HOME VISITING
RESEARCH NETWORK

Home Visiting Research Agenda

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Acknowledgements

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Executive Summary

Home visiting has entered an exciting stage in its role in the system of services for expectant families and families with young children. Current challenges relate to the scale up and refinement of approaches to home visiting, the sustainment of effective programs, and improved coordination with other services.

The Home Visiting Research Network (HVRN) was established as part of the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program. Its role is build infrastructure to advance the field of home visiting through research. HVRN's first charge is to articulate a stakeholder-informed national home visiting research agenda. This document presents that agenda and describes how it was developed.

The Top Ten Home Visiting Research Priorities:

The research agenda incorporates ten broad priorities:

1. Strengthen and broaden home visiting effectiveness
2. Identify core elements of home visiting
3. Promote successful adoption of home visiting innovations
4. Promote successful adaptation of home visiting innovations
5. Promote fidelity in implementing home visiting innovations
6. Build a stable, competent home visiting workforce
7. Promote family engagement in home visiting
8. Promote home visiting coordination with other services for families
9. Promote the sustainment of effective home visiting
10. Build home visiting research infrastructure

How the Agenda Was Developed:

HVRN's Management Team and Steering Committee began by defining three organizing frameworks. The first was a multi-level conceptual framework to link home visiting inputs to service delivery and outcomes. The second was a framework for stages of research from pre-intervention studies to sustainment studies. The third framework was a typology defining four foci for research: description of the state of the field, identification of causal factors, assessment of consequences, and testing of strategies for improvement.

HVRN leaders conducted a national web-based survey of home visiting stakeholders to elicit their nominations for research priorities. Overall, 1780 individuals nominated a total of 4267 priorities. HVRN research staff used framework analysis to reduce and organize these nominations to yield the ten research priorities. HVRN leaders drafted a report describing the top ten research priorities and the agenda-setting process in detail. They used feedback from the Steering Committee and public comment to refine the report. This document is the result. It begins by describing the agenda-setting process and then explains the rationale for each priority, specifying what we know and what we need to learn to advance the field of home visiting.

I. Introduction

Home visiting has entered an exciting stage in its evolution as part of the comprehensive system of services for expectant families and families with young children. Challenges to the field now relate to the scale up, refinement and adaptation of evidence-based home visiting models, the adaptation and refinement of models, including the identification of core elements, coordination with other services, and sustainment of effective home visiting.

Some types of research – specifically comparative effectiveness research and dissemination and implementation research – focus on such challenges. These types of research help stakeholders make wise decisions in identifying, adopting, adapting, implementing, and sustaining effective home visiting models. The growing investment in home visiting calls for a solid research infrastructure to inform such decision-making.

The **Home Visiting Research Network (HVRN)** was established as part of the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) program to create this infrastructure. HVRN is charged with the following three objectives:

1. Articulating a national home visiting research agenda;
2. Promoting research concordant with this agenda; and
3. Providing stakeholders with useful research information.

This document presents HVRN's initial response to objective one, namely the articulation of a national Home Visiting Research Agenda. It begins by describing our approach in setting the agenda and our plan to use public comment in refining the initial agenda. In describing our approach, this document focuses both on the processes carried out and the principles underlying decisions made along the way.

II. Approach in Setting the Research Agenda

The HVRN Research Agenda Work Team led activities to develop the agenda, using at each step, input from HVRN's Management Team, Steering Committee, and stakeholders.

A. Establishing Context

The work team began by reviewing the legislation that established the MIECHV program,[i] the research priorities of agencies that have funded previous home visiting research, and the agenda-setting efforts of other groups.[ii,iii,iv,v,vi,vii]

1. *Guidance in the MIECHV Program Legislation*

The work team reviewed the MIECHV legislation to determine what guidance it offered for establishing a national home visiting research agenda. The legislation specifies that a continuous program of research and evaluation activities is to be carried out for MIECHV. The purpose is to increase knowledge about implementation and effectiveness of home visiting programs. The legislation specifies that random assignment designs are to be used to the maximum extent feasible. Evaluation of specific programs or projects is to be carried out by individuals not directly involved in their operation. Research and evaluation activities can include consultation with independent researchers, State officials, model developers, and providers of home visiting programs on topics including research design and administrative data matching.

Table 1. Process and Product Features of Other Research Agenda-Setting Efforts

Agenda-Setting Organization	Process			Product		
	How Stakeholder Input Elicited	Criteria for Selecting from Nominated Priorities	Process to Identify and Address Gaps	Number of Priorities	Groupings of Priorities	Specificity of Priorities
Developmental and Behavioral Pediatrics Research Network[iii]	Survey of DB pediatricians, psychologists and parents	In two rounds of voting, survey respondents rated the importance of each priority	Respondents could add new priorities in the first round of voting	39	Categorized by research area and clinical condition	Specified, but not in a systematic way
Institute of Medicine[ii]	Formal survey of stakeholder groups	In three rounds of voting, committee members allocated points among nominated priorities	Before the final round of voting, committee members suggested priorities to fill perceived gaps	100	Categorized by primary research area	Priorities specified: a condition; two or more alternatives for prevention, diagnosis, treatment, monitoring or care; and the outcome to be assessed
Patient-Centered Outcomes Research Institute[vi]	Used priorities of prior CER agenda-setting efforts that had used stakeholder input	Issued draft agenda and made revisions in response to public comments	Reviewed public comments and conducted internal discussions to include new priorities	5	None	Details of priorities described in text form
Pediatric Emergency Care Applied Research Network[vii]	Brainstorming process by Steering Committee members	Nominal Group Process used to select top priorities. Hanlon Process of Prioritization used to rank top priorities. Considered the prevalence, seriousness and feasibility of study.	After ranking priorities, Steering Committee members could add topics to fill perceived gaps.	16	None	Very broad
Pediatric Research in Office Settings Research Network[v]	Survey of practice-based research network members	Coded nominations. Selected highest frequency nominations as priorities	None	6	None	Very broad
Public Health Services and Systems Research Agenda[iv]	Used priorities from previous agendas and commissioned a series of systematic reviews	Workgroups developed a draft agenda for each domain and sought public comment	Workgroups for each domain consolidated priorities and added new ones to address gaps	72	Categorized into four general domains	Specified using the PICOT and CMO framework[viii,ix]

For the purpose of setting the research agenda, the work team took the following points from the legislation: 1) a focus on implementation and effectiveness; 2) promotion of the strongest research methods possible; 3) independence of research from specific program or projects; and 4) promotion of partnerships across stakeholder groups both in defining research priorities and in designing and carrying out research to address them.

2. *Public Agency Research Priorities*

The team reviewed and identified themes in the research priorities of the Department of Health and Human Services (DHHS) agencies that had funded home visiting research in the past. These include the Health Resources and Services Administration, the Administration for Children and Families, the Centers for Disease Control and Prevention, and the National Institutes of Health.

3. *Experience of Other Agenda-Setting Efforts*

The work team sought to learn from the experience of research agenda-setting efforts for public health services, health services to families with children, comparative effectiveness research, and patient-centered outcomes research.

The work team examined the processes and products of each effort. It focused on three aspects of the process: how stakeholder input was used to identify the initial set of priorities; how criteria were used to select from among these; and how gaps in the priority set were identified and addressed. It focused also on three features of the products of these efforts: the number of research priorities in the final agenda; how priorities were categorized; and the specificity of each priority. Table 1 listed processes and products of selected research agenda-setting efforts.

B. Overview of the Process for Setting the Research Agenda

The work team, using information gathered in the reviews described above, and with input from the Management Team and Steering Committee, developed a multi-step process for setting the research agenda.

1. Define a framework for conceptualizing home visiting;

2. Define a framework for stages of research;

3. Define a typology of levels of research questions;

4. Design and carry out a survey to elicit stakeholder nominations of home visiting research priorities;

5. Use qualitative methods to identify broad themes in the nominated priorities, and distinct priorities within each broad theme;

6. Use the frameworks of steps 1-3 above to organize the priorities within each broad theme and to organize the themes into an agenda; and

7. Elicit and use public comment to refine the agenda further.

III.   Steps in Setting the Home Visiting Research Agenda

A.   Framework for Conceptualizing Home Visiting

Home visiting's diverse stakeholder groups need a clear, common framework and language for communicating about substantive issues and strategies to address these through program and policy development. Figure 1 provides such a framework which, like a logic model, incorporates inputs, outputs, and outcomes.

Figure 1. Framework for Conceptualizing Home Visiting
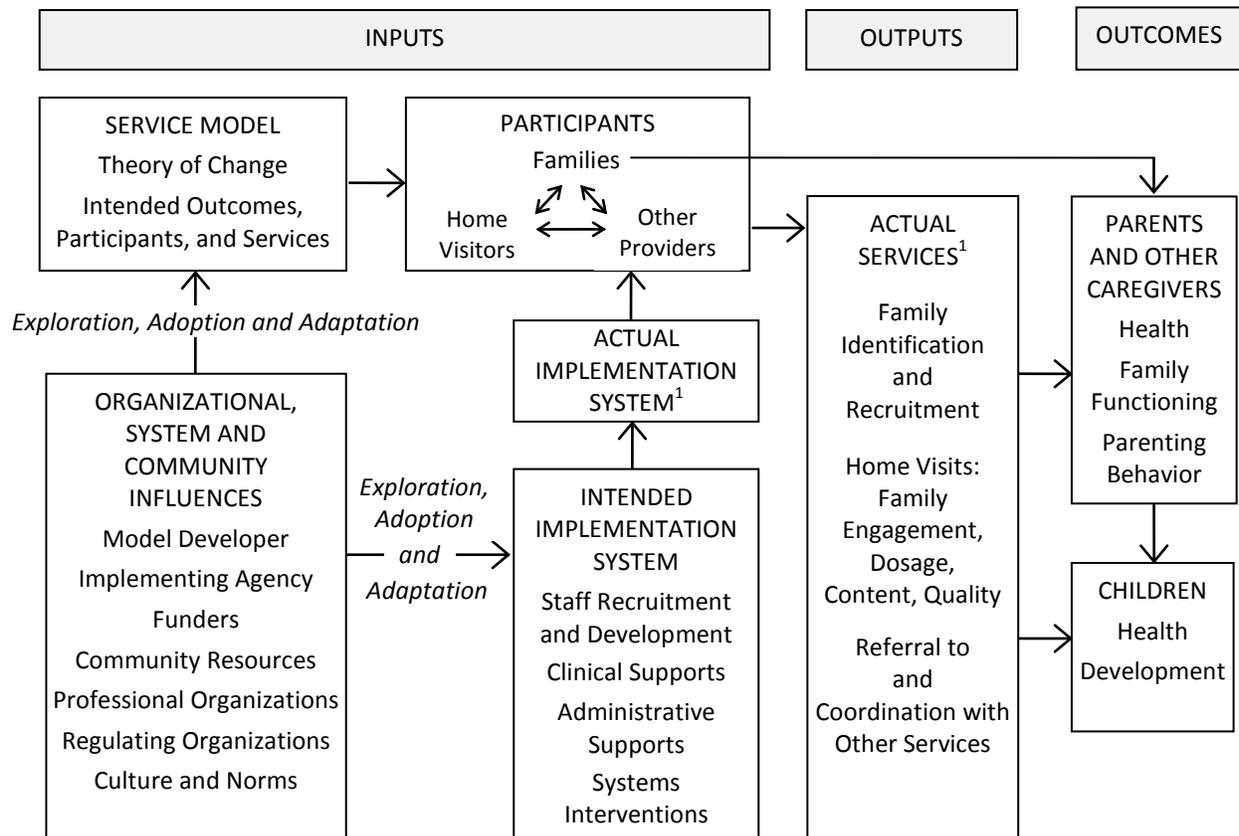
[1] Implementation system fidelity = the actual implementation system relative to the intended implementation system. Service Fidelity = actual services relative to the service model.

Consider a local home visiting program operated by a specific implementing agency. The program has a service model, which is the formal statement of its theory of change and its specification of intended outcomes, participants, and services. The program also has an intended implementation system, which is the set of resources for "bringing the service model to life." It is the infrastructure for staff recruitment and development, for clinical and administrative support of staff, and for connecting the program with other parts of the service system. The actual implementation system might mirror what is intended, or might differ. The implementing agency is unlikely to have acted independently in defining its service model and in constructing its implementation system. Rather, a set of organizational, system and community influences likely played a role in this. They shared in exploring and sharing information on available options, in weighing the pros and cons of each, and in influencing decisions about adoption, adaptation and sustainment.

The service model and the actual implementation system influence the characteristics of home visiting participants. Participants include families, home visitors, and other providers with whom they interact. These individuals' characteristics influence the program's outputs, that is, actual services. The characteristics of families and providers predispose, enable and reinforce their behavior as participants in home visiting. These characteristics include: demographics; psychosocial well-being; cognitive capacity; and attitudes, perceived norms, personal agency, knowledge, and skills, especially as these relate to participation in home visiting.

Service fidelity is the agreement between actual and intended services. Family outcomes are influenced by actual services and families' baseline characteristics.

The overarching premise synthesizes key principles of implementation science. Influential organizations must work together to define a clear, coherent service model and to assure a strong implementation system that predisposes, enables and reinforces participants to carry out their roles in order to achieve each intended outcome.

A service model is clear if each component is fully specified for each intended outcome. For a specific local home visiting site, a service model might be fully specified for some outcomes, but not others. If services are to be tailored, the service model should specify how and why. A service model is coherent insofar as each aspect "fits" with the others. Sometimes organizations enhance the service model to strengthen impacts for a specific outcome or subset of families. A service model is like a mobile; the pieces must be in balance. When adapting a service model, influential organizations must maintain coherence.

A strong implementation system assures that staff members have the motivation, knowledge, and skills to carry out each aspect of their roles effectively, that they receive positive reinforcement to do so, and that the work environment enables them to perform expected behaviors. These expectations apply to services for each intended outcome; an implementation system can be strong for achieving one outcome, but inadequate for achieving another.

B. Framework for Stages of Research

Diverse home visiting stakeholders need a common framework and language for communicating about stages of research and how these relate to home visiting research priorities. Figure 2 lays out the stages of research along the continuum from pre-intervention to sustainment of innovations. Pre-intervention studies such as epidemiologic studies provide information to identify the need for and guide the development of interventions.

Traditionally, once an intervention is developed, it is tested first in "proof of concept" studies to establish feasibility and acceptability. Then, the intervention is tested in efficacy trials. The intent in efficacy trials is to determine impacts under highly controlled, optimal conditions that maximize treatment adherence and, in so doing, are likely to maximize impact. Efficacy trials do this by narrowly specifying settings and by limiting participants to those most likely to adhere to protocols. Efficacy trials focus on internal validity, that is, on establishing a causal relationship between the intervention and outcomes.

Once efficacy is established, effectiveness studies test impacts under "real world" conditions. Comparative effectiveness research (CER) determines what intervention or policy, administered under what conditions, is most effective for which subgroups, for what outcomes, and how this comes about. These questions have been asked for many years about home visiting, but the need for answers is especially strong now.

Figure 2. Stages of Research and Phases of Dissemination and Implementation
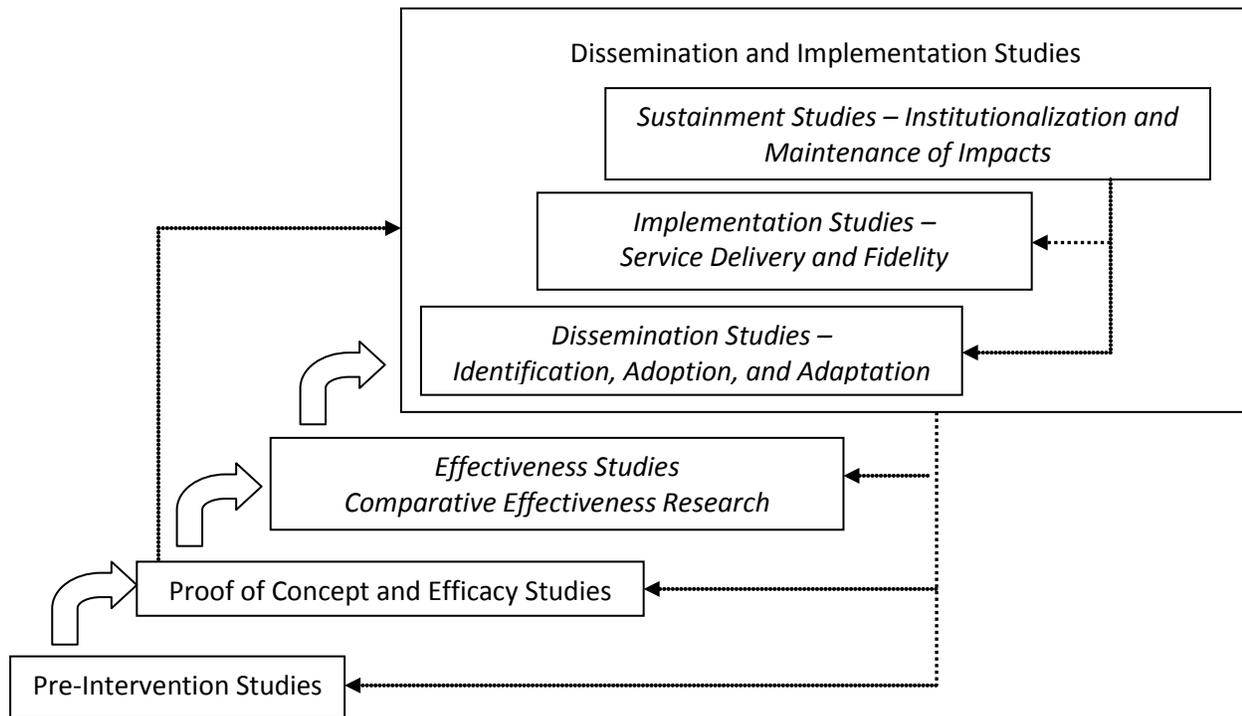
Reprinted with permission from *Preventing Mental, Emotional, and Behavioral Disorders Among Young People: Progress and Possibilities, 2009* by the National Academy of Sciences, Courtesy of the National Academies Press, Washington, D.C.

Reprinted with permission from Oxford University Press, USA. Original Source: Dissemination and Implementation Research in Health: Translating Science to Practice edited by Ross C. Brownson et al (2013) Ch. 12 "Design and Analysis in Dissemination and Implementation Research" by John Landsverk et al. pp. 225-260, Figure 12-1 from p. 226 (adapted)

CER compares strategies that could be used in day-to-day practice; it does not compare such a strategy with no treatment or a placebo. Comparative effectiveness studies can use a range of research designs – from randomized trials to quasi-experimental studies, observational studies using existing data, modeling or simulation studies – with the choice of design determined by the research question and context. Comparative effectiveness studies use a range of data sources and often multiple data sources, including both primary data collection and use of existing data such as in administrative records and service delivery records. CER focuses on outcomes that are valued by service participants and that can easily be used to assess effectiveness.

In medicine and public health, CER can focus on a range of interventions, extending from one-time procedures such as surgery to community-level health promotion campaigns. As shown in the first three columns of Table 2, these levels of intervention vary in what they demand of service participants. The last column lists implications for the dissemination and implementation sciences; we will comment on this after describing those stages of research.

Home visiting falls into third and fourth levels of this spectrum of interventions. First, it is a behavioral change intervention, focusing on outcomes such as reduction of risk behaviors

and promotion of positive parenting. Home visiting as a direct service aims to effect behavior change through a mix of assessment of needs and strengths, collaborative goal setting, role modeling, education, reinforcement, and social support. To measure home visiting success in effecting behavior change, providers must monitor family behavior and its outcomes. To help families achieve and maintain behavior change, the delivery system must support home visitors in monitoring and following up with families.

Table 2. Types of Interventions Studied in CER

	Type of Intervention	Role of Recipient	Role of Provider	Role of Delivery System	Implications for Dissemination and Implementation
	Device or procedure	Informed consent, One-time decision	Carry out procedure	Create environment for effective and safe use of device or procedure	Needs to assess required organizational structure, technical skills, and training for practitioners
	Medication	Informed decision, Ongoing adherence	Recommend, provide ongoing support for adherence	Supplement front-line providers in monitoring and follow-up support for maintaining behavior change	Identify contextual factors that promote adherence
H O M E V I S I T I N G	**Behavior Change**	**Informed decision, Ongoing adherence**	**Recommend intervention, demonstrate, provide support for adherence, assess outcomes**	**Supplement front-line providers in monitoring and follow-up support for maintaining behavior change; develop approaches to measure and report recipient outcomes**	**Identify environmental and other contextual factors that promote adherence and the ability to measure relevant recipient-level outcomes**
	System change	**Might be largely invisible to the recipient**	**Align own efforts with those of teams and organizations**	**Establish infrastructure, support teams and coordinated approaches to achieve outcomes**	**Detailed assessment of organizational predictors of successful intervention**
	Community intervention	Persons, not recipients – lifestyle change, advocacy	Support efforts at more distal levels	Integration across multiple systems and levels	Document environmental, political and social context of particular importance

Reprinted by permission of Oxford University Press, USA. Original Source: Dissemination and Implementation Research in Health: Translating Science to Practice edited by Ross C. Brownson et al (2013) Ch. 4 "Comparative Effectiveness Research to Accelerate Translation: Recommendations for an Emerging Field of Science" by Russell E. Glasgow & John F. Steiner pp. 72-93, Table 4.1 from p. 76 (adapted)

Home visiting is also a systems change intervention, as it requires home visiting program staff to align their work with that of other service providers. Nearly all home visiting programs recruit families from other services. Nearly all supplement the services they provide through referrals to and coordination with other needed services. Nearly all provide some services in common with other providers. For referral and coordination to be successful, home visiting program staff must align their work with that of other teams and organizations, and vice versa. The delivery system must provide the infrastructure for this coordination.

In summary, as applied to home visiting, CER focuses on behavior change and system change. CER studies involve comparisons with usual alternative services, could use a range of designs, would rely on multiple data sources, and would focus on outcomes important to families, home visiting staff, policy makers, and providers of complementary services.

Dissemination and implementation studies are the last stage of research in the science to practice continuum. Dissemination studies seek to understand the spread of innovations. In the context of home visiting, dissemination could mean the spread of complex home visiting models or of discrete enhancements to service models or implementation systems. Dissemination

studies are concerned with how potential users become aware of innovations, how they decide whether to adopt an innovation, and how they prepare for adoption. Dissemination studies are concerned as well with the strategies that sources use to make potential users aware of innovations, to promote their interest in adoption, and to assess and build their capacity for adoption.

Users often choose to adapt an innovation in light of organizational or community context. Certainly this is true in home visiting. Thus, both dissemination and implementation studies are concerned with how users decide to adapt innovations in home visiting, the types of adaptations they make, and the effects of adaptations on service delivery, outcomes and impacts. Implementation studies are concerned with actual home visiting service delivery, how actual services compare with intended service delivery, the factors that explain variation in service delivery, and fidelity as a moderator of home visiting outcomes and impacts.

The last stage of research focuses on sustainment of innovations. In the context of home visiting, sustainment can refer to continued use of home visiting model components; maintenance of organizational home visiting practices, procedures, policies and partnerships; sustained organizational or community attention to the issues addressed by home visiting; and efforts to expand and replicate home visiting. Operational indicators of sustainment include maintenance of home visiting's initial benefits; institutionalization of home visiting; and home visiting capacity building in a setting or community.

C. Typology of Research Questions

Before discussing research questions, we need to define a few terms. One term is "*innovation in home visiting*". Home visiting innovations can apply to programs, practices, or policies; they can be simple or complex. At one end of the spectrum, an innovation can refer to a complex, nationally-disseminated, multi-year evidence-based model of home visiting that aims to achieve a broad range of outcomes. Alternatively, an innovation could refer to a more discrete intervention. An example would be enhancing current parent training within a complex model by adding a protocol to assess and build maternal reflective capacity.

For home visiting programs and enhancements to them, it is useful to think of innovations as relating to the service model or the implementation system or both. Recall that, as described in Section III. A., a home visiting program can be thought of as having two aspects. The first, the service model, defines a program's theory of change and its intended outcomes, participants, and services. The second aspect, the implementation system, consists of the infrastructure for carrying out the service model.

Stakeholders must carry out three tasks regarding innovations: 1) make wise decisions in adopting and adapting innovations in home visiting; 2) establish implementation systems that are up to the task of implementing innovations with fidelity; and 3) find ways to maintain, broaden and strengthen effectiveness and to institutionalize innovations when taking them to scale.

These three tasks give rise to three parallel sets of generic research questions about dissemination, implementation and sustainment (Table 3). To advance the field of home visiting, we need to understand the current situation, explain reasons for and consequences of the current situation, and improve current approaches to dissemination, implementation and sustainment. Such considerations could lead us into new ways of conceptualizing and implementing home visiting services.

As also shown, comparative effectiveness research relates to these questions by comparing strategies to improve the dissemination, implementation and sustainment of innovations.   We place special emphasis on comparative effectiveness research because of these roles and because of its importance in refining and targeting home visiting service models to strengthen and broaden the effectiveness of home visiting.

Table 3. Generic Dissemination, Implementation and Sustainment Home Visiting Research Questions

DISSEMINATION – EXPLORATION, ADOPTION AND ADAPTATION

Current Situation	A. How are innovations in home visiting currently disseminated?	
Causes	B. How do organizational, system, and community features influence how innovations in home visiting are disseminated?	
Consequences	C. How do current dissemination strategies influence the uptake and use of innovations in home visiting?	
Improvement	D. What are the most effective strategies to promote identification of available innovations and wise decisions about adoption and adaptation of innovations in home visiting?	Comparative Effectiveness Research

IMPLEMENTATION – SERVICE DELIVERY AND FIDELITY

Current Situation	A. How are home visiting services actually delivered and how faithful are actual services to the service model?	
Causes	B. How do features of the service model itself and of the implementation system explain variations in service delivery and fidelity?	
Consequences	C. How do actual services and fidelity influence program outcomes, impacts and cost-benefits?	
Improvement	D. How should service models and implementation systems be constructed to promote service fidelity and to strengthen program outcomes, impacts and cost-benefits?	Comparative Effectiveness Research

SUSTAINMENT

Current Situation	A. How well are home visiting innovations sustained, as indicated by institutionalization and capacity building within program sites and communities?	
Causes	B. How do organizational, system and community features influence sustainment?	
Consequences	C. How does sustainment influence maintenance, strengthening and broadening of home visiting benefits over time?	
Improvement	D. How can organizational, system, and community-level interventions be used to improve sustainment of innovations in home visiting?	Comparative Effectiveness Research

10/29/2013

D. Eliciting Stakeholder Nominations of Research Priorities

A web-based survey was sent to 11 home visiting stakeholder groups to elicit research priority nominations. These groups were federal funders, state/local funders, private funders, model developers, researchers/research educators, state maternal and child health leaders, home visiting program leaders, community based organization staff members, home visitors, family advocacy organization staff members, parents and those who self-classified as others. Management Team and Steering Committee members and federal partners identified individuals, organizations and relevant list-servs for each group. Those who identified potential respondents or who managed nominated list-servs were asked how many individuals were likely to be reached. Based on their responses, we estimate that the survey reached over 6500 individuals.

The survey instrument was developed by the Management Team and approved by the Steering Committee and the Johns Hopkins School of Medicine Institutional Review Board. The first question asked respondents to select the stakeholder group with which they identified. The pattern of subsequent questions was determined by stakeholder group.

All respondents could nominate up to three research priorities. The survey provided seven broad examples of priorities. For each nomination, respondents were asked to describe how the research would advance the field of home visiting. Some stakeholder groups were also asked to explain why they thought that priority was important, who would benefit from or use the information gained from the research and what innovative methods could be used to explore the priority. Stakeholder group-specific sets of questions followed the priority questions. Home visitors and home visiting program leaders were asked how they learned about research findings. All other groups were asked to rate priorities for developing home visiting research infrastructure. Home visiting researchers and research educators were asked about their knowledge of professional development activities for emerging home visiting researchers. All groups were asked if they would like to rate the importance of priorities in the final agenda.

An email with the link to the survey was distributed on November 15th, 2012. The survey was available for three weeks. Table 4 shows the distribution of respondents.

Table 4. Distribution of Respondents by Stakeholder Group

Stakeholder Group	Number who started survey		Gave at least 1 Priority		Priorities from Each Group	
	#	%	#	%	#	%
CBO Staff	104	4%	70	67%	153	4%
Family Advocacy Staff	53	2%	31	58%	77	2%
Federal Funders	106	4%	60	57%	135	3%
HV Program Leaders	789	32%	621	79%	1489	35%
Researchers	246	10%	176	71%	402	9%
Home Visitors	476	20%	401	84%	1065	25%
Parents	31	1%	19	61%	51	1%
Private Funders	17	1%	13	76%	31	1%
MCH Leaders	75	3%	43	56%	97	2%
State Funders	178	7%	107	60%	250	6%
State/National Program Staff	126	5%	79	63%	174	4%
Others	230	9%	160	70%	343	8%
ALL	2431	100%	1780	73%	4267	100%

E.   Analysis to Organize Nominations

After the survey period ended, six research staff processed the nominations. Each nomination was assigned a unique identification number. The nominations were reviewed manually to identify those that were exactly or nearly the same as one of the broad examples that had been provided in the survey instrument, with no additional information or nuance. These nominations were coded using seven "verbatim" codes representing each of the broad examples in the survey. A total of 1415 nominations (33% of all nominations) were coded as verbatim.

Framework analysis was used to reduce, organize and summarize the remaining nominations. At the start, each team member read through several hundred nominations to become familiar with their range in content and specificity. Specificity ranged substantially, from brief phrases to paragraphs. Each person coded a subset of the nominations using a codebook developed in an iterative process. The codebook contained words and phrases to capture the main topic of each nomination. The team double-coded 300 priorities and then met to compare coding decisions. They identified reasons for discrepancies and modified the codebook accordingly. This process was repeated until the group decided that all topics had been identified. For nominations that fell under more than one topic, the codebook specified the hierarchy for deciding the topic to use as the main topic code. Nominations that could not be interpreted or that did not relate to home visiting research were coded as non-responsive.

With 1415 nominations identified as verbatim, 2852 nominations remained un-coded. Of these, 2670 (94%) received a topic code and 182 (6%) were coded as non-responsive. There were a total of 60 topic codes. Examples include adaptation, cultural competence, dosage, funding, tailoring, and a range of specific outcomes. Nominations with the same topic code were aggregated. Two staff members independently reviewed all the nominations within a topic code to identify distinctions among them. They independently constructed an outline for each topic to express the heterogeneity of nominations within it, then worked together to identify and reconcile differences in their outlines to create a single outline for each topic.

F.   Application of Frameworks to Identify and Describe Research Priorities

The work team reviewed the topics and outlines to identify cross-cutting themes across topics and among subsets of nominations within topic. They used the home visiting conceptual framework (Figure 1) and the stages of research framework (Figure 2) to organize the identified themes into 10 research priorities. They used the generic research questions framework (Table 3) to consider the state of home visiting research and specify research needs for each priority. The team incorporated this into a draft initial research agenda. The Management Team and Steering Committee reviewed and offered guidance for refining the draft agenda. The work team incorporated this feedback to develop the Initial Research Agenda.

G.   Developing the Final Research Agenda

The work team sought public comment on the Initial Research Agenda in several ways. It posted the agenda on the HVRN website, presented it at the 2013 Pew National Summit on Quality in Home Visiting, and conducted a web-based survey of stakeholders who had responded to the first survey and had provided contact information for this purpose. The work team revised the agenda in response to major themes identified in feedback on the initial draft of the agenda. HVRN made the final agenda available on its website and through presentations and publications targeted to each home visiting stakeholder group.

IV.   <u>The Home Visiting Research Agenda</u>

The research agenda has ten broad priorities (Table 5). These priorities are purposefully broad. In many cases, aspects of priorities are inter-related. The remainder of this section explains the rationale for each priority, specifying what we know and what we need to learn to advance the field of home visiting.

Table 5. Home Visiting Research Priorities

1. Strengthen and broaden home visiting effectiveness
2. Identify core elements of home visiting
3. Promote successful adoption of home visiting innovations
4. Promote successful adaptation of home visiting innovations
5. Promote fidelity in implementing home visiting innovations
6. Build a stable, competent home visiting workforce
7. Promote family engagement in home visiting
8. Promote home visiting coordination with other services for families
9. Promote the sustainment of effective home visiting
10. Build home visiting research infrastructure

Priority 1: Research to Strengthen and Broaden Home Visiting Effectiveness

    A. <u>What We Know</u>

The MIECHV Program legislation calls for home visiting to improve a broad range of outcomes. Increasingly, policy makers seek evidence that systems of care go beyond improving outcomes for enrollees to showing improvement at the community-level.

Prior research shows modest home visiting effect sizes for many outcomes, and variation in effects across outcomes and family subgroups. A program might achieve some outcomes but not others and do so for some targeted family subgroups, but not others. There is very little research that addresses community-level impacts. Program impacts have been found to vary across program sites using the same model, across home visitors within site, and across families served by the same home visitor.

Many stakeholders place a high priority on research to broaden home visiting benefits to particular family subgroups. Those cited by survey respondents include: families from racial and ethnic groups that put them at risk for health disparities; fathers; homeless families; families of children with special health care needs; parents experiencing poor mental health, substance use or domestic violence; parents who are anxious about or distrustful of relationships; immigrant and refugee families; military families; and single mothers.

Stakeholders also prioritize research to strengthen impacts for specific outcomes, including: parenting behaviors such as breastfeeding, infant sleeping practices, child behavior management and the quality of parent-child interaction; parental physical and relational health and psychosocial well-being; family economic self-sufficiency; and child health, development, and social-emotional well-being, including the impact of toxic stress.

    B. <u>What We Need to Learn and Why</u>

To be cost-effective, home visiting must be targeted to the families groups known to benefit, or modified to extend effectiveness to targeted groups who currently do not benefit. Research is needed on community-level impacts, not just outcomes for enrollees.

We need research to learn how and why home visiting impacts vary among subgroups of targeted populations. Families vary in their sets of strengths, risks, concerns and preferences. Research is needed to develop measures of these constructs to guide home visiting practice and to learn what approaches work best with subgroups defined by these constructs. Increased dosage alone is unlikely to improve impacts. We need to learn how programs can guide front line staff to tailor services while adhering to core components and promoting efficiency. We need to understand and strengthen impacts on fathers and family members beyond the mother and child. We need to broaden our outcome indicators to include biomarkers of impacts on stress.

Comparative effectiveness research is essential to hasten the development and scale up of innovations to strengthen impacts while promoting flexibility, family-centeredness, and efficiency. Critical outcomes include enhanced parenting skills, resilience and adult executive functioning. We need to test adaptations in service targeting, dosage, content and flexibility in the context of usual program operations rather than highly controlled settings.

Priority 2: Research to Identify Core Elements of Home Visiting

A. <u>What We Know</u>

Home visiting is not a discrete intervention but, rather, a service strategy. Home visiting models often comprise multiple discrete interventions or elements. Many home visiting services call for a diverse mix of activities carried out in scores of visits over an extended period of time, sometimes years. Others are compact and focused. Models may include both content elements, and process elements such as decision algorithms guiding which content elements are used.

Home visiting models currently designated as evidence-based for the MIECHV program vary in *how* they define the core elements of their service models and implementation systems. They vary also in how *explicitly* they define these elements. The strength of the evidence base for specific elements is variable. For some elements, the empirical evidence base is strong; for other elements, it is mixed or scant.

Return on investment is maximized if behavioral interventions are not only effective, but efficient. This argues for simple rather than complex service models defined by clear, parsimonious, evidence-based core elements. This, in turn, argues for definitions of core elements that transcend specific home visiting models and that relate to maternal, infant and early childhood home visiting as a service strategy.

Programs are potentially more acceptable and effective when they allow for the tailoring of services to families' assets, needs and concerns. However, this common presumption has yet to be evaluated rigorously. If true, this argues for defining core elements in ways that acknowledge families as key *participants* in home visiting and other early childhood services as service designers, not just recipients. This would, in turn, underscore the need to define home visitor competencies and core elements of implementation systems in ways that acknowledge the central importance of communication skills and the ability to tailor services.

Some health and social service researchers have developed research designs to disaggregate complex service models into core elements, and to compare the effectiveness and efficiency of varied combinations and sequences of these elements. Such methods could be useful in identifying the core elements of home visiting.

B. <u>What We Need to Learn and Why</u>

Research is needed to identify similarities and differences in the core elements of existing home visiting models and to assess the strength of each element's evidence base. For elements where the evidence base is inadequate, research is needed to test whether the element is, in fact, essential for achieving outcomes.

Home visiting is a dynamic process, not only between the home visitor and the family, but also across specific home visiting activities. Research, therefore, must extend beyond individual core elements to combinations of elements. Research is needed to determine how core elements can be streamlined and organized for efficiency. For decision algorithms to tailor activity content, techniques, sequencing and emphasis, research is needed to optimize algorithm performance. Research to identify core elements of home visiting is fundamental for addressing other research priorities, such as adaptation and fidelity. Research is needed to explore processes that mediate between the element and outcomes. Mediators between key elements and outcomes may suggest alternative elements that could prove more efficient in affecting the mediator.

Priority 3: Research to Promote Successful Adoption of Home Visiting Innovations

    A. <u>What We Know</u>

        The pace of home visiting scale up and the complexity of decision-making about adoption of innovations are accelerating, for several reasons. First, the number of options is increasing. Second, states and communities are shifting toward adopting multiple models targeted to different population subgroups. Third, the broadened set of outcomes to be improved through home visiting increases the expectations for effectiveness. No single home visiting model has been shown to be effective in improving all of the outcomes specified in the MIECHV Program. Thus, many decision-makers enhance the national models they implement. Fourth, many home visiting models delegate decisions about specific model components to users; thus, the decision to implement a particular national model often requires decision-making about specific model components.

        Adoption decisions are costly and cannot be easily reversed. It can take months or years to establish the infrastructure for a complex home visiting model or even a single component such as a management information system. Successful adoption decisions \of a national model can promote effectiveness and efficiency in achieving intended outcomes within state and local context.

        Theories of diffusion and dissemination provide a foundation for research to understand and improve the dissemination of home visiting. Dissemination research methods have been developed and applied to a range of preventive interventions. These theories and methods can be applied in research on adoption of home visiting models and enhancements.

    B. <u>What We Need to Learn and Why</u>

        Dissemination research frameworks and theories have rarely been applied in studies of the adoption of home visiting programs and practices. Systematic research to promote best practices for uptake of innovations is in the interest of all stakeholders. Adoption decisions have long-term implications for home visiting effectiveness and efficiency.

        We need to learn how such decisions are now made and to identify the factors associated with successful adoption. Using this understanding, we need to develop and test dissemination strategies to promote successful adoption decisions. Such research should focus on the decisions now confronting stakeholders: adoption of home visiting in lieu of alternative service delivery strategies; adoption of a particular home visiting model in lieu of others; specification of particular model components; and enhancements to home visiting such as the use of evidence-based screening and assessment tools and protocols for education and support.

        Dissemination theory, conceptual frameworks and research methods should be used to describe, explain and improve current practice in the adoption of home visiting innovations. Broad national expansion in communities throughout the country underscores the need and also the opportunity for multi-site research at state, community and agency levels. Research on adoption should be based on conceptual frameworks that incorporate and assess the importance of a range of factors for adoption decisions. These factors include: stakeholders' understanding and valuing of the evidence of effectiveness for home visiting options, their prior experience with available options, cost considerations, the results of needs assessments; state and local capacity for implementing specific home visiting innovations; cultural appropriateness; and the preferences of home visiting participants, that is, families and front line staff.

Priority 4.   Research to Promote Successful Adaptation of Home Visiting Innovations

   A. <u>What We Know</u>

        Adoption and adaptation are complementary. Adaptations are intentional changes in core elements of a home visiting model to fit local context. Service model adaptations include redefining target populations, intended outcomes, services, and staff. Implementation system adaptations include changes in staff development, clinical and administrative supports, and the relationship of home visiting with other parts of the early childhood system of care. Adaptations vary in size and complexity. A change from a traditional screening tool to another tool is a small, simple adaptation. The blending or braiding of home visiting models is complex.

        Successful adaptations maintain service model clarity and coherence and implementation system adequacy. A service model is clear if each aspect is adequately specified for each outcome. It is coherent if each aspect "fits" with the others, for example, if activities to achieve one outcome are compatible with activities to achieve the others. An adequate implementation system assures that participants have the motivation, skills and support for their roles.

        Successful adaptations require sets of changes in the service model and implementation system to maintain clarity, coherence and implementation system adequacy. For example, if the service model is expanded to add prevention of maternal depression as an outcome, it would also need to be modified to define activities and staff roles and competencies to achieve this outcome. The implementation system would need to be augmented to prepare and support staff in carrying out these activities. If providers from institutions external to the program are involved, then systems change interventions would be needed to prepare and support them in their roles.

        Tailoring is intentional service variation across families within a model. Models differ in their encouragement of tailoring. Tailoring can be guided by decision algorithms or principles; it can occur in less specified ways, sometimes involving eclectic combinations of elements from different models, and varying from provider to provider and family to family. Such tailoring can be overt or covert. There is limited research on the prevalence, visibility, scope, content sources, family and staff characteristics, and outcomes of with tailoring, especially eclectic tailoring. The boundary between adaptation or tailoring and "drift" is not always clear. Drift is a loss of model fidelity, often with a loss of effectiveness. What is intended to be adaptation or tailoring may fade into drift; the processes involved and how to interrupt them are not well established.

   B. <u>What We Need to Learn and Why</u>

        Research is needed to test the assumption that adaptation is necessary or at least inevitable. This includes research to assess the prevalence and types of adaptation in home visiting; the circumstances that motivate adaptation, for example to promote equity across population groups or to fit of a model within a particular service sector; and the diversity of approaches used in adaptation. We need research to compare family engagement, service quality, effectiveness and efficiency in non-adapted versus adapted models, and in models arising from ad hoc versus planned adaptation. Research is needed to promote the effective use of information technology in the planned adaptation process and in the resulting program models.

        Research is also needed to understand: the prevalence and types of service tailoring; the organizational and individual level factors for service tailoring; and the outcomes associated with variations in approaches to tailoring. Comparative effectiveness research is needed to identify optimal models for tailoring as indicated by family engagement and home visiting effectiveness.

Priority 5. Research to Promote Fidelity in Implementing Home Visiting Innovations

    A. <u>What We Know</u>

        While adaption is important, it is also true that maintaining alignment with core features of a home visiting program model is necessary. Fidelity, however, varies across local program sites using the same model and across staff within a local program site. Research indicates that fidelity moderates program impacts across a range of interventions. Fidelity is influenced by factors at multiple levels, including individual, organizational, and community levels.

        Information on fidelity is essential for interpreting the results of individual impact studies and for systematic reviews and meta-analyses to identify program features that moderate effect sizes. Reports of home visiting impacts are often silent on program characteristics, service delivery, fidelity, and threats to fidelity. In several systematic reviews and meta-analyses of home visiting, researchers have been limited by the extent to which they could examine implementation or fidelity because of the lack of information in published research.

        Researchers have identified several important aspects of service fidelity, including dosage, content, participant responsiveness, and service quality. There are few tools for measuring fidelity. Available tools are limited. Most are specific to a particular model or to a particular local program site, or to aspects of service fidelity that are easiest to define and measure, such as duration of enrollment, visit frequency, visit length, and compliance with skeletal model structure. Measures of more subtle aspects of competent service delivery or expertise are less developed

    B. <u>What We Need to Learn and Why</u>

        Given the scarcity of information about home visiting implementation, a critical first step is to learn how home visiting services are actually delivered, how faithful actual services are to the service model and how well the actual implementation system adheres to what is intended.

        Beyond measuring service delivery and fidelity, we need research to understand how specific characteristics of the service model and the implementation system promote or impede the achievement of service fidelity. Such research needs to extend beyond simple indicators of service delivery such as dosage to include indicators that more fully represent traditional conceptualizations of fidelity, such as service content and techniques, participant responsiveness, expertise in delivery and service quality.

        The costs of fidelity checking can be prohibitive as a part of regular program operations, particularly in home visiting, where service delivery occurs outside the office setting. Thus, research is needed to develop efficient ways to assess fidelity. This includes research to inform the use of technology to monitor and promote service fidelity. Ultimately, we need research to identify key aspects of fidelity that drive program outcomes, impacts and s.

        Comparative effectiveness research is key to strengthening fidelity. To advance the field, we need to test modifications of service models and implementation systems as strategies to promote service fidelity and to strengthen program effectiveness and efficiency.

        The relationship between fidelity and adaptation is important. While the ideal balance between these is unknown, many individual home visiting programs struggle to achieve fidelity to their adopted models while adapting them to local circumstances. Hence, research to promote fidelity can and should be designed with an eye to informing successful adaptation as well.

Priority 6. Research to Build a Stable, Competent Home Visiting Workforce

    A. <u>What We Know</u>

The home visiting workforce is large and growing. Increasingly, programs are expanding their staffing models to include not only home visitors, but also specialists in key areas.

National models vary in how they define staff qualifications for hire, roles and responsibilities, and core competencies. Home visitors come from a variety of professional and educational backgrounds. The current system for staff development is fragmented. While some competencies are common across models, most staff training is model-specific. Unlike other fields, home visiting lacks widely used trans-model competencies and training programs, such as the early education field's certificate program in early child development.

Implementing agencies make a substantial investment in staff training in national models. Their ability to expand or replace staff can depend on national models' training capacity. There is growing interest in establishing a trans-model "core curriculum" for knowledge and skills common across models. The importance of such a curriculum extends to other providers who work with expectant families and families with young children. Coordination of home visiting with other services calls for models of inter-professional training to predispose and enable providers to collaborate in their work with families.

 Home visitors must be able to navigate challenging situations to effect behavioral change. They must be able to engage families, to earn their trust. Home visitor burnout and turnover are costly. Staff turnover compromises continuity of care and increases operational costs to recruit and train replacement staff. Hypothesized causes of home visitor burnout and turnover include: organizational social context; staff compensation and opportunities for advancement; quality of training and supervision; and home visitor relationship capacity, psychosocial well-being, and self-efficacy in carrying out roles.

    B. <u>What We Need to Learn and Why</u>

Research is needed to understand work force assets and needs. Such research should be guided by theories of behavior and empirical evidence of personal characteristics associated with staff performance. Such characteristics may include: prior experiences; perceptions of and attitudes toward roles and responsibilities; relationship capacity and psychological well-being; knowledge in content areas; and perceived and actual skill in working with families, peers, other team members, supervisors, and community providers.

Research is needed to assess organizational characteristics such as culture and climate as factors for workforce recruitment, retention and performance. We need to learn how community context influences local implementing agencies' ability to attract and retain suitable staff through forces such as the availability of qualified candidates and competing employment opportunities.

Research is needed to assess current staff development and the alignment of staff roles and responsibilities with expected competencies, training and supervision. We need to identify the features of training and supervision associated with staff acquisition and maintenance of competencies, service quality, family engagement and program effectiveness. Theories of adult learning should guide such research. Research on home visitor training and competence to monitor and build family members' relational health is especially important. Comparative effectiveness research is needed to assess professional development innovations such as infor-mation technology to improve the effectiveness and efficiency of staff development efforts.

Priority 7. Research to Promote Family Engagement in Home Visiting

    A. <u>What We Know</u>

Family engagement in home visiting, including engagement of fathers and other family members beyond the mother, is vital. Home visiting cannot improve outcomes if it does not reach families who could benefit and cannot retain or engage enough families to deliver benefit.

Local implementing agencies often have trouble following through on commitments to funders and community partners regarding family recruitment and retention. Some states and communities are exploring centralized intake and other innovative approaches to match families with appropriate services. Poor engagement can arise when enrollees do not see value in a service. Emerging strategies to promote family engagement include material incentives as well as a re-emphasis on family-centered practice. Family-centered care calls for a good fit of service content and format with family preferences and reasons for enrollment.

Research on family engagement has typically focused on indicators of dosage such as retention and visit frequency. Some research has linked dosage with family, home visitor, and program characteristics, and interactions among these. Few studies of factors for engagement have been theory-based, and few have gone beyond easily measured characteristics such as demographics. A small body of research suggests that parental and home visitor relationship style jointly influence family engagement as measured by actual service delivery and by parent and home visitor reports of family responsiveness and trust.

    B. <u>What We Need to Learn and Why</u>

We need research to improve family recruitment and engagement because it is wasteful to leave available slots open, to refer for enrollment families who are ineligible, and to enroll families who are not really interested in home visiting or who would have good outcomes even without home visiting or for whom a given model is a poor fit in terms of format or content.

Theory-driven research is needed to describe current recruitment practices; to identify multi-level factors for these; and to compare the effectiveness of recruitment strategies. Programs that enroll families who are ambivalent or who misunderstand the service model are likely to experience poor rates of engagement. Programs that enroll families who would achieve good outcomes even without home visiting may have little effect on community outcomes. We need research to identify strategies associated with recruitment of families for whom a particular program is a good fit – families whose agreement to enroll in a program is based on a correct understanding of its service model, who are likely to benefit from enrollment, and who are at risk of suboptimal outcomes without home visiting. Research is needed to identify, develop and disseminate screening tools to identify such families in practice.

Research is needed to measure family responsiveness, reasons for enrollment, the quality of the family – home visitor relationship, and other domains of engagement beyond indicators of dosage. Research must focus not only on mothers, but other family members, especially fathers. We need theory-driven research to identify the influence of cultural, organizational and individual-level factors on these domains of engagement. Family responsiveness, the family-home visitor relationship, the home visitor's interpersonal skills, and other indicators of engagement are likely to mediate program impacts on outcomes; research is needed to test this. Comparative effectiveness research is needed to assess the benefits and unintended consequences of material incentives and other strategies to promote family engagement.

Priority 8. Research to Promote Coordination with Other Services for Families

    A. <u>What We Know</u>

Home visiting is part of the comprehensive early childhood system of care. This system includes direct health and educational services to children and other family members as well as services to meet basic needs. Communities vary in service availability, accessibility, and quality. If services are unavailable, referral is not feasible. If services are inaccessible, referrals are likely to be incomplete. If services are of low quality, access is unlikely to improve outcomes. Thus, community context influences the potential of referral as a strategy to improve outcomes.

Coordination is a defining feature of a system of care, midway along the Institute of Medicine's continuum of provider relationships, which ranges from working in isolation to mutual awareness to cooperation to partnership to merger. Coordination requires providers to communicate and negotiate responsibilities with the family and also with one another in tasks such as assessing needs, setting goals, and developing and carrying out a care plan. Home visitors and other providers often train in different fields and work in different institutional settings. They bring different perspectives to their work. Thus, inter-professional, multi-level strategies are needed to help them create a shared culture for working together in their work with families.

Most home visiting research has focused only on basic indicators of coordination with a narrow set of services. Research has shown home visiting's impact in promoting basic measures of pediatric preventive care such as immunizations but has not determined whether and how coordination influences less concrete indicators of family, parent and child functioning. Research has demonstrated the benefits of an integrated home visiting/medical home model, but has not compared alternative models for coordination of home visiting with preventive health services.

    B. <u>What We Need to Learn and Why</u>

For home visiting to fulfill its role, we must build infrastructure to predispose, enable and reinforce inter-professional collaboration across the range of services for families. This cannot be done solely within home visiting; it requires collaboration across the health, child welfare, early education, and family support sectors.

Theory-based multi-level research is needed to assess coordination practices and their system-, organization- and individual-level determinants. The benefits of coordination and referral to specialty services in general are assumed but lack empirical study. It may, in fact, become counterproductive to mix-and-match too many services or to blend incompatible services. Research is needed to guide the field toward optimal ways for home visitors and other providers to work together in assessing, prioritizing and addressing family needs. Research is needed to advance the role of information technology in promoting coordination. Research is key to the design and scale up of coordination strategies to improve outcomes meaningful to stakeholders.

Research is key on home visiting coordination with primary care, including primary care that integrates behavioral health services. There is great potential for synergy if providers improve one another's understanding of family context, provide concordant messages and help families follow through on one another's recommendations. We need research to design and compare the effectiveness of innovative models for coordination. Such research should test impacts on service quality and on outcomes that are meaningful to stakeholders. Dissemination and implementation research is needed to promote the scale up of effective strategies.

Priority 9. Research to Promote the Sustainment of Effective Home Visiting

A. <u>What We Know</u>

Sustainability is the extent to which an intervention delivers benefits over time, that is, the transition from a one-time initiative to institutionalization. In home visiting, it can be measured through continued use of home visiting model components; maintenance of organizational home visiting practices, procedures, policies and partnerships; sustained organizational or community attention to the issues addressed by home visiting; and system-level efforts to expand and replicate home visiting and promote its coordination with other services. Operational indicators of sustainment include maintenance of home visiting's initial benefits, its institutionalization, and home visiting capacity building in a setting or community.

Dissemination and implementation research has focused on long-term sustainability of innovations far less than on initial uptake or implementation. Empirical evidence, theory, conceptual frameworks and research methods are weaker for sustainment than for adoption and implementation. For home visiting to fulfill its potential, research on sustainment and evidence of return on investment are essential.

States and communities vary greatly in their adoption, expansion and sustained use of home visiting over the past 25 years. Anecdotal evidence suggests wide fluctuations over time in indicators of sustainment such as service capacity, institutionalization, and maintenance of benefits. Within a given jurisdiction, the role of home visiting and the use of specific models has often waxed and waned over time. Certainly, the institutionalization of home visiting is tied to funding. This in turn, is tied to perceptions of return on investment. Thus, home visiting sustainment is likely to be linked to how well programs are implemented, how well they are aligned with community goals and interests, and how well they coordinate with other resources in a system of care. Even if a program is well aligned with community interests, changes in public policies or key leadership may disrupt or threaten years of implementation effort; little is known about how such disruptions can be negotiated or mitigated. A poor understanding of specific factors for sustainment compromises the field's ability to address the later-stage challenges of scale up.

B. <u>What We Need to Learn and Why</u>

Home visiting cannot achieve its potential if current investments do not lead to sustained capacity to achieve intended benefits. Stakeholders need a solid knowledge base for decision-making about home visiting's role in the system of services. Research is needed to understand historical patterns of sustainment in communities and states that have been in the vanguard in adopting home visiting innovations. Such research can elucidate the decision-making process of stakeholders to understand how they access and weigh evidence in decisions regarding continued investment in home visiting. It is likely that system, organization, and individual level factors have independent and interactive effects on home visiting sustainability. Research on factors for sustainability can inform policy and practice to assure that benefits are maintained over time as home visiting is taken to scale. Such research is important for addressing the later-stage challenges of home visiting scale up. Research to assess and demonstrate return on investment is also essential for promoting sustainability.

Priority 10. Build Home Visiting Research Infrastructure

The past decade has seen enormous advances in the development of innovative methods for comparative effectiveness research and dissemination and implementation research, especially as applied to health services. Innovative methods apply to study design, measurement, and analytic techniques. Such methods can and should be applied in home visiting research.

Dissemination, implementation and sustainment are influenced by multi-level factors – systems, organizations, and participants at the team, family and individual levels. Theories of behavior at each level can and should be applied in research to address the first nine home visiting research priorities. Going forward, we need to employ designs and analytic approaches not yet widely used in home visiting research. Examples include social network analysis, family systems theory, agent-based modeling, and systems dynamics.

Greater use of comparative effectiveness research is key for refining home visiting service models and implementation systems. Some might ask if comparative effectiveness research is possible in a field in which there are so many variables that cannot be controlled. Comparative effectiveness research on other complex behavior and systems change interventions argues for its feasibility and utility as applied to home visiting. Observational designs can be applied to existing data using analytic techniques such as propensity scores and sensitivity analyses to cope with confounding. Intervention research designs with potential value for home visiting include cluster and pragmatic randomized trials and quasi-experimental designs such as regression-discontinuity designs. Treatment-response heterogeneity is a fundamental issue in home visiting; analytic approaches such as stratification and multivariable modeling with pre-specified interaction terms can and should be used to elucidate how treatment effects vary across subsets of targeted families and front line staff.

To be most useful for advancing the field, home visiting research questions and methods must incorporate the perspectives of stakeholders, including staff and families. In health care, much has been done to engage stakeholders in all stages of research, from identifying questions to designing and carrying out studies, to interpreting and using results. This experience can and should be applied in home visiting research.

The capacity for relevant, rigorous home visiting research depends on the development of new methodologies specific to home visiting. One important area is measurement. We need to develop valid and reliable measures of constructs relevant to home visiting. Examples include the development of innovative approaches for measuring service coordination, family engagement, service quality, fidelity, and behavioral outcomes. To develop meaningful indicators of process and outcomes, researchers need to elicit stakeholder input.

Home visiting researchers need to develop innovative methods for using and linking administrative records as data sources. We define administrative data broadly to include sources of information on services and outcomes. Examples include Medicaid data, birth certificates, school entry data, and child welfare records. We must expand the potential of administrative data by working with stakeholders to develop common definitions and approaches to data sharing.

Finally, the field needs to expand the home visiting research workforce and to create strong, trans-model research networks. Establishing a strong research workforce is complicated. It includes identifying and mentoring promising early career researchers and promoting the stability of home visiting research funding streams. These are two of HVRN's core goals.

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