Director of Research, Prevent Child Abuse America (Healthy Families America)
- Allison Kemner, Senior Director of Research & Quality Improvement, Parents as Teachers
- David Bard, Associate Professor, Pediatrics, University of Oklahoma Health Sciences Center
- Janet Horras, State Home Visitation Director, Iowa State Department of Public Health
- Sacha Klein, Assistant Professor, School of Social Work, Michigan State University
- Deborah Daro, Senior Research Fellow, Chapin Hall at the University of Chicago
- Tiffany Burkhardt, Researcher, Chapin Hall at the University of Chicago
- Annette Jacobi, Chief, Family Support and Prevention Services, Oklahoma State Department of Health
- Jon Korfmacher, Associate Professor, Erikson Institute
- Molly O'Fallon, Director of Program Quality, Nurse Family Partnership
- Susan Manning, Maternal Child Health Epidemiologist, Centers for Disease Control and Prevention/Massachusetts Department of Public Health

APPENDIX C: RECOMMENDED REVISIONS TO ORIGINAL PEW INDICATORS

Maternal Health and Achievement: Maternal Depression Screening and Referral	
Indicator	Percent of untreated mothers participating in home visiting who are referred for follow-up evaluation and treatment as indicated by depression screening with a validated tool.
Operational Definition	<i>Type of measure:</i> Process
	<i>Population:</i> Mothers participating in a home visiting program (prenatally and following birth) who are untreated for depression.
	<i>Numerator:</i> Number of untreated mothers participating in home visiting who received a maternal depression screening using a validated tool that indicated the need for referral and who were referred for follow-up evaluation and treatment.
	<i>Denominator:</i> Number of untreated mothers participating in home visiting who received a maternal depression screening with a validated tool and whose screening results indicated the need for a referral.
Definition of Improvement	Increase over time in the proportion of participating mothers who are untreated for depression who are screened for maternal depression and receive indicated referrals.
Data Source	Program data—screening results.
Measurement Tool	Several validated depression screening tools are in widespread use, including the Edinburgh Postnatal Depression Scale, the Postpartum Depression Screening Scale, and the Patient Health Questionnaire.
Reliability/Validity	Varies with selected depression screening tool.
Data Collection	<ul style="list-style-type: none"> • Data are collected when screening is performed. • Data linkage between programs and the state home visiting data system is performed at least annually. • Conduct a 3-step process to measure the percentage of: <ol style="list-style-type: none"> 1. Untreated mothers participating in home visiting who are screened. 2. Those screened for whom referrals are indicated. 3. Those for whom a referral is indicated who receive one. • Collect actual scores from the screening whenever feasible. • Consider measuring the percent with completed referrals and changes in depression status as part of focused quality improvement, research, and/or evaluation efforts. • Consider recommending a common, validated, statewide depression-screening tool for use across home visiting programs and/or models. • Measure at 2 or more points in time (e.g., prenatal and postpartum periods; intake and discharge).

	<ul style="list-style-type: none"> • Exclude women already in depression treatment as a referral would not be indicated, but these women should be included in efforts to measure changes in depression status. • Augment with quality improvement measures developed by the Home Visiting Collaborative Improvement and Innovation Network (http://hv-coiin.edc.org) (e.g., percent of untreated women referred to services with one or more evidence-based service contacts, percent of women with improvement of depressive symptoms).
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Child Health, Development and Safety: Child Development Screening and Referral	
Indicator	Percent of untreated children participating in home visiting who are referred for follow-up evaluation and intervention as indicated by developmental screening with the Ages and Stages Questionnaire (ASQ).
Operational Definition	<i>Type of measure:</i> Process
	<i>Population:</i> Children participating in home visiting who are untreated (i.e., not receiving early intervention services) for developmental delays.
	<i>Numerator:</i> Number of untreated children participating in home visiting who received developmental screening using the ASQ that indicated the need for referral and who were referred for follow-up evaluation and intervention as indicated.
	<i>Denominator:</i> Number of untreated children participating in home visiting who received a developmental screening with the ASQ and whose screening results indicated the need for referral.
Definition of Improvement	Increase over time in the proportion of participating children who are untreated for developed delays who are screened for developmental delays and receive indicated referrals.
Data Source	Program data—ASQ screening results.
Measurement Tool	Ages and Stages Questionnaire (http://www.brookespublishing.com/resource-center/screening-and-assessment/asq/asq-3/)
Reliability/Validity	The ASQ has reported internal consistency and concurrent validity to screen for developmental problems in the general population of children from birth to 5 years (http://agesandstages.com/wp-content/uploads/2015/02/asq3_concurrent_validity.pdf ; http://www.ncbi.nlm.nih.gov/pubmed/24041814 ; http://pediatrics.aappublications.org/content/131/5/e1468).

Data Collection	<ul style="list-style-type: none"> • Data are collected when screening is performed. • Data linkage between programs and the state home visiting data system is performed at least annually. • Conduct a 3-step process to measure the percent of: <ol style="list-style-type: none"> 1. Untreated children participating in home visiting who are screened with the ASQ. 2. Those screened for whom referrals are indicated. 3. Those for whom a referral is indicated who receive one. <hr/> <ul style="list-style-type: none"> • Consider measuring completed referrals or follow-up interventions as part of quality improvement, research, or evaluation. • Collect actual ASQ scores (instead of adopting a pass or fail approach) and use the ASQ-recommended cutoff to determine whether referral is indicated, not a score set by the state or a program. • Collect data at multiple points in time; however, because this is a screening and not a diagnostic evaluation, use caution in reporting change over time. • Use opportunities to compare data on home visiting participants with those from Medicaid, health providers, early care and education, early intervention, child health surveys, or other sources. • States may choose to collect data regarding the ASQ: Social Emotional as well as the ASQ, to screen for social-emotional risks and concerns. • Augment with quality improvement measures developed by the Home Visiting Collaborative Improvement and Innovation Network (e.g., percent of untreated children with parental concerns about development, percent of children referred to early intervention and deemed eligible).
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Child Health, Development and Safety: Child Maltreatment	
Indicator	Percentage of children participating in a home visiting program with at least 1 investigated case of maltreatment following enrollment.
Operational Definition	<i>Type of measure:</i> Outcome
	<i>Population:</i> Children participating in home visiting.
	<i>Numerator:</i> Number of children participating in home visiting with at least 1 investigated case of maltreatment following enrollment in the program.
	<i>Denominator:</i> Number of children participating in home visiting.
Definition of Improvement	Decrease over time in the rate of investigated child maltreatment among children who participate in home visiting.
Data Source	Linkage of home visiting program data to child protective services administrative data at least annually.
Measurement Tool	N/A
Reliability/Validity	N/A
Data Collection	Data are collected by child protective services.

	<ul style="list-style-type: none"> • Allow plenty of time for home visiting and child protective services agencies to negotiate a data sharing agreement. • Use a universal participant consent form to ensure to minimize privacy concerns about sharing data between agencies. • Use a uniform exposure period (e.g., number of children investigated within 3 years following program enrollment). Also, aim to extend the follow-up period as long as possible (research indicates that positive impacts on child maltreatment rates may not be evident in the near term). • Consider tracking the dates of all investigated reports involving the target population, along with the type(s) of child maltreatment (e.g., abuse, neglect) reported, as research suggests that home visiting may reduce repeat reports, but not necessarily initial reports, and that it may be more effective at reducing some types of maltreatment than others. • Although substantiated child maltreatment reports are limited as a stand-alone measure, states may also wish to report the percentage of children participating in home visiting who are the subjects of at least 1 substantiated child maltreatment reports following program enrollment. • Consider using a comparison group to determine if the proportion of participants with subsequent child maltreatment reports is comparable to a similar group of parents of young children who were not enrolled in home visiting. Maltreatment rates may be inflated for participants because of better detection by home visitors. Control for this bias by tracking the number of reports filed by the home visitor.
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Child Health, Development and Safety: Maternal Smoking or Tobacco Use	
Indicator	1. Percentage of pregnant mothers participating in home visiting who quit smoking or tobacco use following program enrollment 2. Percentage of mothers participating in home visiting who reduced their amount of smoking or tobacco use following program enrollment
Operational Definition	<i>Type of measure:</i> 1. Outcome 2. Outcome <i>Population:</i> 1. Pregnant mothers participating in home visiting who smoked or used tobacco at enrollment 2. Mothers participating in home visiting who smoked or used tobacco at enrollment <i>Numerator:</i> 1. Number of pregnant mothers participating in home visiting who quit smoking or tobacco use and remained smoke and tobacco-free through the end of their pregnancy

	2. Number of mothers participating in home visiting who were smoking or using tobacco less often at program exit than at enrollment
	<i>Denominator:</i> Number of mothers participating in home visiting who smoked or used tobacco at enrollment.
Definition of Improvement	1. Decrease over time in the proportion of mothers participating in home visiting who smoke or use tobacco while pregnant. 2. Increase in the proportion of mothers participating in home visiting program who were smoking or using tobacco less often at program exit than at enrollment
Data Source	Program data—participant self-report.
Measurement Tool	N/A
Reliability/Validity	N/A
Data Collection	<ul style="list-style-type: none"> • Data are collected by a home visitor. • Data linkage between programs and the state home visiting data system is performed at least annually. • Measure current smoking and/or tobacco use at multiple points in time: the prenatal period, postpartum at 2 months (if applicable), and/or annually thereafter; or at enrollment and exit from home visiting. • Consider collecting data at subsequent intervals. • Consider using a validated question about smoking from PRAMS (http://www.cdc.gov/prams/pdf/phase-7-core-questions-508.pdf), the National Health Interview Survey (http://www.cdc.gov/nchs/data/nhis/tobacco/1997_forward_tobacco_questions.pdf), or the Behavioral Risk Factor Surveillance System (http://www.cdc.gov/brfss/questionnaires/pdf-ques/2013%20brfss_english.pdf). • This measure does not include e-cigarettes because federal guidelines are pending.

Parental Skills and Capacity: Breastfeeding	
Indicator	Percentage of mothers enrolled in home visiting during pregnancy who initiate and continue breastfeeding for at least 6 months.
Operational Definition	<i>Type of measure:</i> Outcome
	<i>Population:</i> Mothers enrolled in home visiting during pregnancy who give birth to a live infant.
	<i>Numerator:</i> Number of mothers enrolled in home visiting during pregnancy who initiate and continue breastfeeding for at least 6 months.
	<i>Denominator:</i> Number of mothers enrolled in home visiting during pregnancy who give birth to a live infant.
Definition of Improvement	Increase over time in breastfeeding initiation and continuation through 6 months.
Data Source	Program data— participant self-report and home visitor observation.

Measurement Tool	<p>Questions are available in PRAMS, the National Health and Nutrition Examination Survey, the National Immunization Survey, and other national surveys. For more regarding breastfeeding measurement, the following resources are suggested:</p> <p>http://www.cdc.gov/breastfeeding/data/</p> <p>http://www.cdc.gov/breastfeeding/pdf/2014breastfeedingreportcard.pdf</p> <p>http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4209171/</p>
Reliability/Validity	N/A
Data Collection	<ul style="list-style-type: none"> • Data are collected by a home visitor. • Data linkage between programs and the state home visiting data system is performed at least annually. • Consider also measuring the percent of mother enrolled in home visiting during pregnancy who initiate and continue breastfeeding for at least 3 months • Consider measuring breastfeeding initiation using birth certificate or program data. • For program data collection, consider use of a PRAMS survey question (http://www.cdc.gov/prams/pdf/phase-7-core-questions-508.pdf). • Consider measuring exclusive breastfeeding. • Consider measuring average duration of breastfeeding. • Augment with quality improvement measures developed by the Home Visiting Collaborative Improvement and Innovation Network (e.g., percent of women who report intention to breastfeed, percent who initiate breastfeeding, percent of women exclusively breastfeeding at 3 or 6 months).

APPENDIX D: RECOMMENDED REVISIONS TO ORIGINAL DESCRIPTIVE FACTORS

Original Descriptive Factors (Phase I)	Recommended Revisions (Phase II)
Child Characteristics	
Date Of Birth	No Change
Full-Term Or Preterm Birth	No Change
Maternal Characteristics	
Date Of Birth	No Change
Number Of Prior Births	No Change
Race	Use 2010 U.S. Census Race Categories: <ul style="list-style-type: none"> • One Race, American Indian/Alaskan Native, • Once Race, Asian, • Once Race, Black Or African American, • One Race, Native Hawaiian/Pacific Islander, • One Race, White, • One Race, Some Other Race • Two Or More Races, • Other, Or • Unknown/Did Not Report
Ethnicity	Use 2010 U.S. Census Race Categories: <ul style="list-style-type: none"> • Hispanic/Latino, • Not Hispanic/Latino, • Other, Or • Unknown/Did Not Report
Native Language	Use Miechv Benchmark Response Categories: <ul style="list-style-type: none"> • English, • Spanish, • Arabic, • Chinese, • French, • Italian, • Japanese, • Korean, • Polish, • Russian, • Tagalog,

	<ul style="list-style-type: none"> • Vietnamese, • Tribal Languages, • Other, Or • Unknown/Did Not Report.
Contact With Father At Time Of Enrollment	Use Mother Was In Contact With Biological Father At Time Of Home Visiting Program Enrollment: <ul style="list-style-type: none"> • Yes • No
Residential Address/ Zip Code	No Change
Participant Service Characteristics	
Date Of First Home Visit	No Change
Dates Of Subsequent Home Visits	No Change
Date And Reason For Termination Of Enrollment, Including Successful Transitions And Early Terminations	Use Miechv Benchmark Response Categories: <ul style="list-style-type: none"> • Currently Receiving Services, • Completed Program, • Stopped Services Before Completion, Or • Other
Program Level Data	
Number Of Home Visits	Eliminate
Supervisor-To-Home Visitor Ratio	Eliminate
Average Caseload	Eliminate
Model Or Program	No Change