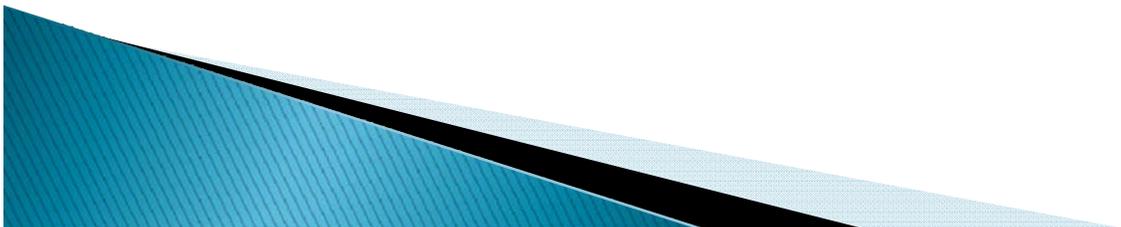


Design Options for the National Evaluation of the Maternal, Infant, and Early Childhood Home Visiting Program

Secretary's Advisory Committee Meeting
May 5 and 6, 2011

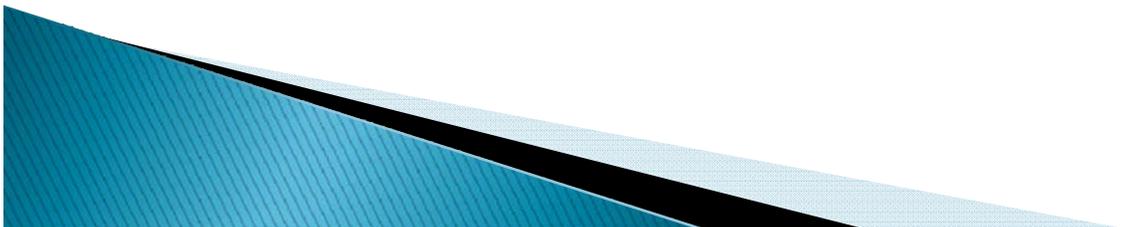
Agenda for May 5

- ❑ Brief overview of proposed design
- ❑ Sampling plan and analysis of state needs assessments
- ❑ Implementation study
- ❑ Cost-effectiveness study
- ❑ Open discussion



Agenda for May 6

- ❑ Impact study
- ❑ Links between implementation and impacts; impacts on health disparities and quality of care
- ❑ Setting priorities / Additional activities
- ❑ Open discussion



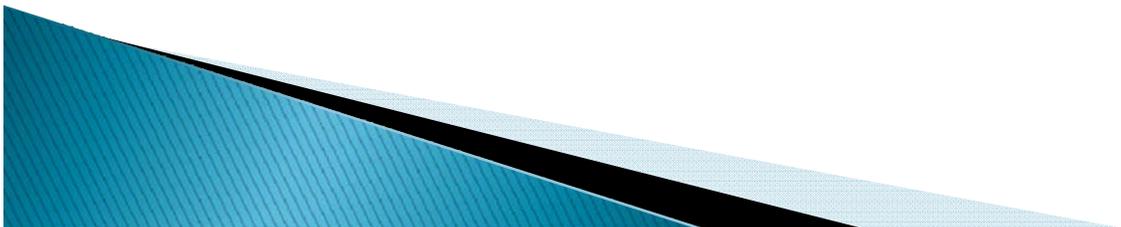
Broad HHS goals for the national evaluation

Legislative requirements:

- ▶ Use a rigorous design for assessing effectiveness overall and variations across programs and populations
- ▶ Learn about effectiveness in all ACA domains
- ▶ Reflect the national diversity of communities and populations

Additional goals:

- ▶ Gain information to strengthen future programs



Three components of the evaluation design

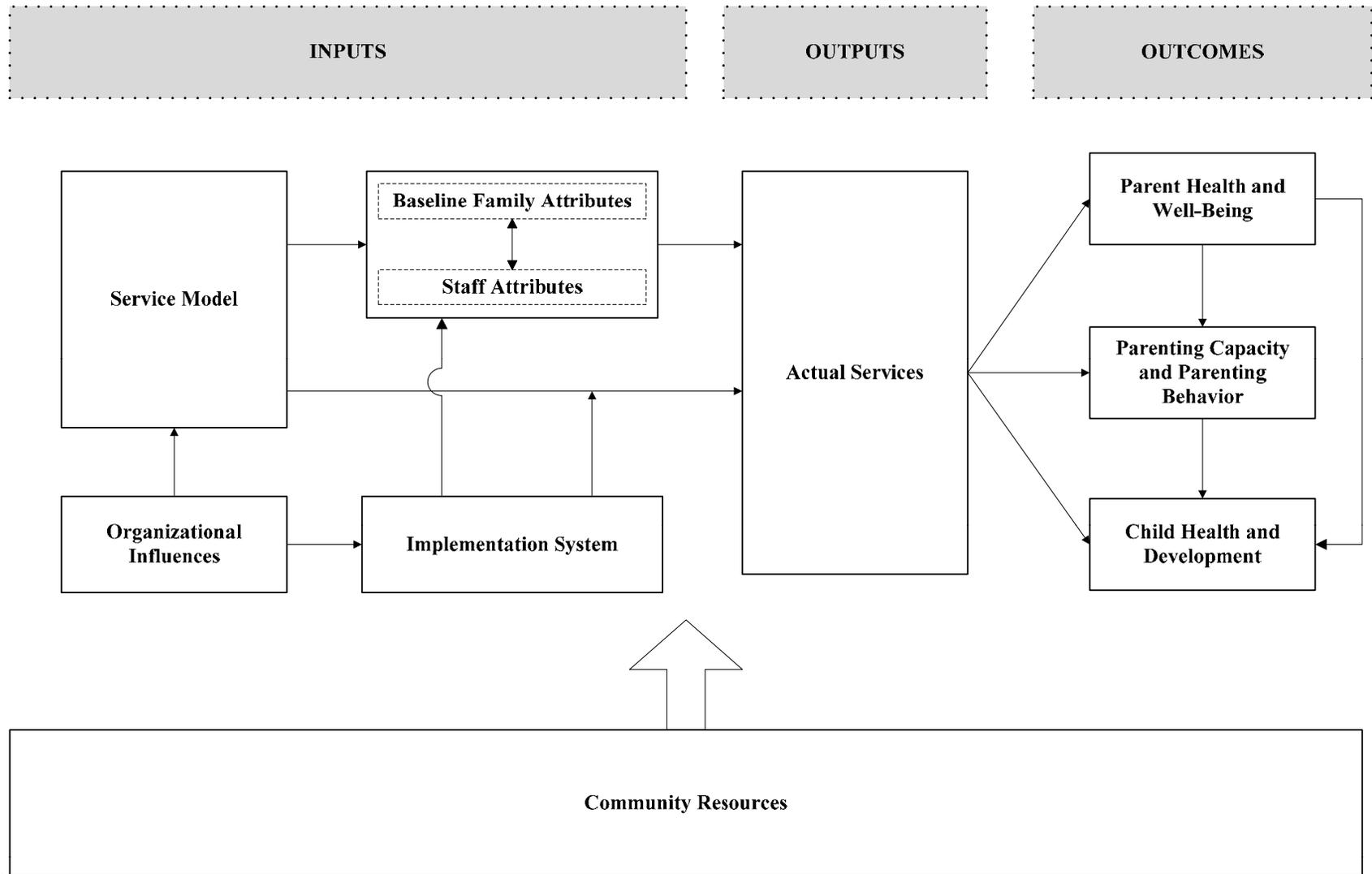
- ▶ Analysis of state needs assessments
- ▶ Effectiveness study
 - Reports variation in impacts for sites and populations with different characteristics
 - Incorporates study of health disparities and outcomes
 - Includes implementation study
- ▶ Economic evaluation



Stages of the national evaluation

- ▶ Report to Congress in 2015
 - Analysis of state needs assessments
 - Description of local programs and families
 - Could include initial results from implementation study of new programs or qualitative interviews with mothers and fathers if those optional modules are conducted
- ▶ Impact report in 2017
 - Tradeoff between six or twelve months as first follow-up point – seeking SAC input

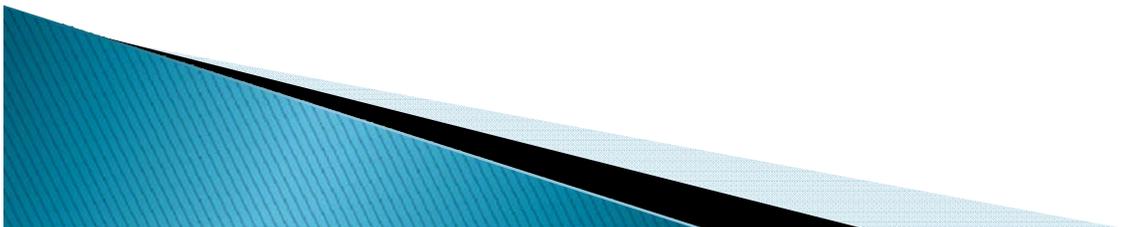
Conceptual framework



Sampling Plan and Analysis of State Needs Assessments

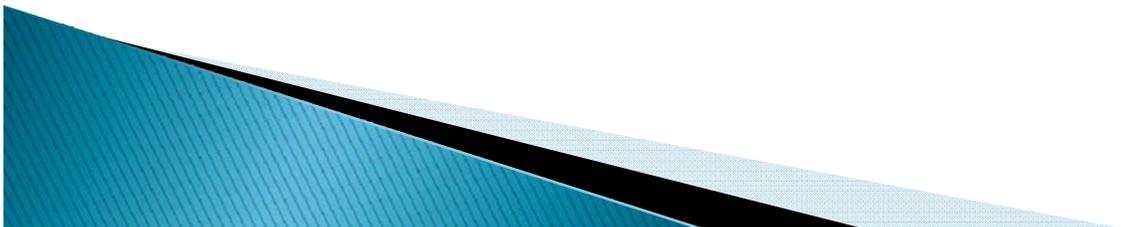
Goals of sampling plan

- ▶ Provide enough statistical power to draw inferences about:
 - differences in impacts for subgroups of families
 - links between program features and program impacts
 - two different age groups of children
- ▶ Balance interest in diverse local sites with cost constraints



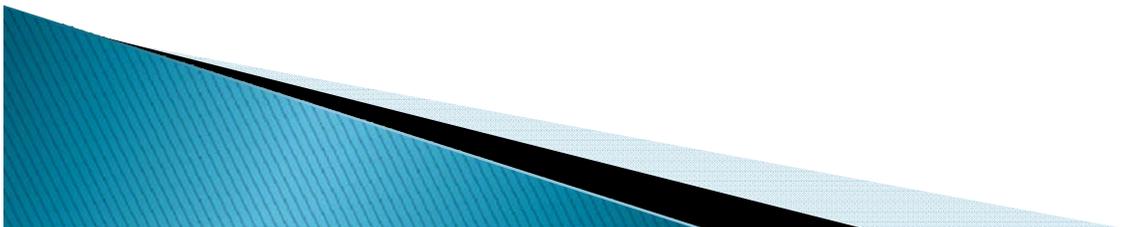
Overview of Sampling Plan

- ▶ 120 sites, 60 families per site
 - 30 program group, 30 control group per site
- ▶ Analysis by age of child
 - 85 sites serve pregnant women or mothers of infants
 - 35 sites serve only families with older children
- ▶ Sites concentrated in 12 states



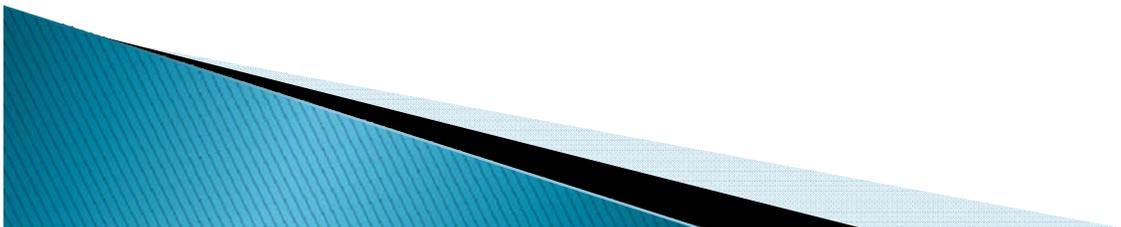
Overview of Sampling Plan

- ▶ Questions for discussion:
 - Decision rule for including a program model in the national evaluation
 - Decision rule for inclusion of older child sample in the national evaluation



Minimum detectable effect sizes

- ▶ Minimum detectable effect
 - Smallest true effect that would generate statistically significant findings in 80% of studies
- ▶ For pooled sample
 - .06–.08 for 85 sites serving prenatal, infants
 - .09–.12 for 35 sites with older children
- ▶ For investigating differences by subgroup
 - .12 to .16, depending on size of subgroup



Prior effect sizes from HomVEE

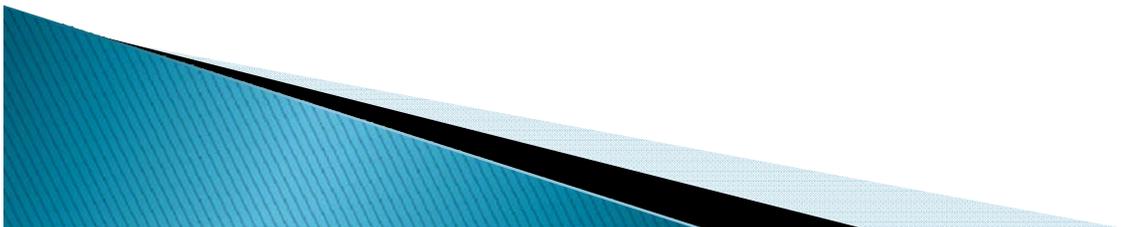
Domain	Range	Average	Number of Effects
Parenting practices	-0.36 to 0.49	0.03	40
Child maltreatment	-0.45 to 0.30	-0.03	14
Child health	-0.50 to 0.43	0.08	24
Child development, school readiness	-0.14 to 0.34	0.06	26
Domestic violence	-0.34 to 0.80	0.17	13
Referrals and coordination	-0.62 to 0.67	0.14	18

NOTES:

- Results are limited to outcomes that were defined as primary by the HomVEE review. No results met these criteria for the domain of juvenile delinquency, family violence, and crime, and the domain of family economic self-sufficiency.
- Results are weighted by sample size to obtain the average.

Investigating the link between aspects of programs and impacts

- ▶ Statistical precision depends on a number of factors
 - Number of program aspects being examined
 - Precision of estimated effect by site
 - Number of sites
 - How highly correlated aspects are with one another
 - How much the aspect varies across sites
- ▶ Current design could detect difference in impacts of .20–.30 standard deviations for a binary aspect

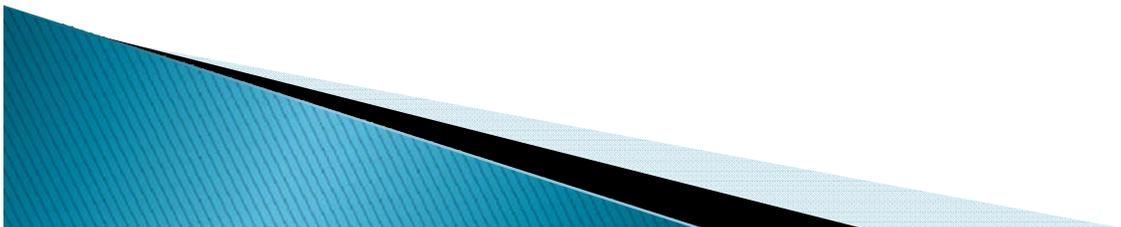


Criteria for choosing sites

- ▶ Program in operation for 2+ years
- ▶ Can recruit enough families (60 per site)
- ▶ Local service area does not have extensive home visiting outside MIECHV programs
- ▶ Contribute to diversity of families and program models
 - Aim for 15–20 sites using each model
 - Aim for representation of diverse populations receiving home visiting
 - Consider stratified sampling, as suggested by SAC members

Design for analysis of state needs assessments

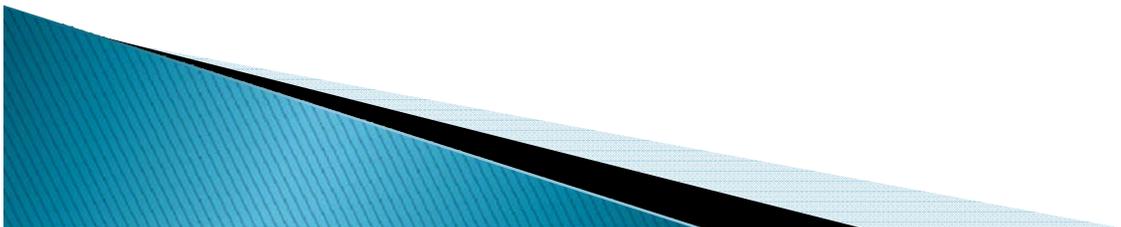
- ▶ States must submit plans to receive MIECHV funds
- ▶ The evaluation would include
 - State-by-state summaries of community needs, existing services, and plans to fill the gaps
 - A narrative description of community needs, existing services, and Grantee plans
- ▶ Analyses can inform site selection



Implementation study

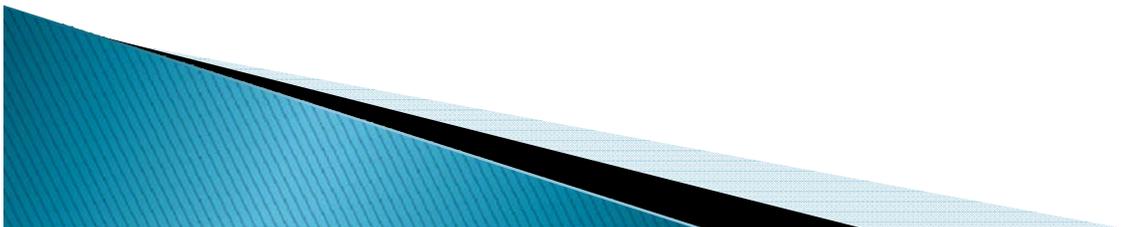
Opportunities for MIECHV national evaluation

- ▶ Can learn whether there are impacts for each domain, for whom, and make important inroads into *how and why* impacts vary.
- ▶ Provide lessons for the future in four critical areas: targeting, adapting or enhancing service models, and strengthening implementation systems.
- ▶ Need to measure how services are delivered and reasons for variation.



Implications for measurement in MIECHV implementation study

- ▶ Need quantifiable measures of the service model, implementation systems, home visitors and families, and actual services delivered
- ▶ With 120 sites, need to take advantage of existing data, close-ended web-based questionnaires, and video
- ▶ Existing MIS to be used as much as possible as data source

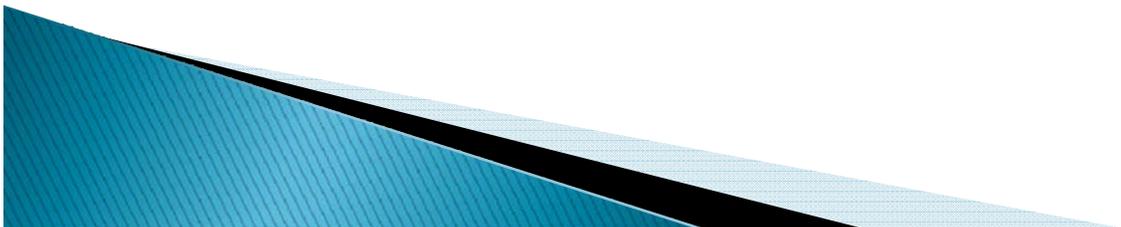


The implementation study will address legislative requirement to study how impacts vary across programs:

1. Which program aspects are associated with impacts on outcomes?

Contributing questions:

2. How do program sites actually operate?
3. How are inputs related to one another?
4. How are inputs related to outputs?



1. How do program sites actually operate?

▶ INPUTS

- What is the community context?
- What stakeholder organizations are involved?
- How are service models and implementation systems defined?
- What are the characteristics of home visitors, supervisors, and enrolled families?

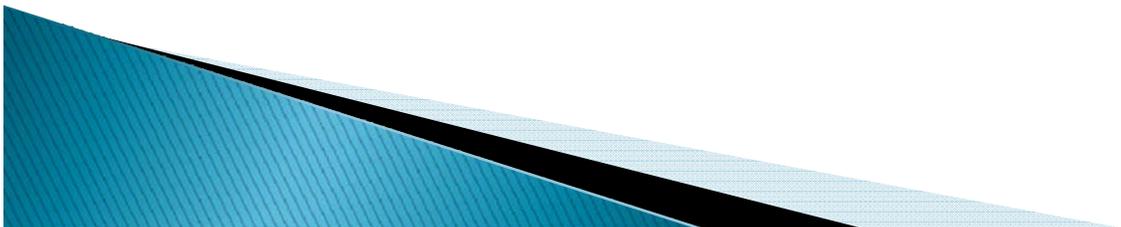
▶ OUTPUTS

- What services are actually provided to families?
- How do actual services differ from intended services?



Implementation Study Constructs

- ▶ Community characteristics
 - neighborhood characteristics
 - density of service network
 - availability of key services for referrals
- ▶ Relevant for both study groups



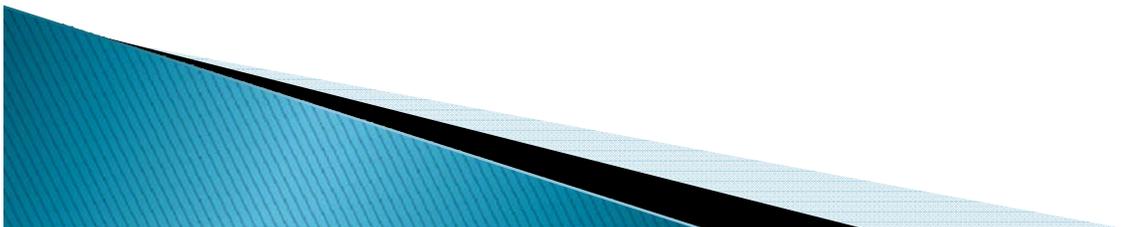
Implementation Study Constructs

- ▶ Influential organizations
- ▶ Service model
 - Goals and intended outcomes
 - Eligibility
 - Intended services
 - Staffing
 - Roles and competencies
 - Caseload limits



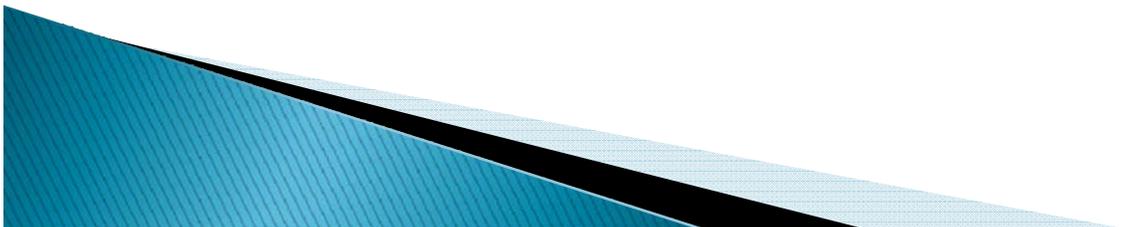
Implementation Study Constructs

- ▶ Implementation System
 - Staff recruitment and hiring
 - Training, supervision, evaluation and feedback
 - Facilitative clinical supports
 - Facilitative administrative supports
 - Systems interventions



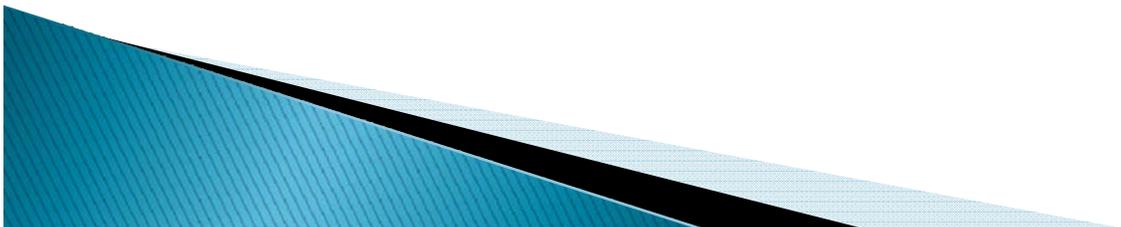
Implementation Study Constructs

- ▶ Families, home visitors, supervisors
 - Demographics
 - Risks, strengths, psychological well-being
 - Understanding of the program and their roles
 - Ability and willingness to carry out their roles



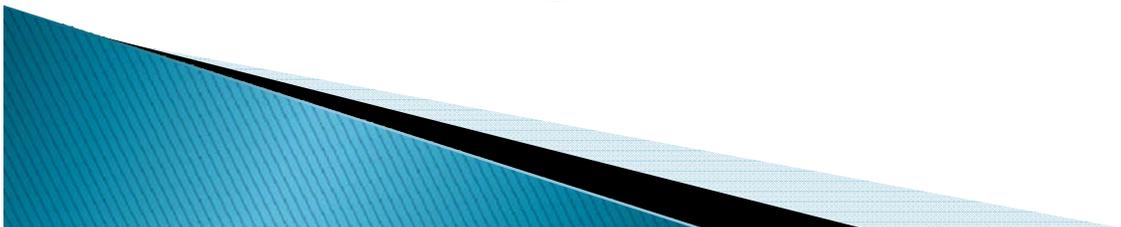
Implementation Study Constructs

- ▶ Actual services (Outputs)
 - Dosage
 - Content, techniques
 - Quality of Delivery
- ▶ Needs to be measured for control group as well (but in less detail)
- ▶ Actual services as delivered in relation to service model = fidelity



2. How are inputs related to one another?

- ▶ How is community context associated with the service model and implementation system?
- ▶ How are attributes of influential organizations associated with the service model and implementation system?
- ▶ How are service model and implementation system attributes related?
- ▶ How are the service model and implementation system associated with the attributes of staff and of enrolling families?

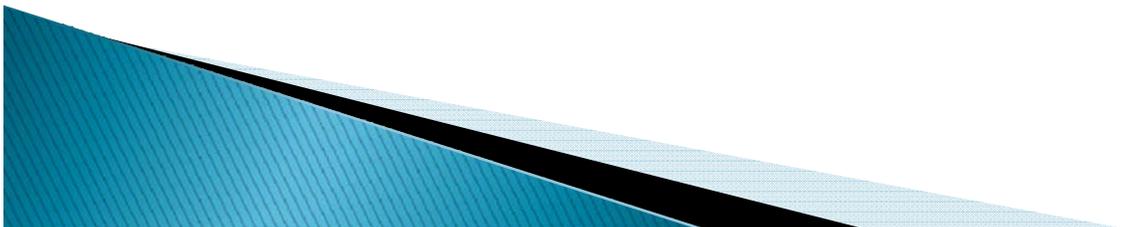


3. How are inputs related to outputs?

- ▶ How do the service model and implementation system influence the dosage, content and quality of actual service delivery?
- ▶ How do staff and family characteristics influence actual service delivery?
- ▶ How do staff and family characteristics interact as influences on actual service delivery?
- ▶ How do staff and family characteristics mediate the influence of the service model and implementation system on actual service delivery?

4. Which program features are associated with impacts on outcomes?

To be discussed tomorrow,
as part of the impact study



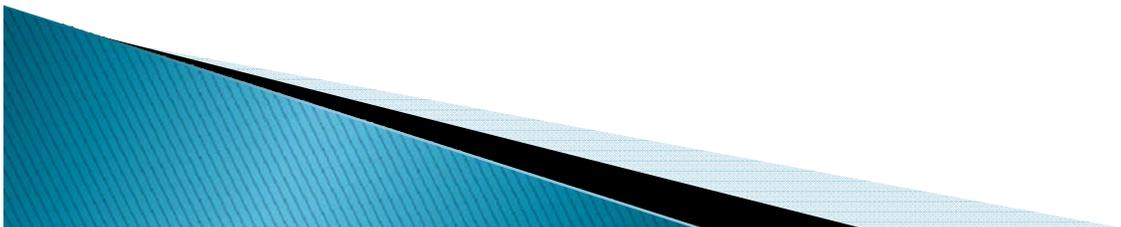
Economic Analysis

Overview of Economic Evaluation

- ▶ Legislation calls for examining “potential for the activities... to improve health care system quality, efficiencies, and reduce costs.”
- ▶ Proposed research question: What is the cost to achieve key outcomes for families and children, and how do these costs vary across groups of families and local programs?
- ▶ Potential elements of economic evaluation
 - Programmatic cost analysis
 - Micro-level cost-effectiveness analysis (CEA)
 - CEA by demographic subgroup
 - Macro-level returns on investment analysis
 - Benefit-cost analysis (5-year option)

Programmatic Cost Analysis

- ▶ Includes all resources required to run a home visiting program
 - Home visit related costs
 - Administrative costs
 - Participant costs
- ▶ Methods of collection
 - MIS systems at sites (primarily HV related)
 - Surveys (participant only)
 - Site interviews (primarily admin related)

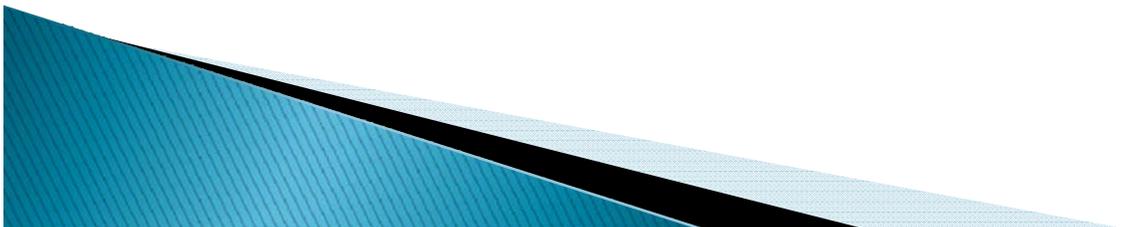


Cost-Effectiveness Analysis

- ▶ Components of ICER
 - “Program Costs” from the programmatic cost analysis
 - “Costs Averted” include health care costs collected through a follow-up survey of participants (or Medicaid/SCHIP)
 - “Outcome” from the implementation or impact analyses
 - Impact example: Cost per reduction in child maltreatment
 - Implementation example: Cost per outcome (by frequency of home visits)
- ▶ Note: the analysis will not divide program costs among different outcomes

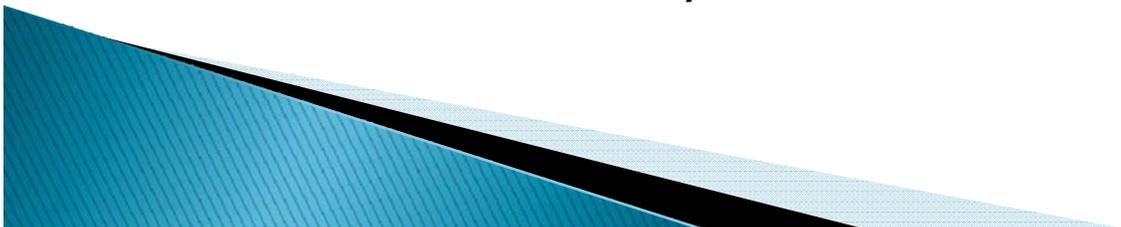
Other Analyses

- ▶ Subgroup analysis
 - Test how CEA results differ among important subgroups
- ▶ Returns on Investment Analysis
 - Compare the entire cost of legislation to important aggregated outcomes
- ▶ Benefit–Cost Analysis
 - Possible if a longer–term follow–up is funded
 - Would put inputs and impacts in monetary terms for calculating net benefit or cost



CEA: Two options

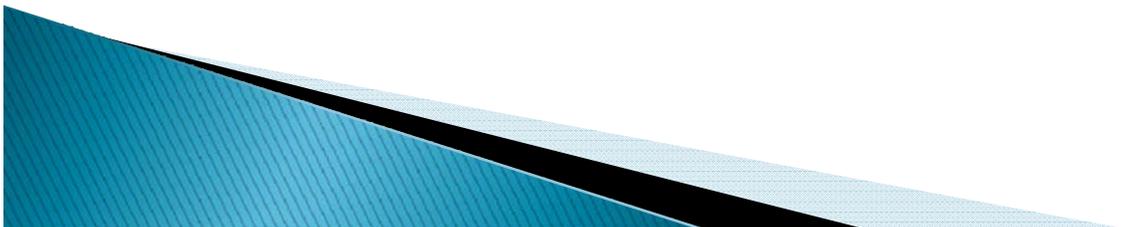
- ▶ High level estimate using only state level cost estimates
 - Pros: Obtain aggregate cost estimates at low cost to the study
 - Con: Provides much less information for future policymaking, program planning and improvement
- ▶ Site-level cost estimates
 - Pros:
 - Cost estimates for direct service and implementation infrastructure useful for future program planning
 - Compare costs to benefits for particular types of programs, implementation strategies, and subgroups of families
 - Cons: More costly to conduct



Impact Study

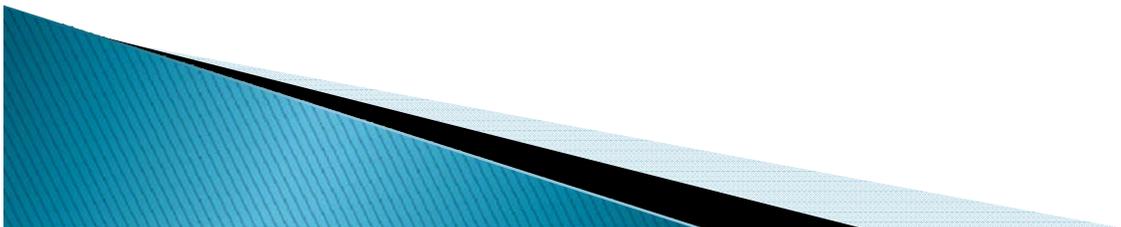
Research questions

- ▶ What are the effects of home visiting programs for families and children?
- ▶ How do the effects differ across subgroups of families?
- ▶ How do the effects differ across groups of programs?



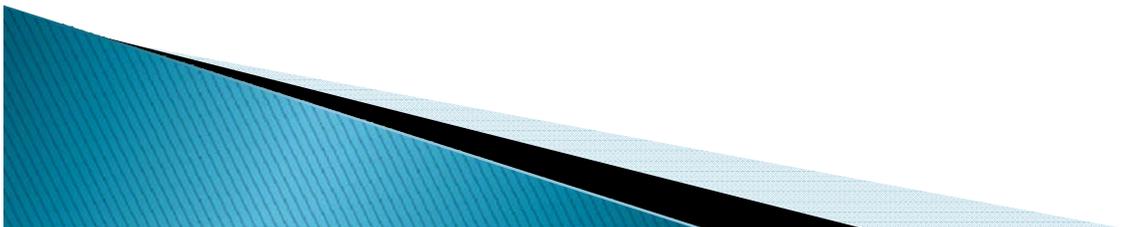
Identifying key constructs within each domain

- ▶ We drew from:
 - Conceptual models and theories of change
 - Prior evaluations of home visiting programs
 - Early input from the COTR, other HHS staff, and other stakeholders



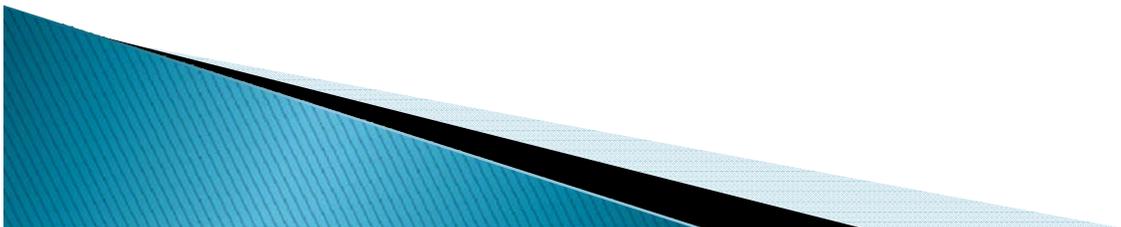
Measurement for the impact analysis

- ▶ Eight domains
 - Prenatal, maternal, and newborn health
 - Child health and development
 - Parenting skills
 - School readiness and academic achievement
 - Crime and domestic violence
 - Family economic self-sufficiency
 - Referrals and service coordination



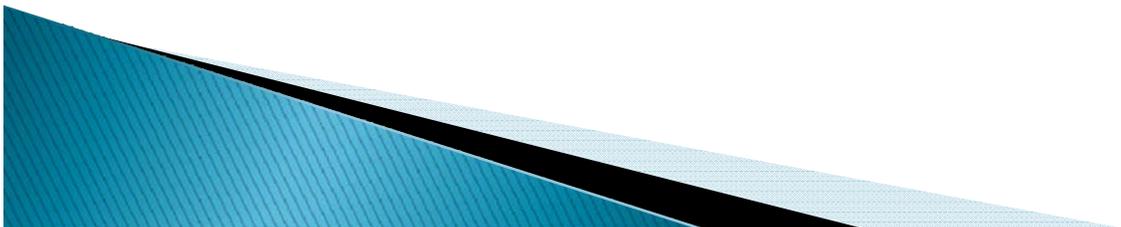
Baseline data collection

- ▶ Parent survey – self-reports on parent health and well-being, child health and development, parenting
- ▶ Administrative data on birth outcomes, child abuse and neglect



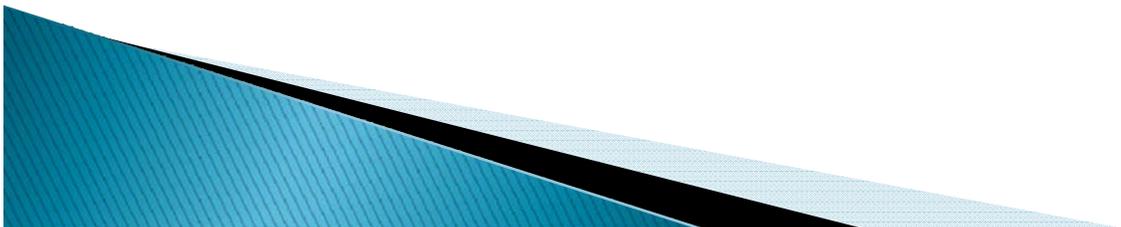
Impact study: 6 and 12 month follow-up options

- ▶ 6- or 12-month follow-up
 - Parent survey
 - Observations of parent-child interaction and home environment
 - Direct child assessments of children 2 and older
 - Administrative data on birth outcomes, child abuse and neglect



Impact study: 6 and 12 month follow-up options

- ▶ 6 month follow up: Younger cohort families would enroll with children up to 3 months old
 - Data collection at age 6 months for children enrolled prenatally; 6 months after enrollment for other children
- ▶ 12 month follow up: Younger cohort families would enroll with children up to 6 months old
 - Data collection at age 12 months for all children in younger cohort, 12 months after enrollment for older cohort

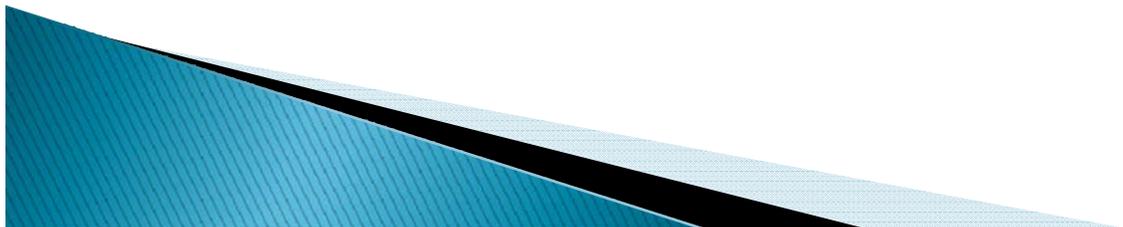


Impact study: Analysis plan

- ▶ Intent-to-treat estimates
 - Compare all program and control group families
 - Regression-adjusted
 - Separate impacts by child age
 - Secondary analysis to look at effects for those who receive services
- ▶ Examine results by group of programs
 - Example: program maturity, clarity of goals
- ▶ Examine differences across subgroups
 - Example: pregnant women vs. those with infants
 - Example: moms with depression vs. others

Examining differences in impacts across subgroups of families

- ▶ To be determined a priori using theory, results from prior empirical research, and policy relevance
- ▶ Seeking input from SAC members: Prioritizing subgroups



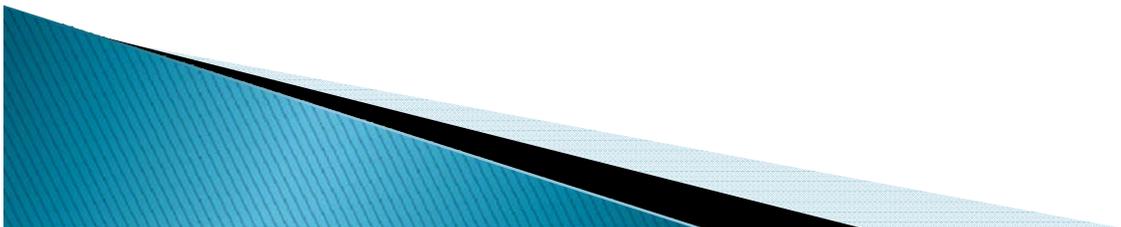
Additional impact topics

The link between program features and program impacts

- ▶ Can be thought of as two-step process
 - Step 1: estimate impacts by site
 - Step 2: relate site impacts to site features
- ▶ Examine features in stages
 - Stage 1: Link program models and impacts
 - Stage 2: Add in features of implementation systems
 - Stage 3: Add in actual home visiting services
 - Adjust for family characteristics throughout
- ▶ Caution: results may not be causal

The link between program features and program impacts

- ▶ Question for discussion:
 - What are the highest priority features of program models, implementation system, and actual services to include in this analysis



Health related analyses

- ▶ ACA calls for analysis of potential of home visiting programs to
 - Eliminate health disparities
 - Improve health care system quality
 - Improve health care practices
- ▶ Possible effects of home visiting
 - Reduce disparities in family health outcomes
 - Work with practices, e.g., advocating for family
 - Indirectly affect practices if concentration of families in an area

Health disparities

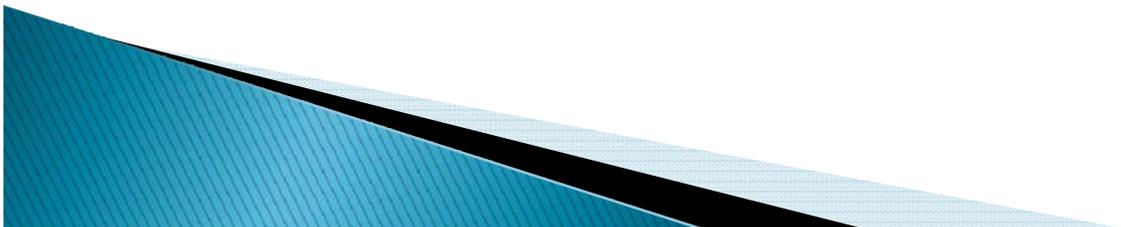
- ▶ Differences in disease, health, and access to health care between groups
 - Typically defined by social, demographic, and geographic factors (e.g., race and ethnicity)
- ▶ Method
 - Impact analysis will estimate effects on health care use and health outcomes
 - Compare gains for more disadvantaged populations to levels for better off groups
 - Example: Compare impact on fetal death to level of

Health care quality

- ▶ Degree to which health care services produce desired health outcomes
- ▶ Typically measured by examining use of appropriate services
 - Example: immunizations, appropriate screening for children
- ▶ Method: Examine impacts on health care quality through surveys, Medicaid and SCHIP records (optional)

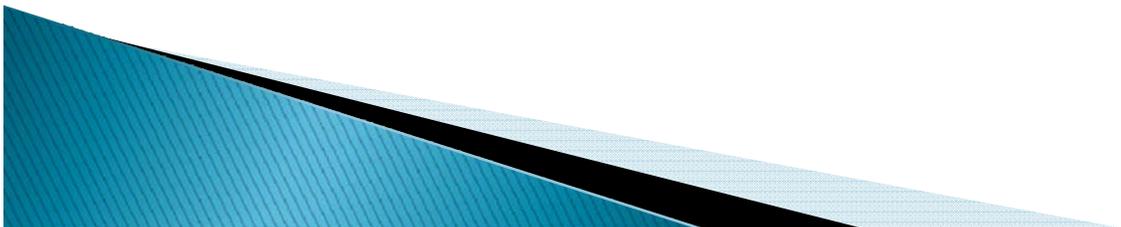
Health care practices

- ▶ Includes features of providers
 - Example: how doctors communicate with families
 - Example: use of electronic health records
 - Example: coordination across providers
- ▶ Method
 - Limit analysis to cases where visitors are embedded in practice or home visiting saturated in community
 - Implementation study would collect information on health care practices at the site



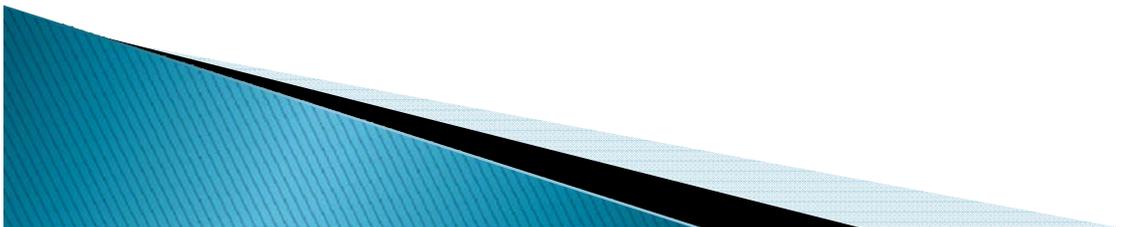
Potential additional activities

- ▶ Direct assessments of child development for younger children at 6 or 12 month follow-up
- ▶ 24-month follow-up
- ▶ Medicaid and SCHIP claims data through 6, 12 or 24 months
- ▶ Frontier subgroup
- ▶ New site implementation study
- ▶ Qualitative interviews – mothers
- ▶ Qualitative interviews – fathers



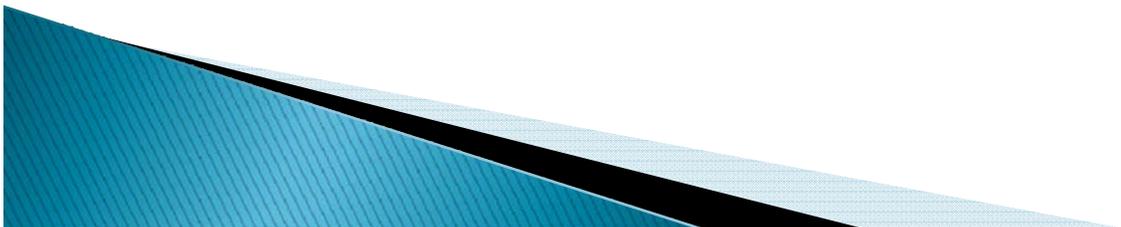
Potential additional activities

- ▶ Direct assessments of child development for younger children at 6 or 12 month follow-up
 - Core impact evaluation for younger children includes administrative child welfare records; direct observation of parent–child interaction; and parent report of children’s outcomes.
 - Direct assessments of child development for 6–12 month olds often less sensitive to intervention effects than assessments for older children, but could still be informative



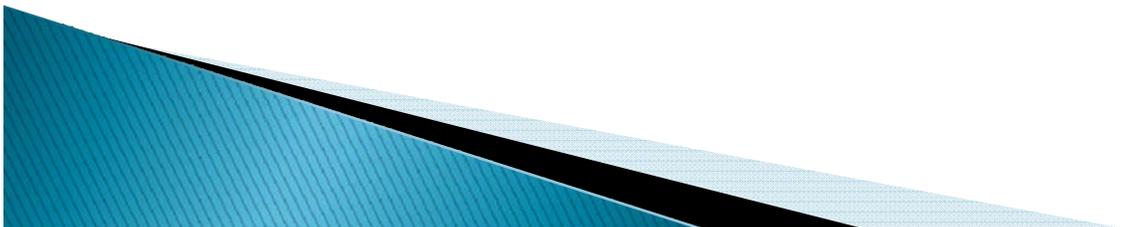
Potential additional activities

- ▶ 24-month follow-up
 - Parent survey, similar to 6 or 12 month survey (focus on outcomes for parents and children, services received since last follow up)
 - Observations of parent-child interaction and home environment
 - Direct assessments of child development for all children
 - Update of implementation and cost studies



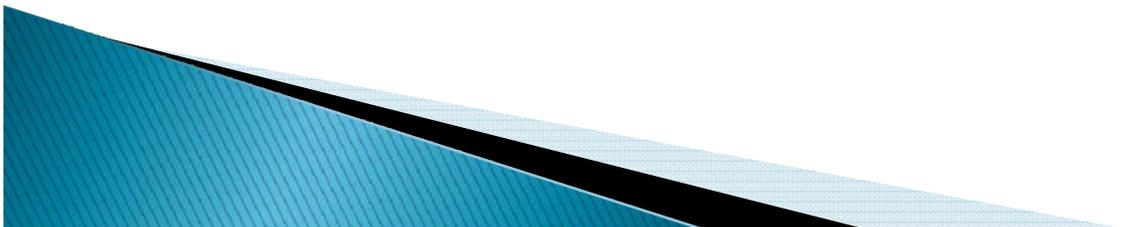
Potential additional activities

- ▶ Medicaid and SCHIP claims data through 6, 12 or 24 months
 - More accurate than self-reports on birth outcomes, medical utilization
 - Would increase completeness of health disparities and economic analyses



Potential additional activities

- ▶ Frontier subgroup
 - Frontier areas more costly to study but important target of home visiting programs
 - Core national evaluation design includes rural sites
 - Additional resources for frontier areas would allow enough sites to provide separate impact estimates for these areas



Potential additional activities

- ▶ New site implementation study
 - Investigate how grantees chose sites for new programs (most disadvantaged vs. most “intervention ready”) and how implementation systems develop
- ▶ Qualitative interviews – mothers
 - Program and control group; teen and non-teen
- ▶ Qualitative interviews – fathers
 - Program and control group