

**EVALUATION OF  
THE HEALTHY FAMILIES ALASKA PROGRAM**

**Final Report**

**January 21, 2005**

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Sources of Support:

Alaska Mental Health Trust Authority  
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## **Hopkins Research Team and Acknowledgement of Collaborators**

The Alaska State Department of Health and Social Services (DHSS) contracted Johns Hopkins University to conduct the study. The Hopkins team comprised: Anne Duggan, ScD – Principal Investigator; Kira Rodriguez, MHS – Fieldwork Director; Lori Burrell, MA – Project Coordinator; Sara Shea – Research Assistant; and Charles Rohde, PhD – Statistician. From DHSS, Debra Caldera served as Co-Investigator. As HFAK Program Manager at the start of the study, she assured that study methods were designed and carried out in partnership with HFAK programs and DHSS leadership and staff. She was the DHSS point of contact for the Hopkins team. She took the lead in establishing the context for the study and the implications of its findings through a careful synthesis of the family support literature and an in-depth review of archival HFA and HFAK materials. She was directly involved in all aspects of the study for five years, including preparation of this report.

Studies of this type depend on substantial collaboration with the organizations involved. The Hopkins team was fortunate to have had the opportunity to work with a Steering Committee of DHSS staff and representatives from community organizations as well as the network of HFAK service providers. The Steering Committee was charged with making certain that study design and execution were sound and with helping to interpret study findings. The Steering Committee met quarterly. Beyond that, many members advised on specific aspects of the project between quarterly meetings as special issues arose or if they were unable to attend a quarterly meeting.

DHSS staff members on the Steering Committee included the following, in alphabetical order: Jean Atuk; Stephanie Birch; Chera Boom; Kathryn Cohen; Penny Cordes; Nancy Cornwell; Sandra Csaszar; Diane DeMay; Brad Gessner, MD; Joanne Gibbens; Jill Holdren; Diane Ingle; Marci Kennai; John Levering; Karen Martinek; Phillip Mitchell; Pam Muth; Jonathan Nelson; Jeri Powers; Janine Schoellhorn; Claudia Shanley; Dale Williams.

Steering Committee members from community organizations included: Nancy Burke (Alaska Mental Health Trust Authority); Glenda Felts (Cook Inlet Tribal Council); Peter Holck (Alaska Native Health Board); Susan LaBelle (Alaska Mental Health Trust Authority); Sally Mead (Prevention Associates); Shirley Pittz (RurAL CAP); and Karen Ward (University of Alaska).

HFAK leadership were also invested in the study. For five years, they worked hand-in-hand with the Hopkins team in a range of efforts: developing methods to recruit families into the study, selection of instruments to measure process and outcomes, and interpretation of findings. Together with DHSS staff, they have worked continuously to use study findings to improve program effectiveness. Steering Committee members from the HFAK network of service providers include the following: Linda Borghols (Healthy Families Mountain View); Beth Corven (Healthy Families Fairbanks); JoAnn Hagen (Kenai Family Support Program); Stephanie Hill (Cook Inlet Tribal Council/New Beginnings Program); Wes Hill (New Beginnings Program); Delores Martinez (Cook Inlet Tribal Council/New Beginnings Program); Viann Nations (Cook Inlet Tribal Council/New Beginnings Program); Sue Olson (Kenai Public Health Center); Edy Rodewald (Healthy Families Juneau); Donna Shock (Healthy Families Fairbanks); Kristen Vernola (Healthy Families Mat-Su).

## Executive Summary

Healthy Families Alaska (HFAK) is a well-established child abuse prevention program targeted to at-risk families. HFAK is based on the Healthy Families America initiative promoted by Prevent Child Abuse America. In 1994, the State Legislature, aware that Alaska frequently ranks first in the nation for child victimization, responded to strong community advocacy to establish Healthy Families programs in Alaska; By October 1996, eight Healthy Families programs had been funded in seven communities using a combination of State and Federal funding. The State Department of Health and Social Services (DHSS) administers the HFAK program.

In 1998, the Alaska State Legislature requested a controlled study of HFAK to determine its effectiveness in preventing child maltreatment, promoting healthy family functioning, and promoting child health and development. DHSS issued a call for proposals in early 1999 and awarded the Johns Hopkins University School of Medicine a contract to conduct the study from July 1999 through June 2004. This report describes the study and discusses the implications of the findings for policy and program development and for future research.

The study was a randomized trial of six HFAK sites throughout Alaska. It aimed to compare services actually provided to HFAK standards, assess program success in achieving intended outcomes, and relate program impact to service delivery.

Families were enrolled over 21 months beginning in January 2000. Baseline data on family attributes were collected from HFAK files and maternal interviews. HFAK service data were collected from the program's management information system, record reviews, surveys of staff, and staff focus groups. Outcome data were collected when the children were two years old through maternal interview, home-based observations, child developmental testing, review of medical records, and review of OCS child welfare records.

The study found that HFAK staff were dedicated. There was evidence of substantial effort to promote child development through parent education on child development and through education and role modeling on parent-child interaction. However, actual program services were found to deviate from HFAK standards in many important respects. HFAK sites varied substantially in their adherence to process standards. Notably, even at the sites with the best process measures, actual service delivery fell short of HFAK standards. Although services are intended for three to five years, the highest site-specific retention rate was 46% at two years. While the model calls for weekly home visits, the highest site-specific visit rate was about once every two weeks for active families. While HFAK standards call for an individualized family support plan to guide services, nearly half of families had no plan. Developmental screens were carried out about half as often as called for in the model. Family support workers usually did not address the malleable risks for which families were targeted for service --- poor mental health, partner violence, substance use.

This pattern of actual service delivery was mirrored in HFAK impact on outcomes. On the plus side, HFAK families were significantly less likely than control families to have extremely poor home environments for child learning; HFAK mothers had lower levels of parenting stress, greater knowledge of child development and greater empathy toward their children; and HFAK children had more favorable scores for cognitive development and behavior. On the negative, HFAK did not prevent child maltreatment, reduce malleable parent risks for maltreatment, or improve child health, maternal life course and household functioning indicators.

HFAK patterns of actual service delivery were explained by gaps and inconsistencies in the program model and its implementation system. The Office of Children's Services and the network of HFAK providers can and should address these shortcomings in order to improve program impact. As part of the study, feedback on these challenges has already been used to build OCS capacity to refine the model and its implementation system. Continuing research should be an integral part of future efforts to guide decision making and to test the effectiveness of planned change.

## I. BRIEF HISTORY OF HEALTHY FAMILIES ALASKA

Healthy Families Alaska (HFAK) is a well-established child abuse prevention program serving at-risk families. Based on the Healthy Families America initiative promoted by Prevent Child Abuse America (formerly National Committee to Prevent Child Abuse), HFAK's roots lie in Hawaii's Healthy Start Program on which the HFA initiative is based. In 1994, the State Legislature, aware that Alaska frequently ranks first in the nation for child victimization, responded to strong community advocacy to establish Healthy Families programs in Alaska; one HFAK site was established as a result of that action. By October 1996, eight Healthy Families programs had been funded in seven communities using a combination of State and Federal funding.

Prior to 2002, HFAK primary goals mirrored those defined by HFA: to systematically identify overburdened families in need of support; to enhance family functioning by building trusting relationships, teaching problem solving skills, and improving the family's support system; to promote positive parent-child interaction; and to promote healthy childhood growth and development. Additional goals include: provide services intensively on a voluntarily basis, ensure that all families have a primary medical care provider, promote appropriate use of community resources, and prevent child abuse and neglect. HFAK program outcome indicators include working with parents to address major known risk factors for child abuse and neglect: substance abuse, domestic violence and difficulties with mental health.

Actualizing HFA guidelines and training, HFAK programs attempt to screen all expectant/new parents for risks. Those who screen positive are offered an opportunity to talk with a HFAK representative about the program and about their strengths and needs. The worker uses the Kempe Family Stress Check (KFSC), a 10-item rating scale used to assess parent risk for care giving difficulties based on responses to a thorough psychosocial interview.<sup>1</sup> The KFSC carefully reviews the parent's history and current emotional or behavioral functioning and requires the use of clinical judgment in applying the rating.<sup>2</sup> In general, parents scoring  $\geq 25$  are considered at risk and are offered voluntary intensive home visiting services.

The model calls for home visiting to be provided for three to five years. Families enrolled prenatally are to receive at least one visit per month; those enrolled postnatally are placed on Level 1 and are to be visited weekly. Families are promoted to service levels with lower expected visit frequency as family functioning improves, from biweekly (Level 2) to monthly (Level 3), then quarterly (Level 4). There are explicit criteria for promotion. For example, criteria for promotion to Level 2 include home stability with no crisis for 30 days and ability to identify a positive support system or person other than the home visitor. If a home visitor has difficulty meeting with the family, the program may place the family on Level X; through creative outreach the program attempts to engage them in services. The model also promotes group activities for parents to decrease isolation.

Key to HFAK program services is development of a trusting relationship with the parent through being genuine, respectful and nurturing, honest, non-judgmental, and empathetic; express interest in parent values and culture, and use of humor. Program interventions include: identification of needs and referral to community resources; providing information; role modeling desired behaviors; supporting the development of problem solving skills; focusing on parental talents, experiences and aspirations; accentuating the positive (make 10-20 positive comments during a home visit calling attention to positive behaviors); and supporting parental goal setting and achievement. The model advocates the use of "problem talk", normalizing, "Feel, Felt, Found: Would this work for you?", and "wondering curiosity" for addressing concerns. HFA emphasizes the importance of parental decision making and strongly discourages providing advice. HFAK programs are to collaborate with other agencies to maximize scarce resources, provide a comprehensive array of services to families, and avoid duplication of services.

During visits, occurring mostly in the target child's home, home visitors focus on child growth and development helping parents anticipate and prepare for milestones, screen periodically for developmental delay and make referrals based on findings; support parents in assuring a safe environment for the child; promote positive parent-child interaction through role modeling, feedback on positive interactions, and supporting the development of parental empathy; encourage parents to establish a medical home for child immunization, well child visits, and appropriate use of medical services; and supports parent during

crisis in family relationships, finances, housing, food, clothing, and employment. On each visit, the home visitor is expected to assess the home environment, recognize safety hazards and report suspected child abuse and neglect. With supervisory support, the home visitor encourages caregivers to seek professional support for domestic violence, poor mental health and substance abuse. Home visitors are also expected to support the development and implementation of a safety plan for parents experiencing domestic violence.

The foundation on which the home visitor stands in service delivery is supervision. HFA/HFAK supervisors conduct reflective supervision with each home visitor weekly for one and a half to two hours. The supervisor guides case management; alerts the home visitor of tasks to be accomplished with the family; discusses home visitor observations and interventions, family values, strengths and commitments; and helps the home visitor explore methods of intervention to support family growth. Supervisors use the home visit record as the structure for clinical supervision and supports growth and development of staff.

Another program building block is the Individual Family Support Plan (IFSP). Program training on the purpose of the IFSP has changed over time. Initial training in Alaska using HFA materials (1996) noted that the IFSP assists families and the home visitor in setting achievable goals to alleviate some of the family's stress and to enhance various aspects of parental and family functioning. By 2000, training in Alaska provided by Great Kids, Inc., referred to goal setting (supporting parents in getting what they want) rather than individual family support plans. An emphasis was placed on "the family taking ownership, and that the goals really reflect what the family wants to work toward, not what various care providers want for them." Further, "the family's success or failure in achieving a particular goal matters less than what they have learned and discovered about what gets in their way and what supports them in taking steps towards achieving their goals." HFAK, in 2002 policy on IFSP development determined that the IFSP guides services and includes reviews of the family stress checklist and parents strengths and challenges; goals that reflect parent desires and challenges; and progress made towards stated goals.

HFA values flexibility to tailor services to the individual needs of families. The model does not provide nor require a standardized curriculum believing that "sites serve a variety of communities with different needs and populations and because so many quality curricula are already available."<sup>3</sup> HFAK sites select child development and parent curricula from a variety of sources.

HFAK Implementation System: HFAK is administered by the State of Alaska, Department of Health and Social Services (DHSS) through grants, awarded competitively, to local non profit agencies and in one instance through a service agreement with Public Health Nursing. HFAK programs have historically met Quarterly with State program administrators to develop and implement the program and have continued that practice throughout the study. The program is defined by: DHSS policy and procedure manuals developed collaboratively with programs; HFA Critical Elements, Site Development Guides, and training; and by the individual HFAK programs. HFAK outcome measures have evolved over the past decade (Appendix A). Appendix B lists HFA Critical Elements.

The HFA approach is defined by a set of Critical Elements. The critical elements are the basis of HFA credentialing, a process for measuring and improving program quality. HFA critical elements prescribe service delivery including the target population (expectant/new parents); use of a standardized instrument to target an at-risk population; the nature of services (voluntary); use of positive outreach to engage families and build trust; intensity and length of services (weekly visits initially over 3-5 years); nature of the services (culturally competent); purpose of services (support parent, support parent-child interaction and child development, linking family to a medical provider and other needed community resources); caseload for home visitors (1:15-20 depending on service level) and supervisors (1:5); characteristics of staff; and content of training and supervision.

Prevent Child Abuse America supports the development of HFA through distribution of site development guides, training and training curriculum. The site development guides describe the model; introduce the Critical Elements; provide guidance for conducting a community needs assessment, building support for the program, advocacy, securing funding, qualifications and job descriptions for staff, budgeting, and training. HFA curriculum and training defines the program philosophy and approach and provides a

framework and tools for service delivery, assessing parents for eligibility, content of home visits, and tools for achieving program goals.

HFAK grantees are required to follow the HFA critical elements, adopt and participate in HFA Basic Training, participate in statewide planning/program development meetings; work towards HFA credentialing; and participate in statewide evaluation efforts using standardized data collection systems. The state sets no minimum standards for program staff qualifications beyond a requirement that paraprofessional staff (family support workers and assessment workers) be supervised by qualified professional staff (registered nurse, social worker, etc.). The proposal evaluation/award process reviews the resumes and position descriptions of staff and includes this information in the grant award process. The grant request for proposal includes a site development guide and refers the applicant to suggested staff position descriptions and qualifications. The December 1996 guide suggests that paraprofessional staff have at least a high school diploma; subsequent guides focus on personal characteristics rather than education.<sup>4,5</sup> The site development guides suggest that the program manager have a master's degree in social work, family counseling, psychology, human development, sociology public health, or related field.

All HFAK staff are required to complete HFA basic training consisting of two components, core training (one week training specific to role) and community based training related to providing services to young children and their families. Certified instructors conduct core training for those administering the Kempe Family Stress Checklist and for home visitors; supervisors complete both components of this training. All staff must also complete approximately 100 hours of training arranged by the program parent agency, HFAK leadership staff and local experts that includes: child development, parent-child interaction, family dynamics, child safety, the dynamics of child abuse and neglect, crisis intervention and problem solving, communication skills, domestic violence, substance abuse, infant mental health and other related topics. The model also calls for continuing staff training; programs select topics from a broad menu. Other training methods include shadowing an experienced provider and site visits to community resources. HFAK programs core training was initially provided through the Hawaii Family Stress Center (HFSC) using HFA curriculum. After 1998, Core training was provided by Great Kids, Inc., who delivered a modified curriculum. Alaska also contracted with Great Kids, Inc., for trainer mentoring for two in-state trainers.

## II. STUDY BACKGROUND

### A. Study Objectives

In 1998, the Alaska State Legislature requested a controlled study of the Healthy Families Alaska program to determine its effectiveness in promoting healthy family functioning, maximizing child health and development, and preventing child maltreatment. The Alaska State Department of Health and Social Services issued a call for proposals in early 1999 and awarded Johns Hopkins University School of Medicine a contract to conduct the study. When the study started on July 1, 1999, seven HFAK programs provided services to 375 families in six communities each serving a geographically defined area. Two programs served Alaska natives exclusively. Six of seven programs use paraprofessional staff for service delivery; the Kenai Parent Support Program, blends the HFA paraprofessional approach with a public health nurse home visiting model. The programs were located in Anchorage (two sites), Wasilla, Fairbanks, Juneau, Kenai and Dillingham. The first six sites took part in the study; the Dillingham site was not included because State officials felt it was too early along in its development to be included. The Dillingham site closed in 2003.

**The primary study objective, therefore, is to assess the HFAK effectiveness in achieving three outcomes: 1) prevention of child maltreatment; 2) promotion of health family functioning; and 3) promotion of child health and development.** The study is a true experiment with random assignment of families to HFAK and control groups. Because the primary objective is to determine *effectiveness*, the primary analytic method is intention-to-treat analysis.

Assessment of effectiveness, however, is only a part of the story. As Donald Berwick has noted,

***Every system is perfectly designed to achieve exactly the results it gets.***

The HFAK model under investigation is a complex intervention. It calls for provision of a range of activities at specific intervals with elusive families who are frequently in crisis. Activities include relationship building, provision of information on child growth and development, response to crises, development of an individualized family service plan, periodic child developmental screening, and recognition of and response to malleable parenting risks. These activities are to be carried out in frequent home visits over a period of three to five years. Adherence to this protocol requires considerable effort on the part of staff and buy-in from families.

Because the model is complex, substantial departures are possible. If the elements of the HFAK model are, in fact, essential and if actual HFAK services depart substantially from the model, overall effectiveness will be weakened. Thus, a study using intention-to-treat analysis could conclude negligible effectiveness even if the HFAK model, when implemented faithfully, is efficacious.

Our prior research on Hawaii's Healthy Start Program, which inspired Healthy Families America, has shown that actual services often fall far short of the program model. Thus, we designed the HFAK study to assess not only effectiveness, but to estimate efficacy as well. Efficacy is program impact when actual services adhere to the model. There are several analytic techniques for estimating efficacy. These methods must be used with great caution because, as Piantadosi notes (page 16),

“Many clinicians and other investigators often favor analyses based on treatment actually received, an approach which is advertised as more accurately estimating the true biological effect of the treatment. Their claim may not be true.”

**Beyond the issue of efficacy, there is the issue of *why* actual services depart from the model.** This will be addressed by considering actual service delivery in the context of the HFAK implementation system.

As required in the call for proposals, the study incorporates Jacobs's Five-Tiered Approach (FTA) model of program evaluation<sup>6</sup>. The tiers, in the context of HFAK, are as follows:



*Tier One: Needs Assessment.* This tier had already been achieved as part of program development. At the state level, Alaska recognized the size and nature of the problem of child abuse and neglect and in turn realized a need for intervention services in its communities. It used a needs assessment to justify the creation of the HFAK Program. The program itself uses a form of needs assessment to target families. The study continues the needs assessment through its maternal baseline interviews, which identified individual families' needs. The baseline interviews provided a starting point from which family progress could be measured and a denominator for measuring HFAK home visitors' recognition of and response to family risks for child abuse and neglect.

*Tier Two: Monitoring and Accountability.* Once a program has been implemented, the next step is to monitor performance. HFAK has a comprehensive management information system to monitor family engagement and service delivery. The study built on this management information system.

*Tier Three: Quality Review and Program Clarification.* This tier holds the program data gathered in Tier Two to closer scrutiny. The study used program data gathered in Tier Two to draw a detailed picture of how the program is being implemented. Is the program being carried out as planned? In what areas are there deviations from the model? How can this understanding of actual program activities be used to improve implementation?

*Tier Four: Achieving Outcomes.* This tier moves toward understanding program benefits for enrolled families. The study assessed parent and child outcomes when children were two years old. In particular, it determined whether and how enrolled families changed with regard to the parenting risks for which they were targeted.

*Tier Five: Establishing Impact.* This last tier uses a rigorous evaluation design to produce evidence of program effectiveness. This study used an experimental design to assess differences between home visited and control families in terms of parent and child outcomes.

## B. Research Questions and Hypotheses

In keeping with the Five Tiered Approach, the study incorporates two components: process assessment and a randomized trial of program impact. Three major questions are addressed:

Table II.B1 Major Study Questions

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- **How closely does program implementation mirror the program model?** (Tiers 2 and 3)  
*To address this question, we compared actual services to program standards for duration and frequency of home visiting, provision of core services such as individualized family support plans and child developmental screening, and home visitor recognition of and response to problems of partner violence, poor mental health and substance use.*
  - **How effective is the program in achieving intended outcomes?** (Tiers 4 & 5)  
*This question addresses program effectiveness, that is, its impact on families when considering services as usually provided. To address this question, we compared home visited and control groups on a range of outcome measures for each of the program's main goals. We examined this both for at-risk families in general and for sample subgroups defined by baseline attributes (e.g., first time mothers, teenage mothers, mothers with few psychological resources, families with problems of partner violence).*
  - **How does fidelity of implementation influence achievement of benefits?** (Tiers 2-5)  
*This question addresses program efficacy, that is, HFAK impact on families when services are delivered in a way that is faithful to the program model. To address this question, we examined the relationship of family retention, service provision and service quality on HFAK achievement of its three explicit goals: (a) promoting healthy family functioning, (b) promoting child health and development, and (c) preventing child abuse and neglect.*
-

The study tests three major hypotheses corresponding to the three study questions.

Table II.B2 Major Study Hypotheses

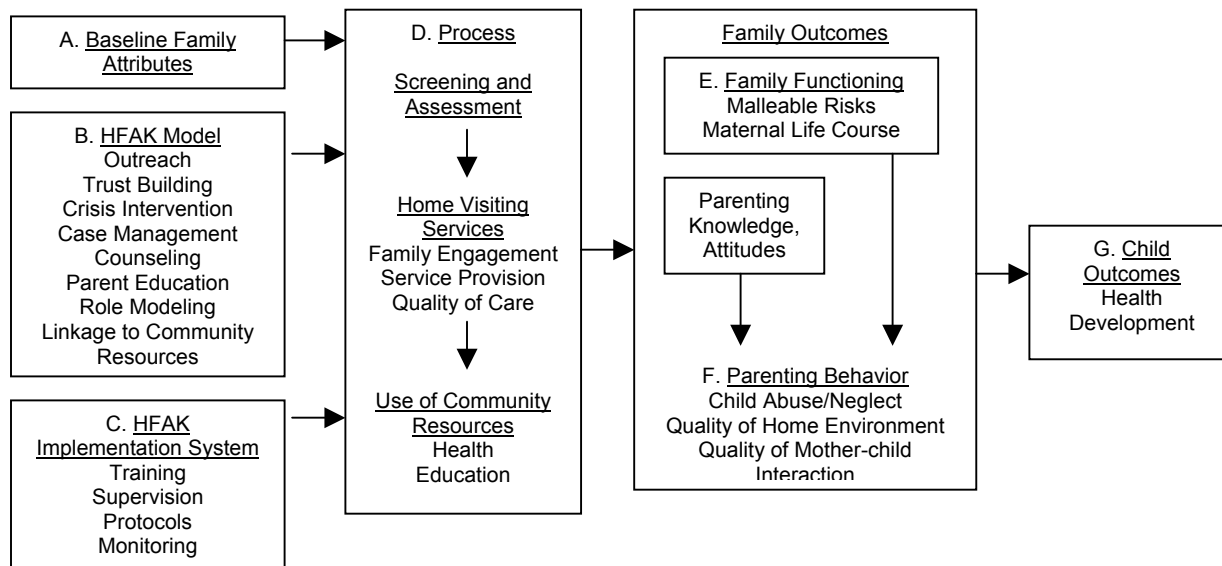
- Actual home visiting services adhere to HFAK standards.
- HFAK promotes healthy family functioning, promotes child health and development, and prevents child abuse and neglect.
- Adherence to HFAK process standards is positively associated with achievement of outcomes.

### C. Conceptual Framework

As shown in Figure II.C1, we trace the causal chain from baseline family attributes, service model and implementation system (Boxes A-C) to actual service delivery (Box D), to family functioning (Box E), parenting (Box F), and child outcomes (Box G) from study enrollment until the child is 2 years old.

Baseline risk and protective factors are conceptualized to influence family functioning which, in turn, influences parenting behavior and children’s health and development. The HFAK model and implementation system work together to determine actual home visiting services delivered. Baseline family attributes also influence actual services provided, with some families more receptive or better able to engage in home visiting. Home visiting and other community services work together to influence family outcomes. Home visiting and the medical home, for example, aim to influence family functioning and parenting positively in the child’s first two years of life, thereby promoting child health and development. Parenting and family functioning in the child’s first two years of life track to child outcomes later in life.

Figure II.C1. Conceptual Framework



### III. METHODS

#### A. Design

The study is a true experiment, with random assignment of at-risk families to two study groups (Figure 1). A randomized design creates study groups that are "balanced" on characteristics that could influence the outcomes. This balance controls for many threats to internal validity, or the truthfulness of conclusions about whether the HFAK causes the group differences that are found.

The research design provided several mechanisms for minimizing attrition from the study. In recruitment, we emphasized the responsibilities of participation and the importance of taking part in the follow-up. Participating families were given incentives for completing interviews. Ample tracking information was obtained at baseline. Parental permission was obtained to access identifying information in existing information systems. Mothers were contacted every eight months to track changes in address.

Figure III.A1. Study Design

Prenatal Period or Child's Birth			0-14 Days After Risk Assessment		8 Months After Birth		16 Months After Birth		2 Years After Birth
Families Assessed as At-Risk	HFAK Group (n=158)	↗	O <sub>0</sub>	X	T	X	T	X	O <sub>1</sub>
	Control Group (n=158)	↘	O <sub>0</sub>		T		T		O <sub>1</sub>

where R = Randomization  
 X = Healthy Families Alaska Program  
 T = Tracking of Families  
 O<sub>0</sub> = Baseline measurement of family risk factors  
 O<sub>1</sub> = Measurement of child and family outcomes

#### B. Study Population and Sample

The population of interest is families whose circumstances put their newborns at environmental risk for poor health and social outcomes. The State of Alaska operationally defines these as families who score  $\geq 25$  on Kempe's Family Stress Checklist. Table III.B.1 compares selected attributes of families of newborns in Alaska in general and those enrolled in HFAK in 2000-2003. Mothers in at-risk families are younger, have less formal education, and are less likely to be married. Alaska Natives are represented about the same in at-risk families as in the general population of parents of newborns in Alaska.

	Families Overall	At Risk Families
Mother <20 years old	12%	33%
Mother <12 <sup>th</sup> grade education	14%	41%
Parents unmarried	33%	81%
Alaska Native	25%	29%

Sample Inclusion Criteria: We aimed to enroll a sample (n=316) and expected it would take 21 months to carry out recruitment. A family was eligible for inclusion in the study if it met five criteria (Table III.B.2). We wanted study participants to be representative of families who usually enroll in HFAK. Thus, we designed sampling procedures that did not interfere with usual HFAK family assessment protocols.

Inclusion Criterion	Rationale
1. Family resides in a community served by one of six HFAK programs participating in the study	Six of the state's seven HFAK programs had been operating for at least a few years; the other program was still very new. Health Department administrators felt it was premature to include that program in the study.
2. Family identified as at-risk by HFAK staff following the usual HFAK protocol	The sample was more likely to be representative of the target population if the study used the usual operational definition for risk status.
3. Family not previously enrolled in HFAK	HFAK enrollment for a prior birth might contaminate the control group.
4. Mother able to speak English well enough to complete study activities.	One of the six programs had a Spanish-speaking home visitor to work with Hispanic families. These families were rare. We opted to limit the study to families who spoke English well enough to receive services in English.
5. Family willing to enroll in the HFAK program.	It would have made no sense to enroll in the study families who were reluctant to take part in home visiting.

Baltimore-based research staff created a study log for each program site using a table of random numbers. Throughout recruitment, the research fieldwork coordinator logged all assessment worker calls for family assignments. She periodically compared the log with assessment files to assure that recruitment was carried out according to the study protocol. Group assignment was random within each program in blocks of six. At-risk families were recruited January 2000 to July 2001. HFAK assessment workers used the usual HFAK protocol to screen and assess families. By protocol, families scoring  $\geq 25$  on Kempe's Family Stress Checklist were defined as at-risk. If the family was at-risk, the assessment worker described HFAK and the study and asked for the mother's signed informed consent to participate.

- Families who agreed to participate in the study: Signed informed consent was obtained according to procedures approved by the Johns Hopkins Institutional Review Board (IRB) and the IRBs of institutions at which the family had been identified. The consent form included parental permission to review the child's medical records, to review other social and health care records, and to obtain child protective services information from the Office of Children's Services.

After the mother agreed to participate, the assessment worker called the evaluation fieldwork office to learn the family's study group assignment and then shared this information with the mother.

- Families interested in home visiting but not in the study: These families were not followed in the study but still had an equal chance of being assigned to home visiting versus the control condition. That is, willingness to take part in the study did not alter the family's likelihood of receiving home visiting. The assessment worker called the evaluation fieldwork office to determine the family's group assignment. The fieldwork director entered the family's name in the next available line of the log and gave the assessment worker the group assignment to share with the family.
- Families not interested in home visiting: The assessment worker followed the usual HFAK protocol. She thanked the family for its participation in the assessment and gave the family a list of community resources appropriate for families of newborns.

Families were randomly assigned by the investigators to either the HFAK or control group. The HFAK group was to receive program services according to the usual program protocols. The control group received referral to other community services as is usually done for HFAK-eligible families who are identified when program intake is closed.

Sample Recruitment: We recruited the study sample over 19 months, from January 2000 through July 2001. Overall, 388 families met the inclusion criteria. Of these, 364 initially agreed to take part in the

study and were randomized. A total of 179 families were assigned to the HFAK program group and 185 were assigned to the control group. Overall, 325 families completed a baseline interview; the other 39 either could not be located for the interview or changed their minds about taking part when they were contacted for the interview. Of the 325 families, 162 were in the HFAK group and 163 were in the control group.

Family Tracking: Families were tracked by mail at 8- and 16-months following the baseline interview. The mother was sent a \$10 gift certificate by certified mail with forwarding address requested. The post office notified the fieldwork office of any changes in address as well as families whose address is no longer known. Research staff followed up on address changes by contacting friends and family members identified by the mother at baseline for this purpose.

Sample Follow-Up: All HFAK Group families were followed until the child turned two years of age, regardless of whether they moved or dropped out of the HFAK program itself. Control Group families maintained their control group status for two years. We expected that some Control Group families would have a subsequent birth during the two years of follow-up. To avoid contamination, Control Group families were not eligible for the HFAK program for these births.

Desired and Actual Sample Size: Desired sample size was determined considering desired precision, statistical significance, explicit program goals and the trade offs between total sample size, breadth of data collection, and duration of follow up. To estimate population parameters, we wanted sufficiently precise estimates (e.g., a 95% CI with a total width no more than 0.15 for proportions and no more than 0.33 standard deviations for means).

For analysis of group differences, we focused first on expected group differences in substantiated CPS reports in the first two years of life. The estimated report rate overall for birth to two years was between 15% and 20%. The HFAK program standard was that fewer than 5% of families would have substantiated CPS reports (Appendix A). Thus, the anticipated reduction in the substantiated CPS report rate was comparable to that found in two other randomized trials of home visiting. The first trial<sup>7</sup> was of the nurse home visitation model; it found rates of 19% and 4% for control vs. treated poor, unmarried teenagers ( $p < .07$ ) and rates of 15% vs. 5% for teenagers overall ( $p < .07$ ). The second trial<sup>8</sup> was Hardy and Streett's study of a paraprofessional home visitor in an underserved community in Baltimore. That study found rates of 10% and 2% in control and treated groups ( $p < .01$ ).

Practical considerations supported a 20-22 month period of sample selection. These included the five year limit on the study, the time needed for start up, and the desirability of following families for two years, in order to pick up on developmental delays attributable to poor environment. Using program enrollment statistics for 1998-1999, we estimated that a sample of 316 could be enrolled in the study over 21 months. With equal allocation to experimental and control groups, a total sample of 316 (158 per group) would have reasonable power to detect differences in substantiated CPS rates of the magnitude suggested by usual report rates and HFAK goals, reductions comparable to those demonstrated by Olds<sup>7</sup> and smaller than the reduction demonstrated by Hardy and Streett<sup>8</sup> in their randomized trials of alternative home visiting models (Table III.B3).

Table III.B3 Study Power for Selected Group Differences and Alphas

Control Group n=158	HFAK Group n=158	Alpha <sub>(2)</sub>	Power
20%	5%	.05	.99
15%	5%	.05	.84
20%	10%	.05	.70
15%	10%	.05	.26
20%	10%	.10	.80
15%	10%	.10	.62

Beyond substantiated CPS reports, the study was to assess impact on a range of complementary measures of child maltreatment, family functioning, parenting and child outcomes. Most of these were to be derived from follow up interviews with the mother. We anticipated an 83% interview follow up rate in each group, yielding 131 per group. For descriptive statistics, a sample of 131 subjects would allow us to construct a 95% CI with a total width of 0.15 around a point estimate of 25% and a 95% CI with a total width of about 0.35 sd around a mean. A sample of 131 per group would yield a power of 0.80 to test for statistical significance of an effect size of 0.35 and a power of 0.80 to test for a trend for an effect size of 0.31. As St. Pierre and colleagues note (Packard monograph on home visiting, 1999), an effect size of 0.25 is the minimum considered clinically meaningful in educational outcomes such as measures of child development.

We actually enrolled 325 families and achieved an 85% follow-up rate, yielding a final sample size that slightly exceeded our goals. The HFAK and control group members who were successfully followed at 2 years were comparable on baseline attributes except that HFAK group mothers were less likely to have low psychological resources at baseline (36% HFAK vs. 48% control,  $p=.05$ ) and were less likely to be married to or living with the father of the baby (51% HFAK vs. 62% control mothers,  $p=.06$ ). This group difference in poor psychological resources was noted for the entire sample at baseline, but the group difference in relationship with father was not present at baseline.

### C. Data Collection Procedures

#### 1. Baseline Family Attributes

We measured baseline family attributes using two data sources: 1) the HFAK MIS and structured interviews with the mother.

MIS: The MIS contains results of the assessment scores for each parent for each item on the Kempe Family Stress Checklist.<sup>1</sup> Each item is scored 0 (no risk), 5 (minor risk) or 10 (severe risk). A computer file containing the scores for each item for each parent was created for the study by DHSS staff.

Some FSC items represent a collection of risks. Because we wanted to categorize each family on whether or not substance use was a baseline risk for each parent, the fieldwork director reviewed the actual notes for each assessment to determine whether substance use was a reason for the positive score on this item.

Parent Interviews: Research staff conducted a structured baseline interview with the mother. The baseline interview measured both demographic variables and malleable attributes. The interview took about one hour to administer. It provided data for three purposes: 1) to assess the baseline comparability of the HFAK and control groups; 2) to identify families with three major risks for child maltreatment: poor mental health, domestic violence and substance use; 3) to measure baseline attributes that might influence family engagement or moderate program impact on outcomes. Mothers were provided \$30 remuneration.

#### 2. Process Measurement – HFAK Services

We measured actual HFAK services using three data sources: 1) the HFAK Management Information System (MIS); 2) HFAK family records; and 3) in-person parent interviews at baseline and when the child was two years old.

MIS and Family Records: We compared MIS and HFAK records to assess the quality of MIS data. We found that some aspects of the process of care could be measured accurately from MIS data. These included duration of enrollment, visit frequency and dates. There was less certainty about the quality of MIS data for measuring aspects such as completion of individualized family support plans, home visitor recognition of risks and actions taken in response to positive developmental screens.

Beyond the limitations of the MIS as a data source, we learned in focus groups with home visitors that program-specific abbreviations might impair research staff's ability to measure such activities from family records. To address these, we devised a two-step strategy to review HFAK records. First, HFAK staff reviewed each chart, flagging every instance where specific issues were addressed. Then, research staff reviewed the flagged chart, abstracting information on the date and content of each activity.

Parent Interviews: The HFAK model is built on the assumption that the home visitor must earn the family's trust. To measure this, the Year 2 follow-up interview included items eliciting the primary care giver's rating of the home visitor, if the respondent recalled that the family did, in fact, have someone who visited in the home.

### 3. Family Outcomes

We collected outcome data from five sources: 1) interviews with the child's primary care giver and/or mother; 2) medical records; 3) DFYS management information system; 4) observation of the home environment and of mother-child interaction; and 5) child cognitive developmental testing. The use of multiple data sources is critical to identifying and addressing biased measurement.

Follow-Up Interview: Research staff interviewed the mother when the child was two years old. In cases where someone other than the mother was the primary caregiver, we interviewed this person. In cases where the mother still played a major role in parenting, though not as primary caregiver, we interviewed both the primary care giver and the mother. Families were compensated \$50 for their participation in follow-up data collection.

Medical Records: We identified health care facilities used by the child through parent interview. The co-principal investigator reviewed the child's primary care records, hospital and emergency room records, urgent care center records and public health nursing records. Using a computer-assisted structured data collection form, she abstracted information on a range of variables.

Office of Children's Services (OCS) Management Information System: OCS, Child Protection maintains a computerized system (PROBER) to track key attributes of protective service reports. The HFAK MIS manager provided OCS Child Protection with a computer file of subject identifying data for matching with the PROBER file. OCS provided study staff with a file containing the all report records for study children from January 2000 through December 2003. For three study children who had been born in 2002, we obtained OCS report data through their second birthday, which occurred in 2004.

Observation of the Home Environment: Wherever possible, follow-up data were collected in person at the family's home. As part of follow-up, research staff administered the HOME Scales to assess the quality of the home environment and the NCAST Teaching Scale to assess the quality of parent-child interaction. HOME scale data are collected predominantly through observation; the NCAST is based solely on observed behaviors.

Child Developmental Testing: For families where follow-up data were collected in-person and where the child still lived in Alaska, research staff administered the Bayley Scales to assess child development. This was done in the child's home rather than in a clinical setting.

## D. Measurement

### 1. HFAK Services

Process assessment focused on family engagement, service provision and quality of care (Table III.D1). These correspond to monitoring and accountability and to quality review and program clarification in the Five-Tiered Approach to Program Evaluation.

Most measures were straightforward. Family engagement was measured as length of program enrollment, reason for early departure, and maternal ratings of key attributes of the home visitor's character and actions (e.g., empathy, support in building on family strengths, cultural competence). Service provision is measured by number of visits in relation to program standards, participation of family members in visits, and provision of core services, such as development of service plans, in comparison to service standards. Quality of care was measured through recognition and response to key problems such as developmental delay and problems with substance abuse and domestic violence.

Table III.D.1 Summary of HFAK Process Measurement

HFAK Process of Care Indicators	Measures: Operational Definitions	ANNUALLY	AT BASELINE	FOLLOW UP AT 2 YEARS	HFAK MIS and HFAK Records
		HFAK MIS, HFAK Records, Interviews	Parent Interview	Parent Interview	
<b>Family Engagement</b>					
Length of enrollment	Enrollment in weeks	X			X
Reason for departure	Refusal, move, ineligibility				X
Trust of home visitor	Home Visitor Relationship Scale			X	
<b>Service Provision</b>					
Home visit frequency	# of visits, annual rates, # made relative to # called for in model				X
Family involvement	# visits involving mother, father, other family members				X
Other contacts	# phone contacts/attempts				X
Visit content	Family receipt of each core service*				X
Home visitor	Number of home visitors per family				X
<b>Quality of Care</b>					
Problem Recognition	Recognition rates of key problems	X	X	X	X
Problem Response	Response/resolution rates *	X			X

\*For example, identification of and referral for problems of substance abuse, mental health problems

## 2. Baseline Family Attributes

Table III.D2 lists the variables. The baseline instrument was comprised of validated scales and items drawn from national surveys. It elicited information on demographics, household composition, employment and schooling history and aspirations, child bearing, health care utilization, social support, maternal mental health, parental substance use and domestic violence, and maternal psychological resources (e.g., self-esteem, coping ability). Some measures were of fixed factors, e.g., maternal age at delivery. Others were measures of malleable attributes, e.g., parent mental health. The former are useful in targeting families for intervention; the latter are variables one would hope to improve through home visiting.

Some measures of HFAK services, such as quality of care measures related to home visitors' ability to identify and respond to key problems (e.g., poor mental health, substance use) require a denominator. For calculating service quality as measured by recognition and response rates, we used parent interviews and child testing to provide denominator data (number of families with key problems, e.g., poor maternal mental health, child developmental delay) and HFAK record review to provide numerator data (e.g., number of families with poor mental health noted as recognized by the home visitor).

## 3. Family Outcomes

Table III.D2 lists the variables. To select specific outcome measurement instruments, we consulted with program leadership and staff. First, we elicited their description of the outcomes they felt were their most important intended outcomes. Then, we conducted a thorough review of the literature to identify candidate measures, based on their demonstrated validity, reliability, appropriateness for the Alaskan population, and prior use in home visiting research. We distributed the candidate measures to



program leadership and staff for their review and asked them to rate the face validity of each instrument as a measure of their intended outcomes. For each construct, we selected one or more instruments to make sure the resulting instrument reflected the opinions of each program.

CONSTRUCT	MEASURE/INSTRUMENT	Baseline Interview	Year 2 Interview	Medical Record	PROBER Files	Home Obs/ Testing
<b>Child Abuse and Neglect</b>						
Reports to OCS	Substantiated reports, all reports		X		X	
Fulfillment of parenting role	Relinquishment of primary caregiver role		X	X		
Medical neglect	Hospitalization for ACSC <sup>3</sup>		X	X		
Physically abusive parenting	Conflict Tactics Scale <sup>10</sup>		X			
Poor mother-child interaction	NCAST Teaching Scale <sup>11</sup>					X
Poor quality home environment	HOME Scales <sup>12</sup>					X
<b>Family Functioning</b>						
Use of Community Resources	Level of unmet need		X			
Maternal life course						
Education	HS degree or in school at follow-up	X	X			
Childbearing	Occurrence of rapid repeat birth		X			
Household functioning						
Economic Status	Household income relative to poverty level	X	X			
	Household member employment status	X	X			
Social support	Maternal social support index <sup>13</sup>		X			
Social skills	Community life skills scale		X			
Partner violence	Occurrence of partner violence per CTS <sup>10</sup>	X	X			
	Injury from partner violence per CTS <sup>10</sup>	X	X			
Maternal Mental Health	Depressive symptoms per CES-D <sup>14</sup>	X	X			
	General mental health per MHI-5 <sup>14</sup>	X	X			
	Self Esteem		X			
	Confidence in adult relationships <sup>15</sup>		X			
	Parenting Stress Index <sup>16,17</sup>		X			
Maternal Substance Use	Quantity/frequency, Addiction Severity Index, CAGE, S-MAST <sup>18,21</sup>	X	X			
Maternal Parenting Knowledge	Knowledge of Infant Development Inventory		X			
	Recognition of child developmental delay		X			
Maternal Parenting Attitudes	Attitudes toward physical punishment <sup>22</sup>		X			
	Adult-Adolescent Parenting Inventory <sup>23</sup>		X			
	Infant Caregiving Inventory <sup>24</sup>		X			
Maternal Ratings of Parenting	Maternal Self-Efficacy <sup>25</sup>		X			
	Parental Satisfaction Scale <sup>26,27</sup>		X			
Parenting Behavior						
Preventive Care	Has primary care provider at 2 years		X	X		
	Immunization status		X	X		
	Adherence to AAP WCV Schedule		X	X		
Disciplinary Tactics	Use of nonviolent discipline and common forms of corporal punishment per CTS <sup>10</sup>		X			
Mother-Child Interaction	NCAST Teaching Scale <sup>11</sup>					X
Quality of Home Environment	HOME Scales <sup>12</sup>					X
<b>Child Health and Development</b>						
Morbidity	Hospitalizations, Emergency Department Use, Injuries Requiring Medical Care		X	X		
Cognitive development	Bayley Scales <sup>28</sup>					X
Behavior problems	Child Behavior Checklist Scale <sup>29</sup>		X			

The follow-up interview used a life history approach to describe changes in the preceding two years in terms of partners, substance use, domestic violence, health care, and family support service use. It elicited information on outcomes pertinent to HFAC goals (e.g., parenting stress, child injury and illness, maternal perception of child development, maternal knowledge of child developmental milestones, parenting attitudes and behaviors, discipline, and appreciation of the influence of parenting behaviors on child development).

In addition to the follow-up maternal interview, child developmental testing and observations of the parent-child interaction were conducted. We assessed child cognitive development using the Bayley Scales, the quality of the home environment using the observational HOME Scales, and the quality of mother-child interaction using the observational N-CAST Teaching Scale.

#### 4. Preventing and Dealing with Measurement Bias

Experimental studies of interventions such as drugs are usually placebo-controlled. That is, subjects not assigned to receive the drug in question receive instead a placebo that is indistinguishable from the drug in appearance and taste. In such studies, subjects are 'masked' --- they are unaware of whether they are receiving the drug or the placebo. This guards against measurement bias, which is a systematic shift from 'real' outcome measures in one direction or the other.

In studies of social interventions, one cannot mask the family as to group status. In studies of home visiting, for example, families know whether they are assigned to home visiting or to the control group. When families know their group assignment, it is possible that they will give biased responses to questions, depending on their beliefs about the intervention and their attitudes toward their status as an intervention or control group member. If a family is assigned to home visiting, and has favorable opinions about home visiting, the family might give responses that are biased toward 'making the program look good'. If a family is assigned to a control group, it might give answers biased toward making itself look resilient enough to do well without special services. Alternatively, a control family might adopt an attitude of giving up and bias its responses toward undesirable outcomes. In short, in studies where subject masking is not possible, it is important to use measures that are not subject to reporting bias, as much as these are available and feasible, and to test for the likelihood of reporting bias in self-report measures.

It is also important for research staff to be masked as to family group status, especially when outcome measures are subjective. If research staff have preconceived notions of program impact and are aware of family group assignment, their measurements can be biased.

We used several strategies to discourage bias in measurement and to identify bias in self-report measures: 1) independence of the study from the program itself; 2) masking of interviewers to family group assignment; 3) design of instruments and protocols to maintain masking; 4) use of the most objective of available valid and reliable outcome measures; 5) outcomes data collection by research staff, rather than program staff; 6) multiple data sources where recall bias could be a problem, (e.g., use of both medical records and parent report of immunization status); and 7) use of measures of social desirability and defensive responding to identify and control for reporting bias.

Overall, 15% of HFAK subjects and 12% of control subjects were defensive responders ( $p=.38$ ). This suggests the absence of differential response bias between study groups. In our analysis of program effects, we consider measurement bias and how it might have influenced results.

#### E. Analysis

We began with exploratory data analysis to characterize univariate distributions, create scales scores, assess the internal consistency of scaled indices, and establish associations among baseline family attributes. Basic sample statistics (e.g., means and proportions) and 95% confidence intervals were calculated to describe the baseline attributes of at risk families, HFAK services actually provided, and primary care attributes.

##### 1. Hypothesis 1 -- Actual home visiting services adhere to the HFAK model.

Actual services vs. HFAK standards: Process measures are of two basic types: binary and continuous. We calculated point estimates for actual service delivery and compared these with program standards.

Moderating Effects of Baseline Family Attributes: We suspected that family attributes would moderate service delivery. For HFAK families, we used bivariate statistical tests (difference in means/Student's t test, difference in proportions/chi-square, Pearson's correlation coefficient) to assess the strength and statistical significance of associations between baseline attributes and key process measures. Key process measures were developed with input from program leadership. They included a) receipt of at least one home visit; b) program enrollment >6 months; c) program enrollment >12 months; d) documented evidence of family support worker discussion of parenting risks of poor maternal mental health, domestic violence, and maternal substance use; and e) documented family support worker action to address these parenting risks.

Influence of Implementation System on Process of Care: We used a qualitative approach to link program implementation system attributes to process measures. In Quarterly meetings, we shared process findings with HFAK administrators, leadership and staff to elicit their interpretation of the reasons for departures from the model overall and for differences in adherence among HFAK sites.

2. Hypothesis 2 – HFAK prevents child abuse, promotes healthy family functioning, and promotes child health and development.

Overall Program Effectiveness: To assess program effectiveness, we used generalized linear models to estimate and test the statistical significance of group differences in outcomes. For normally distributed outcomes, the multiple linear regression model was used; for binary outcomes, the logistic model; and for low incidence outcomes, the log-linear model. All models included as covariates baseline variables on which the HFAK and control groups differed. Models also included HFAK site as a cluster variable to account for the lack of independence of observations within site. Confidence intervals for group effect were constructed around point estimates.

Biologic mother and other primary care givers: We repeated analyses of group impact using two subsamples. First, we assessed impact for mother/child pairs where the biologic mother was still the child's primary care giver at the year 2 follow-up. Second, we assessed impact for caregiver/child pairs using whoever the primary caregiver was at the year 2 follow-up.

Moderators: For outcomes where there was a significant group effect we repeated the analysis adding each hypothesized moderator of HFAK impact and a moderator X group interaction term to test hypotheses that the observed effect applied to at-risk families overall vs. being limited to population subgroups. The four binary moderators were parity (first child vs. second or higher order), baseline partner violence (positive, vs. negative), maternal psychological resources (poor vs. adequate), and extreme maternal baseline risk (positive vs. negative). Where the interaction term achieved our cutoff for a trend ( $p < .10$ ), we estimated group effects for each population subgroup.

We repeated this analysis for outcomes where there was the suggestion of program impact. These were operationally defined as binary outcomes with an AOR  $< .75$  or  $> 1.33$ , and continuous outcomes with an effect size  $> .25$  but with a group difference not large enough to meet our cutoff for a trend.

Mediators: For outcomes where there was a significant program impact, we applied the methods of Baron and Kenney<sup>30</sup> to test for mediators. This involved model building incorporating covariates that had been found in bivariate analysis to relate both to study group and to the outcome of interest. If introduction of such a variable decreased the strength of association of study group with the outcome, it suggested that the covariate is a part of the causal pathway from program to the outcome.

For outcomes where there was not a significant program impact, we tested the association of hypothesized causal variables with the outcome of interest and with study group. If the hypothesized causal variables were significantly associated with the outcome of interest but were not associated with study group, it provided evidence of the reason for program failure to influence the outcome of interest.

3. Hypothesis 3 – Adherence to HFAK standards → achievement of outcomes.

Estimating Efficacy: The second hypothesis tested overall program effectiveness as the HFAK model was actually implemented. To the extent that actual services deviate from essential aspects of the model, effectiveness is compromised. The third hypothesis, therefore, focuses on program efficacy, that is, impact when actual service delivery is faithful to the HFAK model.

Measures of Service Adequacy: To estimate efficacy, we need an operational definition of ‘adequate services’. To this end, we worked with HFAK leadership and Steering Committee members to develop several different measures at the April 2004 and June 2004 Quarterly and Steering Committee Meetings.

- Measures Based on Duration of Enrollment and Home Visit Frequency: The first candidate measures of ‘adequate dose’ were derived from simple measures of service quantity and duration. Table III.D.3 displays these definitions and the number of HFAK families for whom actual services met each definition. We used the first three operational definitions but not the fourth. We could not use the fourth definition, ‘High Dose’, because there were too few families to make meaningful comparisons.

Table III.D.3. Definitions of Adequate HFAK Services Based on Duration of Enrollment / Visit Frequency and Subsample Whose Services Meet Definition	Of HFAK Group (N=126) <sup>1</sup>	
	n	%
At least one postnatal home visit	117	93%
Enrollment >6 months	99	79%
Enrollment >12 months	73	58%
High Dose <sup>2</sup>	7	6%

<sup>1</sup> Biologic mother completed follow up interview AND had custody of child at follow up

<sup>2</sup> Enrolled ≥ 2 years AND on Level X < 3 months AND received ≥75% of expected visits

- Measures of Service Adequacy Based on Home Visit Content / Trust of Home Visitor: The above measures are crude; they do not reflect what actually happened during home visits. Together with program leadership and Steering Committee members, we decided on a course to develop additional measures that reflected visit content and service quality. As will be discussed in the Results section, the program was not effective in impacting poor maternal mental health, partner violence or maternal substance use.

To see whether HFAK was efficacious in impacting these outcomes, we developed risk-specific measures of service adequacy. In doing this, we followed a protocol developed by those attending the June 2004 meetings. In measuring home visit content, we had reviewed HFAK records, noting each instance where the family support worker documented recognition of and response to each risk. In this review, we were guided to visits that included recognition and response by ‘flags’ that had been inserted into the record by HFAK staff at each site specifically for this data collection activity. Our research staff carefully reviewed the documentation for each visit and abstracted the date of each instance of recognition and response. We coded the type of response (e.g., observation only, general discussion with parent, specific action taken to address risk). HFAK leadership and Steering Committee members recommended creating dose measures that incorporated type of action taken to address a risk, and maternal trust of the home visitor. We created four dose measures for each risk incorporating these attributes.

Table III.D.4 summarizes the dose definitions and the number and percent of HFAK families with evidence of receiving each dose. When considering only whether an issue was discussed (dose 2 and Dose 4), about 20-40% of HFAK group families had evidence of achieving adequate services. When considering maternal report of trust as well as discussion of the issue, 7-17% of families achieved adequate services.

Table III.D.4 Definitions of Adequate HFAK Services Based on Visit Content and Subsample Whose Services Meet Definition, (N = 162, all HFAK families).

	Dose 1 <sup>1</sup>		Dose 2 <sup>2</sup>		Dose 3 <sup>3</sup>		Dose 4 <sup>4</sup>	
	n	%	n	%	n	%	n	%
Substance Use	13	9%	49	30%	10	7%	37	23%
Partner Violence	16	12%	48	30%	12	9%	31	19%
Poor Mental Health	23	17%	70	43%	17	12%	53	33%

<sup>1</sup> Dose 1: [Any general discussion of risk or inclusion of risk in IFSP] and [mother's agreement with two statements: "I can talk with my home visitor about everything" and "My home visitor talks with me about sensitive issues".] Twenty-four of the 162 HFAK families did not have a Y2 interview, so we could not determine their agreement with the two home visitor rating statements. N = 138 families with complete information to correctly define this level of dose; <sup>2</sup> Dose 2: Any general discussion of risk or inclusion of risk in IFSP; <sup>3</sup> Dose 3: [Any specific action to address risk or inclusion of risk in IFSP] and [mother's agreement with two statements: "I can talk with (my home visitor) about everything" and "My home visitor talks with me about sensitive issues".] Twenty-four of the 162 HFAK families did not have a Y2 interview, so we could not determine their agreement with the two home visitor rating statements. N = 138 families with complete information to correctly define this level of dose; <sup>4</sup> Dose 4: Any specific action to address risk or inclusion of risk in IFSP

Analysis of HFAK Efficacy– Adequacy Based on Duration of Enrollment / Visit Frequency: For each dose measure based on duration of enrollment / visit frequency, we used two approaches to analysis.

- We applied the method of Zeger and Sommer<sup>31</sup> to create an inferred subset of families in the control group who would be similar to HFAK families with an 'adequate dose' of service and then compare rates of binary outcomes in this inferred control group and the 'adequate dose' HFAK group. There were no meaningful differences between groups on any outcome.
- We tested for baseline differences in HFAK families whose actual services met vs. failed to meet each dose definition. In nearly all instances, we found no association between baseline attributes and dosage. Thus, there was no need to control for baseline attributes in analyses of efficacy. We calculated and compared outcomes for HFAK families with successively higher levels of service. There was no evidence of a 'dose response', that is, no evidence that families with higher levels of adequate services had better outcomes than families with lower levels of service.

Analysis of HFAK Efficacy – Adequacy Based on Home Visit Content / Trust of Home Visitor: We dropped Dose 1 and Dose 3 for there were too few families whose services met the criteria for their definitions. For Dose 2 and Dose 4, we attempted to create propensity scores to adjust for baseline attributes that distinguished families with vs. without an "adequate dose".<sup>32,33</sup> For some outcomes, we found that only one or no baseline attributes were significantly associated with dose. For these, we used multiple logistic regression to test for a difference between adequate dose HFAK families and control families after controlling for baseline risk status. For outcome-specific dose variables associated with a constellation of baseline family attributes, we calculated propensity scores.

Period of Observation: It could be argued that HFAK should not be held accountable for adverse events that occur early in the course of working with a family. For example, substantiated reports of maltreatment in the first two weeks of life should be excluded because they most likely relate to prenatal maternal substance use, an event that occurred for most families prior to HFAK enrollment. One could extend this to substantiated reports occurring, say, in the first six months of life, reasoning that the program would not yet have had the opportunity to alter family attributes that contribute to abuse.

For most outcomes, this was not an issue, as the outcomes were measured when children were two years old and applied only to the preceding month or year. For substantiated reports of maltreatment and a few other outcomes (hospitalizations, relinquishment of role of primary care giver), measures could relate back to birth. We did exploratory analyses with substantiated reports and other indicators of child maltreatment to examine this phenomenon. For example, we calculated rates of substantiated reports in the child's 2nd year of life and compared HFAK families receiving  $\geq 12$  months of service to an inferred control sample. In all instances, there was no difference between groups.

## IV. RESULTS

### A. Baseline Family Attributes

Demographic and behavioral risk factors were common at baseline (Table A1). About half of families lived below the poverty level; only about half of the parents were married or living together. Problem alcohol use and drug use were common for both mothers and fathers.

Table IV.A.1 Baseline Family Attributes per Maternal Interview, n=325

Mother's age in years (average)	23.5±5.7
Mother graduated from high school	58%
Mother worked in year prior to enrollment	73%
Below poverty level	58%
Index child was/will be first birth	51%
Mother speaks language other than English at home	15%
Mother's ethnicity	
Alaska Native	22%
Caucasian	55%
Multiracial	8%
Other	15%
Parent's relationship	
None	20%
Friends/going together	26%
Living together	32%
Married	22%
Parents married or living together	53%
Partner violence <sup>1</sup>	49%
Low psychological resources <sup>2</sup>	43%
Heavy alcohol use	
Mother <sup>3</sup>	36%
Father <sup>4</sup>	32%
Any drug use	
Mother <sup>5</sup>	48%
Father <sup>4,6</sup>	45%

Fisher's Exact Test; <sup>1</sup> Any incidents of physical assault by mom or partner. Excludes mothers without a partner; <sup>2</sup> Combination of poor mental health, sense of mastery and intellectual functioning; <sup>3</sup> Ever had six or more drinks at any one time prior to last year; <sup>4</sup> In the last year; <sup>5</sup> In the last 2 years; <sup>6</sup> Limited to cases where mother knew answers to questions about father's drug use, n=109 and 100 for HFAK and Community Services groups respectively.

The Family Stress Checklist is a measure used by program family assessment workers (parent visitors) to determine level of family risk and ultimately family eligibility for the HFAK home visiting program services. The FSC is usually administered via a semi-structured interview with the mother, who reports both on her own attributes and on those of the child's father. The most common severe risks for the mothers themselves were: a history of childhood abuse; a history of criminal activities, mental illness or substance abuse; low self-esteem and poor coping skills; and multiple stressors (Table A2). The least prevalent risks were a past suspicion of child abuse, a propensity for violent outbursts, unrealistic expectations of the child, past harsh punishment of children, and a perception that the child is difficult.

Many mothers were unable or unwilling to provide information on the child's father (Table A2). For families where information was provided, the most common severe risks of fathers were: a history of childhood abuse; a history of criminal activities, mental illness or substance abuse; low self-esteem and poor coping skills; and multiple stressors.

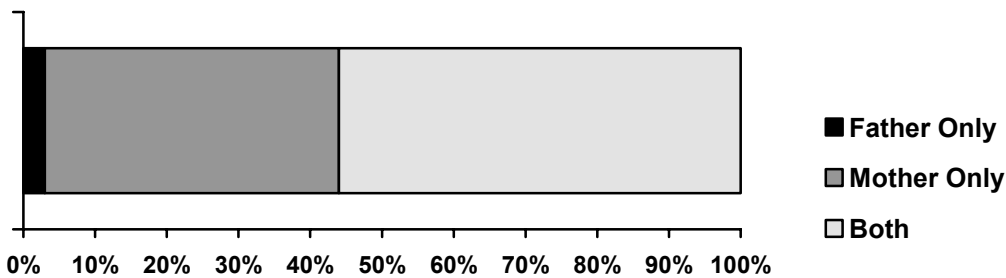
Table IV.A2 Distribution of Family Stress Checklist Item Scores by Parent and Item, Families with Baseline Study Interviews, (n=325)

	0	5 (Mild)	10 (Severe)	Unknown <sup>1</sup>
<b>Mother</b>				
History of childhood abuse	9%	16%	74%	<1%
History of criminal activities, mental illness, or substance abuse	19%	27%	54%	<1%
Past suspicion of child abuse	72%	11%	11%	6%
Low self-esteem, social isolation, poor coping or problem solving skill	9%	36%	55%	0%
Multiple crises or stressors	4%	21%	76%	0%
Prone to violent outbursts	67%	13%	14%	6%
Unrealistic expectations of child's behavior	57%	30%	7%	5%
Harsh punishment of child	77%	14%	5%	4%
Child is difficult or provocative <sup>2</sup>	72%	6%	1%	21%
Child is unwanted or at risk for poor bonding	18%	74%	8%	<1%
<b>Father</b>				
History of childhood abuse	8%	10%	45%	36%
History of criminal activities, mental illness, or substance abuse	18%	23%	37%	23%
Past suspicion of child abuse	63%	7%	6%	24%
Low self-esteem, social isolation, poor coping or problem solving skill	17%	14%	34%	35%
Multiple crises or stressors	5%	17%	36%	42%
Prone to violent outbursts	51%	9%	21%	18%
Unrealistic expectations of child's behavior	20%	8%	2%	69%
Harsh punishment of child	35%	8%	4%	54%
Child is difficult or provocative	35%	3%	0%	45%
Child is unwanted or at risk for poor bonding	16%	63%	14%	7%

<sup>1</sup> Information nearly always provided by mother only, hence a higher proportion of cases with 'unknown' for father, i.e., families where the mother is unable or unwilling to provide information on father. <sup>2</sup> Unknown includes mothers enrolled prenatally.

The mother's total FSC risk score was  $\geq 25$  in nearly all study families (Figure IV.A1). In over half of families, both parents had total FSC risk scores  $\geq 25$ . This is noteworthy because many mothers were unable to provide information on the father for several items. For example, 36% of mothers could not provide information on whether the father had a history of childhood abuse and 42% could not provide information on his crises or stressors (Table IV.A2, above).

Figure IV.A1 HFAK Program Eligibility: Parent Family Stress Checklist Scores  $\geq 25$



Sample Representativeness: We compared the Family Stress Checklist profiles of families who enrolled in the study with the FSC profiles of families who enrolled in HFAK in the year prior to study recruitment.

There were no significant differences between groups in the prevalence of risk factors. Thus, families enrolling in the study appear to be representative of families who usually enroll in HFAK.

**Baseline Comparability of Study Groups:** Randomization achieved study groups balanced on most attributes (Table IV.A3). The HFAK group had fewer mothers with low psychological resources. This measure is a composite of baseline mental health, an indicator of academic achievement, and sense of mastery. Low psychological resources is a measure used by David Olds in his studies of nurse and paraprofessional home visitation.<sup>34</sup> It is hypothesized to increase the likelihood of poor parenting. HFAK mothers also were less likely than control mothers to have been enrolled prenatally. Time of enrollment was significantly related to psychological resources, with prenatal enrollees more likely to have low resources. This makes sense because families enrolled prenatally would have been referred to HFAK by a prenatal care provider who was concerned about parenting risk, while families enrolled at the time of the child's birth would have been identified through population-based screening and assessment.

Table IV.A.3 Sample Baseline Family Attributes, by Study Group

	HFAK N=162	Community Services N=163	p
Mother's age in years (average)	23.4±5.7	23.7±5.7	.62
Mother graduated from high school	59%	57%	.69
Mother worked in year prior to enrollment	75%	71%	.34
Below poverty level	57%	58%	.79
Index child was/will be first birth	48%	53%	.35
Mother speaks language other than English at home	15%	14%	.74
Mother's ethnicity			.57
Alaska Native	23%	20%	
Caucasian	54%	56%	
Multiracial	10%	7%	
Other	13%	17%	
Parent's relationship			.23
None	21%	20%	
Friends/going together	29%	24%	
Living together	26%	37%	
Married	24%	20%	
Parents married or living together	50%	56%	.29
Partner violence <sup>1</sup>	45%	52%	.21
Poor psychological resources <sup>2</sup>	37%	50%	.02
Depressive symptoms <sup>3</sup>	52%	61%	.09
Heavy alcohol use			
Mother <sup>4</sup>	35%	37%	.69
Father <sup>5</sup>	35%	28%	.26
Any drug use			
Mother <sup>6</sup>	48%	48%	.87
Father <sup>5,7</sup>	42%	48%	.40
Enrolled prenatally	41%	53%	.03

Fisher's Exact Test; <sup>1</sup> Any incidents of physical assault by mom or partner. Excludes mothers without a partner; <sup>2</sup> Combination of poor mental health, sense of mastery and intellectual functioning; <sup>3</sup> CESD score  $\geq 15$ ; <sup>4</sup> Ever had six or more drinks at any one time prior to last year; <sup>5</sup> In the last year; <sup>6</sup> In the last 2 years; <sup>7</sup> Limited to cases where mother knew answers to questions about father's drug use, n=109 and 100 for HFAK and Community Services groups respectively.



Sample Retention and Baseline Comparability of Study Groups at Follow-Up: We aimed to follow at least 83% of families at the 2-year follow-up and to maintain the comparability of study groups by avoiding differential mortality. The actual follow-up rate was 85%. Strategies to prevent differential mortality and loss to follow-up included: 1) reimbursement of participants for their time; 2) collection of extensive tracking information; and 3) tracking of families between follow-up points.

Families with a 2-Year follow-up interview were comparable to those we were unable to reach on all but two baseline attributes. Those interviewed at 2 years were more likely to have worked at baseline (74% of those interviewed vs. 48% of those not interviewed,  $p < .01$ ) and they were less likely to have reported having no relationship with the child's father at baseline (18% of those interviewed vs. 48% of those not interviewed,  $p < .01$ ). Thus, mothers in the families we followed at 2 years seem to have been more stable, as indicated by their greater likelihood of having worked and of having had a child with a man with whom they had a relationship.

## B. HFAK Services Actually Provided

The first hypothesis was that actual home visiting services would adhere to HFAK standards. In fact, actual services deviated from program standards in many important respects.

### 1. HFAK Enrollment and Retention of Families

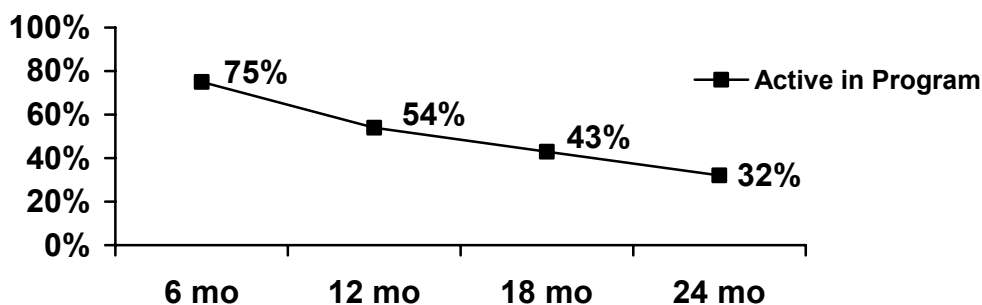
- **Standard:** The HFAK model calls for families to be enrolled three to five years.
- **Actual:** Actual family enrollment and retention fell substantially short of this goal. Although nearly all families enrolled prenatally stayed in the program until the child's birth, for all families there was substantial dropout in the child's first two years of life.

Families with no home visits: A total of 162 families were assigned to the HFAK group. Of these 17 (10%) had no home visits at all. By HFAK program definition, these families would have been considered not to have enrolled, although they had agreed to services and had been referred to a home visitor who attempted to establish the first home visit.

Families recruited prenatally: Overall, about one third of HFAK group families had been assessed at risk, recruited and assigned to the HFAK group prenatally; the remainder had been assessed at risk after the child's birth. Of families recruited prenatally, nearly all were still active in the program when the child was born.

Retention following the child's birth: By the time the child was 6 months old, one fourth of families had left the program (Figure IV.B1). Two-thirds had left by the child's second birthday.

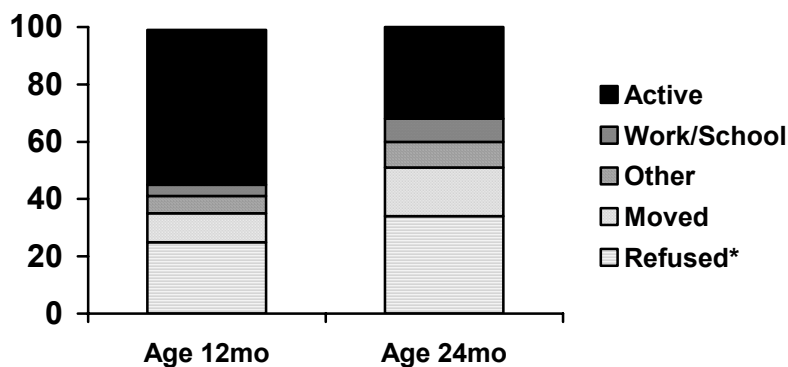
Figure IV.B1 Program Retention by Child's Age, Families Assigned to HFAK Group



Reasons for Program Dropout: Family refusal was the most common reason for dropout. About a quarter of families refused services by the time the child was one year old, either explicitly or by failing to

keep appointments or respond to calls and letters, or by moving without leaving a forwarding address. Most refusals occurred in the child's first year of life; only about 10% of families who were active at 12 months refused services in the child's second year of life.

Figure IV.B1. Family's HFAK Status by Age of Child



\* Includes explicit refusals and passive refusals (repeated failure to keep appointments or to respond to call or letters and moves without providing a forwarding address)

Association of Baseline Family Attributes with Receipt of at Least One Postnatal Home Visit: Overall, 19 (12%) of the HFAK group families had no postnatal visits. Of these 19 families, two had enrolled prenatally. The subsample of HFAK families with no postnatal home visits differed from the subsample of HFAK families with at least one visit in several respects (Table IV.B3). Mothers with no visit were less likely to be having a first birth, to have depressive symptoms at baseline, to have poor psychological resources and to have partners with lower FSC scores. Only the last of these achieved statistical significance (mean scores 20.8 vs. 28.9,  $p < .03$ ).

Table IV.B3 Baseline Attributes, Families without vs. with  $\geq 1$  Postnatal Home Visits

	No Postnatal Home Visits n=19	$\geq 1$ Postnatal Home Visits n=143	p
Mother's age in years (mean $\pm$ sd)	24.8 $\pm$ 7.2	23.2 $\pm$ 5.5	.23
Mother graduated from high school	53%	60%	.53
Mother will return to work within 12 months	79%	69%	.37
Below poverty level	58%	57%	.92
First birth	32%	50%	.12
Partner violence <sup>1</sup>	50%	44%	.68
Poor psychological resources <sup>2</sup>	21%	39%	.12
Depressive symptoms <sup>3</sup>	37%	54%	.17
Mother's total FSC score (mean $\pm$ sd)	46.2 $\pm$ 10.4	42.2 $\pm$ 12.8	.28
Mother's FSC score $\geq$ 45	54%	46%	.61
Father's total FSC score (mean $\pm$ sd)	20.8 $\pm$ 10.2	28.9 $\pm$ 17.6	.03
Father's FSC score $\geq$ 45	0%	21%	.21 <sup>F</sup>

<sup>F</sup> Fisher's Exact Test; <sup>1</sup> Any incident of physical assault by mother or partner toward the other in previous year. Excludes mothers without a partner; <sup>2</sup> Combination of mental health, sense of mastery and intellectual functioning; <sup>3</sup> CES-D Score  $> 15$ .

Association of Baseline Family Attributes with Duration of Enrollment: No baseline family attributes were significantly associated with duration of HFAK enrollment. To illustrate, families still considered active in

HFAK when the child turned two years old were remarkably similar to those leaving earlier (Table IV.B4). There was a trend toward greater likelihood of high school completion at baseline for those who stayed in the program.

Table IV.B4 Baseline Attributes, Families Not Active vs. Active When Child 2 Years Old

	Not Active At 2 Years n=110	Active At 2 Years n=52	p
Mother's age in years (mean ± sd)	23.2±5.9	23.8±5.3	.53
Mother graduated from high school	54%	69%	.08
Mother will return to work within 12 months	72%	67%	.58
Below poverty level	57%	56%	.86
First birth	51%	42%	.31
Partner violence <sup>1</sup>	45%	45%	.97
Poor psychological resources <sup>2</sup>	36%	40%	.12
Depressive symptoms <sup>3</sup>	48%	59%	.21
Mother's total FSC score (mean ± sd)	42.2 ± 13.4	42.9 ± 11.4	.78
Mother's FSC score ≥ 45	48%	46%	.86
Father's total FSC score (mean ± sd)	27.3 ± 17.3	29.9 ± 17.2	.52
Father's FSC score ≥ 45	18%	22%	.57

<sup>1</sup> Any incident of physical assault by mother or partner toward the other in previous year. Excludes mothers without a partner; <sup>2</sup> Combination of mental health, sense of mastery and intellectual functioning; <sup>3</sup> CES-D Score >15.

Service level at time of HFAK discharge or child's 2<sup>nd</sup> birthday: HFAK visit frequency is pegged to the family's level of functioning. Levels range from 1 (poorest functioning) to 4. All families enter at level 1 or 1P (prenatal). At the time of the child's birth, all families are at Level 1. As families achieve milestones in healthy functioning, they are moved to higher levels. Departures from the HFAK service model in the child's first two years of life might not be an issue if families leaving 'prematurely' have attained higher levels of functioning at the time they leave the program.

Table IV.B5 Distribution of Families by Last Service Level and Family Enrollment at 2 Years

Last Service Level	All HFAK Families N=162	Families Leaving Before 2 Years n=110	Families Active at 2 Years n=52
No visits	10%	15%	
Level 1P	4%	6%	
Level 1	59%	63%	52%
Level 2	22%	13%	42%
Level 3	1%		4%
Level 4	1%	2%	
Level SS	1%	1%	2%
Graduated			

## 2. Visit Frequency

- **Standard:** The HFAK model calls for families to be visited weekly when on Level 1, every two weeks on Level 2, monthly on Level 3 and quarterly on Level 4.
- **Actual:** Actual visit frequency was substantially less than the program standard, even when limiting the sample to families who remained enrolled. Only 4% of families had a 'high dose' of service (in the program through the child's 2<sup>nd</sup> birthday, received ≥75% of expected visits, on creative outreach no more than 3 months total).

**Average Number of Visits (Table IV.B6):** Overall, families had about 23 home visits from assignment to the HFAK group to the child's second birthday. The number of postnatal visits was similar for families enrolled prenatally versus postnatally. Families enrolled prenatally had about five prenatal visits.

	Prenatal Period n=60	Child's 1 <sup>st</sup> Year of Life n=162	Child's 2 <sup>nd</sup> Year of Life n=162	All Periods Combined n=162
Overall	4.8 + 5.4	14.4 + 11.3	7.2 + 11.0	23.4 + 21.6
Prenatal enrollees	4.8 + 5.4	14.0 + 12.1	7.1 + 10.0	25.9 + 22.9
Postnatal enrollees	na	14.6 + 10.9	7.3 + 11.6	21.9 + 20.8
p		.73	.92	.26

\*The total number of visits is not equal to the sum of visit across the three time periods because some families were not enrolled prenatally.

**Timing of Visits (Table IV.B7 and Table IV.B8):** About 40% of families enrolled prenatally were visited at least every two weeks, but nearly a third were visited less than monthly/not at all. Postnatally, one-sixth of families were visited at least every two weeks; nearly 40% were visited less than monthly or not at all.

	Prenatal Period N=60	Postnatal Period N=162
Every 1-7 days	12%	0%
Every 8-14 days	27%	17%
Every 15-21 days	18%	24%
Every 22-31 days	13%	22%
Less than monthly	13%	25%
No visits	17%	13%

Considering all families assigned to the HFAK group, about half had  $\geq 12$  visits in the child's 1st year of life and about a quarter had  $\geq 12$  visits in the child's 2<sup>nd</sup> year of life (Table IV.B8). Of families still active at one year, 88% had  $\geq 12$  visits in the child's first year of life; of those still active at two years, 77% had  $\geq 12$  visits in the child's second year of life. We initially defined a 'high dose' of service as achievement of three criteria: 1) active for two years; 2) on Level X (intensive outreach) for less than three months; and 3)  $\geq 75\%$  of expected visits made. Overall, only 4% of families had a high dose of service (Table IV.B8).

<b>First Year of Life</b>	
<b>All Referred Families</b>	
Number of home visits (mean + sd)	14.4 + 11.3
12 or more visits	57%
<b>All Families Active at End of Year 1</b>	
Number of home visits (mean + sd)	22.1 + 8.8
12 or more visits	88%
<b>Second Year of Life</b>	
<b>All Referred Families</b>	
Number of home visits (mean + sd)	7.2 + 11.0
12 or more visits	26%
<b>All Families Active at End of Year 2</b>	
Number of home visits (mean + sd)	20.0 + 10.6
12 or more visits	77%
<b>First Two Years Combined</b>	
Received high dose of service	4%

<sup>†</sup> High dose = active throughout period + on Level X <3 months during period +  $\geq 75\%$  of expected visits during period

### 3. Individualized Family Support Plan (IFSP)

- **Standard:** The IFSP is the framework for guiding home-based services. The HFAK model calls for the first IFSP to be completed early in the family's enrollment. HFAK policy changed over the course of the study. When the study began, the first IFSP was to be completed within 70 days of enrollment; during the study, the deadline was changed to within 42 days of enrollment. The new policy also called for a new IFSP to be completed every three months following the initial IFSP.
- **Actual:** HFAK sites varied in their definition of a completed IFSP and the expected date for completion. The IFSP was developed far less often than called for in the model. Of families enrolled a full year, 2% completed the expected number of IFSPs.

It became clear in quarterly program meeting discussions of early study findings that there was confusion among HFAK sites on the standard for completion of the initial IFSP --- both the timeframe for completion and the definition of completion. These ambiguities were discussed and policies were made clear. The timeframe for completion of the initial IFSP was set at 42 days, the expectation for repeat IFSPs every three months was made explicit, and the operational definition of a 'completed' IFSP was made clear.

Completion of the Initial IFSP (Table IV.B9): The IFSP was initiated with about half of families. About one-fifth to one-quarter completed it.

	All HFAK Families N=162	All HFAK Families with $\geq 1$ Visit N=145
<b>70-Day Standard for Completion</b>		
First discussed IFSP within timeframe	54%	60%
Completed IFSP within timeframe	22%	24%
<b>42-Day Standard for Completion</b>		
First discussed IFSP within timeframe	47%	52%
Completed IFSP within timeframe	18%	21%

Continued Use of IFSP (Table IV.B10): Over a third of families enrolled for a full year had no completed IFSP during the year, one third had a single IFSP, and the remainder had at least two IFSPs. Only 2% of families enrolled a full year had the expected number of IFSPs to guide service during that period.

Number of Completed IFSPs in First 12 Months Of Enrollment	All HFAK Families N=162	All HFAK Families with $\geq 1$ Visit N=145	All HFAK Families Active $\geq 12$ Months N=85
None	59%	54%	38%
One	25%	28%	34%
Two	14%	16%	24%
Three	1%	1%	2%
Four	1%	1%	2%

### 4. Child Developmental Screening

- **Standard:** The HFAK model called for 100% of children to be screened using the Ages and Stages Questionnaire (ASQ) or the Denver Developmental Screen. In the child's first two years of life, screens were to be carried out at specified ages: 4 months, 8 months, 12 months, 16 months, 20 months and 24 months. The HFAK model called for 100% of children who screen positive or for whom there is concern to be referred for

follow-up services; it specified that 90% of families referred for developmental delays were to follow through on the referral within 30 days.

- **Actual:** Developmental screens were carried out for about half of children available for screening. There was evidence of a follow up referral for most positive screens but information on the status of the referral was frequently lacking.

Completion of Developmental Screens: Developmental screens were completed for about half of children whose families were active in HFAK. The screening rate was remarkably consistent over time, with slightly fewer children screened at 16 months and 24 months than at other points. The denominator excludes children with pervasive developmental delay, i.e. those for whom there was no need to screen as developmental delay was already recognized.

Positive Screens and Actions Taken: The percent of children who screened positive ranged from 4% at the 8-month screen to 21% at the 16-month screen. Overall, there were 27 positive screens in 22 children. HFAK records contained evidence of consideration of referral for half of these children (n=11). Of these, there was no documentation of referral status for four families. Of the remaining seven, there was documentation of family refusal of the referral for two families and that the child was already receiving follow up services for four families. In only one instance was there documentation of follow through on the referral.

Actions Taken for Positive Screens:

Table IV.B11 Developmental Screen Completion, Results and Follow Up

	Active Families		Children Screened <sup>1</sup>		Positive Screen <sup>2</sup>		Evidence of Referral/ Follow Up
	N	n	%	n	%	N	
4 months	127	67	53%	8	12%	Overall, for all ages, 11/22 = 50% 4/11: no data 2/11: refusal 4/11: already have 1/11: yes, follow-up	
8 months	99	50	50%	2	4%		
12 months	83	45	54%	4	9%		
16 months	70	29	41%	6	21%		
20 months	58	30	52%	5	17%		
24 months	49	19	39%	2	10%		

<sup>1</sup>Families active ≥ 1 month past screening due date. <sup>2</sup>Problematic score on ≥ 1 domain

5. Recognition of and Response to Family Risks for Child Maltreatment

- **Standard:** The HFAK model standards changed several times from 1996 through 2001. In the aggregate, the standards called for 100% recognition of and response to partner violence, maternal substance use, and poor maternal mental health. At a minimum, such response would involve counseling. For mental health and substance use, the standard was for 100% of program and/or self-identified problems to be referred to treatment.
- **Actual:** According to the MIS, home visitors often failed to discuss malleable risks with families who had these risks; referral rates were extremely low. Rates were little higher when using information flagged by home visiting program staff in their reviews of family service records. These statistics are consistent with maternal reports; about a quarter of mothers who recalled having an HFAK home visitor indicated that sensitive issues were not discussed.

We measured home visitor recognition of and response to malleable parenting risks using data from the MIS and also from HFAK family service records. Per the MIS, family support workers discussed malleable risks early on with about 12% of mothers with poor mental health, a quarter of those with domestic violence, and a third of those with substance use problems (Table IV.B12). Referral rates were highest for poor mental health (31%), but only about 8-14% for substance use and domestic violence.

Table IV.B12 Discussion of and Community Referral for Parent Risks for Child Maltreatment, per MIS

	N	Discussed within 6 Months	Discussed after 6 Months	Not Discussed, Enrolled ≥ 6 Mos	Not Discussed, Enrolled <6 Mos	Referred Externally
Domestic Violence <sup>1</sup>	69					
Domestic Violence Discussed		22%	17%	39%	22%	10%
Safety Plan Discussed		12%	12%	55%	22%	
Safety Plan Recited		4%	3%	71%	22%	
Substance Use <sup>2</sup>	107					
Discussed		36%	12%	37%	14%	8%
Poor Maternal Mental Health <sup>3</sup>	58					
Discussed		12%	28%	43%	17%	31%
Domestic Violence <sup>4</sup>	71					
Domestic Violence Discussed		28%	21%	38%	13%	14%
Safety Plan Discussed		17%	13%	56%	14%	
Safety Plan Recited		7%	6%	73%	14%	

<sup>1</sup>Per maternal report of partner assault in baseline interview. <sup>2</sup>Mother ever CAGE positive + drank in past year or any illicit drug use in past 2 years per baseline interview. <sup>3</sup>Maternal score <67 on the MHI-5 in baseline interview. <sup>4</sup>Either parent scored 5 or 10 on Family Stress Checklist Item #6, "mother/father prone to violent outbursts."

There was concern among staff that MIS records might underestimate actual recognition of and response to these risks. To address this, we developed a record review process in which staff flagged their program's records wherever there was evidence of identification of and response to malleable risks. Research staff then reviewed the record in depth, noting the date and content of each flagged interaction. Recognition and response rates based on these data differ slightly from those based on MIS data (Table IV.B13).

Table IV.B13 Discussion of/Community Referral for Parent Risks for Child Maltreatment, per Record Review

	N	Discussed within 6 Months	Discussed after 6 Months	Not Discussed, Enrolled ≥ 6 Mos	Not Discussed, Enrolled <6 Mos	Referred Externally
Domestic Violence <sup>1</sup>	69					
Domestic Violence Discussed		20%	7%	54%	19%	17%
Substance Use <sup>2</sup>	107					
Discussed		26%	9%	50%	15%	9%
Poor Maternal Mental Health <sup>3</sup>	58					
Discussed		40%	10%	36%	14%	38%
Domestic Violence <sup>4</sup>	71					
Domestic Violence Discussed		25%	11%	52%	11%	24%

<sup>1</sup>Per maternal report of partner assault in baseline interview. <sup>2</sup>Mother ever CAGE positive + drank in past year or any illicit drug use in past 2 years per baseline interview. <sup>3</sup>Maternal score <67 on the MHI-5 in baseline interview. <sup>4</sup>Either parent scored 5 or 10 on Family Stress Checklist Item #6, "mother/father prone to violent outbursts."

## 6. *Maternal Ratings of Home Visitors*

- **Standard:** There is no explicit standard, but the HFAK model emphasizes that it is key for the home visitor to earn the family's trust.
- **Actual:** Most families recalled having an HFAK home visitor. Most mothers gave their HFAK home visitor high rating in most areas.

Recall of Having an HFAK Home Visitor: Recall of having an HFAK home visitor was tied to duration of service. Overall, 71% of HFAK mothers recalled having an HFAK home visitor. For families active in HFAK at 6, 12 and 24 months, rates of recall were 79%, 89% and 96%, respectively.

Ratings of HFAK Home Visitors: Mothers who recalled having an HFAK home visitor rated them highly in most areas (Table IV.B15). However, 22% did not agree that they had a trusting relationship and nearly half did not endorse the statement that they could talk with the home visitor about everything.

Table IV.B15. Maternal Rating of HFAK Home Visitor

	Agree/Strongly Agree
<b>Child Development</b>	
a. She helps me understand my baby's needs.	95%
b. She motivates me to protect my baby's health.	92%
c. She helps me understand my baby's behavior.	92%
d. My working with her helps my child's development.	82%
<b>Trust in Home Visitor</b>	
a. I can confide in her and say what I want	84%
b. I feel I can confide in her and say what I really feel.	82%
c. I trust her to look after my best interests.	81%
d. I feel comfortable talking with her about sensitive issues.	80%
e. She and I have a trusting relationship.	78%
f. I can talk with her about everything.	53%
<b>Builds Confidence</b>	
a. She helps me feel confident as a parent.	92%
b. She helps me keep a positive outlook.	92%
c. She encourages me to succeed in daily life.	91%
d. She helps me set goals and make a plan to reach them.	88%
e. She helps me learn how to solve my problems.	85%
f. She praises me when I reach a goal.	83%
g. She encourages me to make my own decisions.	83%
h. She brings out the best in me.	70%
<b>Understanding and Respect</b>	
a. She respects my independence.	95%
b. She cares about what happens to me.	90%
c. She understands if I tell her what I want to do.	88%
d. She accepts my ways.	86%
e. She is sensitive to how I feel.	85%
f. She respects my family's way of doing things.	85%
g. She understands my situation.	80%
<b>Accessibility</b>	
a. It's easy for me to get in touch with her.	81%

Ratings of Discussion of Sensitive Issues and Relationships: About two thirds to three quarters of mothers who recalled having a home visitor agreed with items relating to discussion of sensitive issues and relationships (Table IV.B14). This means that a sizable subset of mothers who recalled having an HFAK home visitor failed to endorse these items.

Table IV.B14. Maternal Report of Visit Content around Sensitive Issues/Relationships

	Agree/Strongly Agree
a. She talks to me about sensitive issues.	73%
b. She helps my family get along better.	66%
c. She helps me develop relationships with people I can count on.	62%



7. Family Use of Community Resources:

- **Standard:** There is no explicit standard. The implicit standard is that HFAK will facilitate family access to needed community services.
- **Actual:** HFAK did not increase family access to needed services for financial support, nutrition, housing and education. HFAK did not increase family access to treatment services for poor maternal mental health, substance use, or partner violence.

The similarity in percent of families obtaining desired services is similar across type of service. Nearly all families in both groups who wanted WIC succeeded in obtaining this service. The majority in both groups who wanted emergency food, food stamps and income assistance succeeded in obtaining these services. HFAK enrollment did not increase access to child support enforcement, adult education and public housing for families who wanted these services, and only about a half to two thirds succeeded in obtaining these services, even if enrolled in HFAK. A minority of families assessed as needing or wanting mental health services, substance use services or domestic violence services received these; HFAK enrollment did not significantly increase the odds of obtaining such services.

Table IV.B16. Maternal Report of Access to Desired/Needed Services at Year 2 Follow Up

Service <sup>1</sup>	HFAK	Control	AOR	95% CI	p
WIC	90%	90%	1.15	.46, 2.86	.76
Emergency Food	83%	76%	1.53	.79, 2.96	.20
Food Stamps	80%	80%	1.00	.70, 1.43	.99
Income Assistance (TANF)	76%	76%	1.00	.51, 1.94	.99
Child Support Enforcement	67%	77%	.62	.27, 1.43	.26
Adult Education/Job Training	58%	59%	.95	.45, 2.04	.90
Section 8 Housing	35%	47%	.61	.34, 1.07	.08
Mental Health/Substance Use Services <sup>2</sup>	30%	26%	1.23	.77, 2.0	.38
Domestic Violence Services <sup>3</sup>	9%	6%	2.05	.56, 7.5	.28

<sup>1</sup> For AFDC/Welfare through Adult Education/Job Training, denominator = mothers reporting at Year 2 that they wanted or needed the service in the preceding year.  
<sup>2</sup> Denominator = mothers with CESD>24 or MHI5<67 or substance use problem at baseline.  
<sup>3</sup> Denominator = mothers reporting 3+ incidents of partner assault at baseline.

8. Variation in Process Measures among HFAK Sites:

- **Standard:** Program service agreements are the same; programs must implement the HFA critical elements, achieve HFA standards for credentialing and follow program policy and procedures; all program staff must complete HFA training. The assumption is that they will provide comparable services.
- **Actual:** Actual services varied substantially among sites. These variations related to differences in training, supervision, and philosophy. There was no clear reason for these variations. Some programs had superior performance on some process measures; others scored highest on other process measures.

Notably, even at the sites with the best process measures, actual service delivery departs substantially from the HFAK model. Although services are intended for three to five years, the highest retention rate is only 46% at two years. While the model calls for weekly home visits, the site with the highest number of visits among active families achieves a visit rate of about half that often. Even in the sites with the best performance in using the IFSP to guide services, only slightly more than half of families do not have a completed IFSP within the target time period, and half have no IFSP at all. At best, developmental screens are carried out half as often as called for in the model. Even sites where sensitive risks are discussed most often show no evidence of addressing domestic violence and maternal substance use early on in the majority of families that have these risks.

Table IV.B17. Variation in Process Measures among Program Sites

Process Measure	All Sites	Range
Family Retention (% active)		
At 6 months	75%	70% - 84%
At 12 months	54%	40% - 62%
At 24 months	32%	14% - 46%
Reason for Dropout		
Refusal	35%	25% - 69%
In work/school	8%	0% - 27%
Number of Visits by Active Families (mean)		
Year 1	22.1	15.4 - 26.4
Year 2	20.0	11.7 - 27.3
Use of IFSP in Year 1, Families with $\geq 1$ Home Visit		
Discussed within 70 days	60%	10% - 80%
Completed within 70 days	24%	0% - 53%
$\geq 1$ IFSP	18%	0% - 50%
Developmental Screening		
Completion Rate in active families, all ages	48%	38% - 58%
Discussion of Risks in Risk-Positive Families Active in HFAK $\geq 6$ Months		
Discussion $\leq 6$ Months		
Poor Maternal Mental Health	45%	9% - 88%
Domestic Violence	24%	6% - 33%
Maternal Substance Use	30%	11% - 42%
Any of Above	30%	9% - 47%
Discussion at Any Time		
Poor Maternal Mental Health	59%	18% - 100%
Domestic Violence	36%	6% - 60%
Maternal Substance Use	40%	18% - 55%
Any of Above	43%	14% - 63%

### C. Effectiveness in Achieving Outcomes

The second hypothesis was that HFAK would achieve its intended outcomes. Table IV.C1 summarizes HFAK objectives for preventing child maltreatment, promoting healthy family functioning, and promoting child health and development. Study results show that HFAK did not achieve most objectives. Notably, HFAK was effective in reducing parenting stress and promoting child development. Table IV.C2 gives the results of intention to treat analysis for a full spectrum of outcome measures in each of HFAK's three target areas.

Table IV.C1. HFAK Objectives for Child Health and Development, Family Functioning, Child Abuse Prevention

Area	Objective
<b>Child Abuse and Neglect</b>	
Substantiated Maltreatment	95% of target children will have no substantiated child abuse or neglect
<b>Family Functioning</b>	
Education	70% of mothers/primary care givers who have not completed high school at intake will be enrolled in school or have completed high school or received a GED after three years in the program
Rapid Repeat Birth	80% of mothers will wait at least 2 years before having another child
Financial Independence	90% of mothers/primary caregivers will be financially self-sufficient within three years of entering the program
Domestic Violence	100% of mothers/primary caregivers who have been self and/or program identified as having the risk or reality of partner abuse will be able to articulate a safety plan for themselves and their children [within three months of recruitment] (implies reductions in home with partner violence)

Table IV.C1. HFAK Objectives for Child Health and Development, Family Functioning, Child Abuse Prevention

Area	Objective
Maternal Parenting Stress	90% of mothers/primary caregivers will maintain or improve their parenting stress index scores
Mental Health Problems	100% of mothers/primary caregivers who have been self and/or program identified as having mental health problems will be referred for treatment (implies reductions in mental health problems)
Substance Abuse Problems	100% of mothers/primary caregivers who have been self and/or program identified as having mental health problems will be referred to treatment (implies reductions in substance abuse problems)
Medical Home for Child	95% of children will have a Medical Home <ul style="list-style-type: none"> <li>▪ Implies a specific provider</li> <li>▪ Implies achievement of preventive care, which can be measured by adherence to AAP guidelines for well child care</li> </ul>
Quality of Home Environment	90% of mothers/primary caregivers will maintain or improve their HOME scores
Immunization Status	90% of target children will be immunized for age by two years of age
<b>Child Health and Development</b>	
Child Development	100% of children will be screened at specific time points; 100% failing to meet milestones will be referred for follow-up; 90% of those referred will follow through (implies early identification and intervention for developmental delay, thereby reducing prevalence of delay and increasing measures of cognitive and psychomotor development)

1. Overall Effectiveness in Preventing Child Abuse and Neglect (Table IV.C.2):

Substantiated Reports of Maltreatment: The HFAK standard was that 95% of target children would have no substantiated child abuse or neglect. Overall, only 84% of HFAK families were found not to have substantiated child abuse or neglect in the child's first two years of life. The HFAK and control groups were similar in the percent of families with substantiated maltreatment (16% vs. 17%,  $p = .73$ ). The HFAK and control groups were similar also in rates of substantiated maltreatment in Year 1 and Year 2 separately and in rates based only on substantiated reports occurring after 6 months and after 12 months.

Mother's Relinquishment of Role as Primary Caregiver: There was no difference between groups. Overall, 18% of HFAK mothers vs. 16% of control mothers relinquished their role as primary caregiver for at least one month during the child's first two years of life ( $p=.57$ ).

Maternal Reports of Disciplinary Parenting Behaviors: HFAK mothers reported using mild physical and psychological disciplinary tactics significantly less often than control mothers. There was no group difference in mothers' reports of how often they used more severe forms of physical discipline.

Maternal Report of Neglectful Behavior: HFAK and control groups were similar in maternal reports of whether and how often they engaged in neglectful behaviors in the child's second year of life, as measured by the Conflict Tactics Scale.

Child Hospitalization for Ambulatory Care Sensitive Conditions: There was no difference between groups. Overall, 9% of children in both the HFAK and control group were hospitalized for conditions for which hospitalization can be avoided with adequate primary care.

Poor Mother-Child Interaction: The two groups did not differ significantly in the proportion of mothers observed to interact poorly with the target child, as measured by the NCAST.

Poor Quality Home Environment: HFAK families were significantly less likely to have an extremely poor home environment for learning, as measured through direct observation of the home environment using the HOME Scale (20% vs. 31%,  $p=.05$ ).

Table IV.C2. Overall Program Effectiveness: Outcomes by Study Group, Intention to Treat Analysis

	*	Binary Measures					Continuous Measures				
		HFAK	Control	AOR	95%CI	p	HFAK	Control	B	95%CI	p
<b>CHILD ABUSE AND NEGLECT</b>											
Substantiated CAN report <sup>1</sup>	*	16%	17%	0.90	0.48, 1.68	.71	0.27	0.22	.05	-0.09, .27	.47
Mother relinquished role <sup>2</sup>		18%	16%	1.19	0.50, 2.81	.69					
Child ACSC Hospitalization		9%	9%	1.09	0.55, 2.15	.80					
<b>Maternal self-reported behaviors<sup>3</sup></b>											
Psychological aggression		84%	83%	1.10	0.63, 1.90	.75	11.2	13.1	-1.92	-3.7, -.15	<.05
Mild physical assault		80%	85%	0.70	0.40, 1.23	.22	9.6	11.9	-2.38	-4.5, -.24	<.05
Severe assault		9%	7%	1.28	0.41, 4.00	.67					
Neglectful behavior		19%	22%	0.81	0.51, 1.30	.38	0.9	0.8	0.16	-1.1, 1.3	.74
Poor mother-child interaction score <sup>4</sup>		17%	21%	0.79	0.50, 1.25	.31					
Poor quality home environment <sup>5</sup>		20%	31%	0.51	0.36, 0.72	<.001					
<b>FAMILY FUNCTIONING/PARENTING</b>											
<b>Maternal Life Course</b>											
Mother completed HS since baseline <sup>6</sup>	*	22%	31%	.61	.23, 1.61	.32					
Rapid repeat birth	*	16%	17%	.96	.49, 1.88	.90					
<b>Household Functioning</b>											
HH income > poverty level	*	55%	56%	.97	.57, 1.63	.90					
HH member employed <sup>7</sup>	*	86%	87%	.90	.44, 1.85	.77					
Community life skills							23.8	23.6	0.2	-0.5, 1.0	.55
Social support							20.9	19.8	1.2	-0.3, 2.6	.12
Partner violence <sup>8</sup>	*	29%	36%	.72	.40, 1.29	.27					
Injury from partner violence	*	16%	20%	.75	0.29, 1.95	.55					
<b>Maternal Mental Health</b>											
Maternal parenting stress <sup>23</sup>	*	22%	30%	.57	.34, 0.95	.03	75.9	79.8	-3.9	-8.4, 0.6	.09
Maternal depressive symptoms <sup>9</sup>	*	17%	22%	.66	.37, 1.17	.16	15.2	15.9	-0.7	-3.4, 2.0	.62
Maternal self esteem							22.8	22.0	0.8	-0.4, 2.1	.17
Maternal confidence in relationships							34.0	33.3	0.6	-0.5, 1.8	.29
<b>Maternal Substance Use<sup>10</sup></b>											
<b>Maternal Parenting Knowledge</b>											
Knowledge of child development		73.5	70.7	2.8	-1.9, 7.6	.18					
Recognition of child delay <sup>11</sup>		20%	24%	.82	.21, 3.17	.77					
<b>Maternal Parenting Attitudes</b>											
Accepts corporal punishment		30%	26%	1.23	0.71, 2.12	.46	20.5	20.1	0.8	-1.0, 2.6	.67
AAPI Score							130.0	125.6	4.5	-3.2, 12.1	.20
Infant Caregiving Inventory							112.1	109.5	2.6	-3.1, 8.3	.29

Table IV.C2. Overall Program Effectiveness: Outcomes by Study Group, Intention to Treat Analysis

	*	Binary Measures					Continuous Measures				
		HFAK	Control	AOR	95%CI	p	HFAK	Control	B	95%CI	p
<b>Maternal Self Ratings of Parenting</b>											
Maternal Self-Efficacy <sup>12</sup>							35.1	34.6	0.5	0.2, 0.8	<.05
Parental Satisfaction <sup>13</sup>											
- With child-parent relationship							34.6	34.3	0.3	-0.9, 1.6	.54
- With parent performance							29.4	29.2	0.2	-0.6, 1.1	.52
- General satisfaction							30.5	29.9	0.6	-0.2, 1.3	.11
<b>Parenting Behavior</b>											
Child has a medical home <sup>14</sup>	*	74%	78%	.76	.44, 1.30	.31					
Up to date on immunizations <sup>15</sup>	*	27%	27%	1.01	0.61, 1.68	.96					
Adequate well child care <sup>16</sup>	*	4%	8%	0.46	0.12, 1.73	.25					
Use of nonviolent discipline <sup>17</sup>		100%	98%	---	---	.92	50.4	50.5	-0.1	-6.1, 6.0	.98
Use of common corporal punishment <sup>18</sup>		91%	92%	.80	0.37, 1.72	.56	19.5	24.2	-4.7	-10.6, 1.3	.12
Quality of home environment	*						36.7	35.9	0.8	-0.2, 1.8	.10
Mother-child interaction score <sup>19</sup>	*						15.4	15.0	0.4	-0.8, 1.6	.40
<b>CHILD HEALTH/DEVELOPMENT</b>											
Hospitalizations <sup>22</sup>		21%	21%	0.98	0.52, 1.82	.94	0.3	0.4	-0.01	-0.3, 0.3	.93
Emergency department visits <sup>22</sup>		68%	70%	0.90	0.52, 1.58	.73	2.0	2.2	-0.2	-1.3, 0.9	.76
Injuries requiring medical care <sup>22</sup>		29%	31%	0.91	0.40, 2.07	.83	0.4	0.4	-0.01	-0.3, 0.3	.91
Cognitive development <sup>20</sup>	*	58%	48%	1.55	1.01, 2.37	.04	88.0	84.8	3.2	1.2, 5.2	.01
Psychomotor development <sup>20</sup>	*	85%	80%	1.36	0.72, 2.58	.35	98.1	96.0	2.1	-1.2, 5.4	.16
Child behavior <sup>21</sup>		16%	23%	.55	0.36, 0.85	.01	49.8	53.0	-2.8	-4.6, -0.9	.01

\* Close link to explicit HFAK objective; <sup>1</sup> Any substantiated abuse by 24 months of age. Excludes 3 children who died and families known to be out of state >6 months during Y1 and Y2; HFAK: n=147, Control: n=150; <sup>2</sup> Percent of families where child lived separately from the mother for a month or more. Excludes 3 families whose child died prenatally or in 1<sup>st</sup> year of life; HFAK: n=159, Control: n=163; <sup>3</sup> Traditional subscales of Conflict Tactics Scale; <sup>4</sup> Defined as score ≤35 on NCAST Caregiver Total Score; <sup>5</sup> Defined as score ≤33 on the HOME scale; <sup>6</sup> Includes only those mothers who had not yet completed high school at baseline, n=96; <sup>7</sup> Percent of households in which at least one member works outside the home; <sup>8</sup> Defined as any partner assault in past year as indicated by the Conflict Tactics Scale; <sup>9</sup> Defined as CESD score ≥24; <sup>10</sup> Defined as lifetime CAGE positive and drank in past year or any illicit drug use in past year; <sup>11</sup> Limited to families where child scored <85 on MDI or PDI; <sup>12</sup> Per Teti Scale, maternal self-ratings of competence and effectiveness in the parenting role, high scores are more favorable; <sup>13</sup> Per Guidibaldi Parent Satisfaction Scale, high scores are more favorable; <sup>14</sup> Child had a specific pediatric primary care provider at time of follow-up interview; <sup>15</sup> Percent of children up to date on immunizations by 2 years of age per pediatric medical record; <sup>16</sup> Percent of children receiving APA recommended well child care visits by 2 years of age per pediatric medical record. The intervals for receiving well child care visits in the first two years of life are: 2 week, 2 month, 4 month, 6 month, 9 month, 12 month, 18 month, and 24 month. Children were given credit for having a well child visit at any given interval if it occurred in the time up to the next interval (ie. Child given credit for 2 month well-child visit if it occurred between 29 and 91 days); <sup>17</sup> Binary measure = any use of nonviolent forms of discipline. Items include: give child something else to do; explained why something is wrong; placed child in 'time out'; and took away a favorite thing; continuous measure = number of times used in past year; <sup>18</sup> Binary measure = any use of common corporal punishment. Items include: slapped child on hand, arm or leg; spanked child on bottom with bare hand; threatened to spank or hit child, but didn't do it; shouted, yelled or screamed at child; pinched child; continuous measure = number of times used in past year; <sup>19</sup> NCAST caregiver contingency score; <sup>20</sup> Percent of children scoring within normal limits (≥85) on the Bayley Scales of Child Development; <sup>21</sup> Percent of children with total scores in the borderline/clinical range on the Achenbach Child Behavior Checklist; <sup>22</sup> Per maternal report; <sup>23</sup> Percent of mothers scoring ≥90<sup>th</sup> percentile on the total parenting stress index score.

## 2. Overall Effectiveness in Promoting Healthy Family Functioning and Parenting

Table IV.C.2 presents results for program impact on family functioning and parenting. This section summarizes those results.

### Maternal Life Course

- Maternal Education: The explicit HFAK goal for parent education is to be attained by three years, not two, and so it is premature to draw conclusions about ultimate success in reaching them. However, there was no difference between HFAK and control families in moving toward this goal at two years as measured by maternal education.
- Rapid Repeat Birth: HFAK mothers achieved the program's goal of delaying a repeat birth, with over 80% of mothers waiting at least two years. However, there was no difference between HFAK and control families in this regard.

### Household Functioning

- Household Income and Employment: There was no difference between groups in percent of households where at least one member was employed nor in the percent of households with incomes below the poverty level at the Year 2 follow up.
- Community Life Skills and Social Support: The program aims to help families become more adept at carrying out usual family responsibilities and activities of daily living and develop natural support networks. HFAK and control families were similar with regard to community life skills and social support scores.
- Partner Violence: HFAK and Control groups were similar in the percent of families with partner violence and with an injury resulting from partner violence at follow-up.

### Maternal Mental Health:

- Parenting Stress: HFAK mothers were significantly less likely than control mothers to score at or above the 90<sup>th</sup> percentile on the total parenting stress index score. There was a trend toward lower parenting stress scores in HFAK vs. control mothers.
- Depressive Symptoms: There was no difference between groups in the percent of mothers scoring positive for depressive symptoms. Mean CES-D scores were similar in the two groups.
- Self-Esteem: We hypothesized that maternal attainment of personal goals and positive parenting experiences, coupled with positive feedback from family support workers, would contribute to improved self-esteem in home visited mothers. However, mothers in the HFAK and control groups had similar scores for self-esteem at the two year follow-up.
- Confidence in Adult Relationships: One of the family support worker's tasks is to establish a trusting relationship with the family and to facilitate the development of natural support networks. We hypothesized that success in these efforts would lead to improved scores in mothers' confidence in relating to adults. However, mothers in the two groups had similar scores for this outcome measure.

Maternal Substance Use: There was no significant difference between groups in the proportion of mothers positive for substance use at the two year follow up.

### Maternal Parenting Knowledge:

- Parenting Knowledge Scores: HFAK sample scores were more favorable than control scores, but group differences were negligible.
- Recognition of Child Developmental Delay: We hypothesized that home visited mothers would have a better sense of child developmental milestones and so would be better able to identify developmental delay in their children. However, among mothers whose children scored at least one standard deviation below norms on the MDI or PDI, we found no difference between groups in the proportion of mothers who recognized their children as developing more slowly than most children.

### Maternal Parenting Attitudes:

- Acceptance of Corporal Punishment: It is challenging to alter parent disciplinary behaviors. One step in this process is to lower parents' acceptance of corporal punishment as a disciplinary tactic. There was no difference between groups in mother's acceptance of corporal punishment measured at either the binary or continuous level.
- AAPI: The Adult Adolescent Parenting Inventory (AAPI) measures parenting attitudes in four domains: appropriate expectations, empathy, appropriate physical punishment, and lack of role reversal. A high score indicates more positive parenting attitudes. HFAK sample scores were more favorable than control scores, but group differences were negligible.
- Infant Caregiving Inventory: This scale evaluates parental perceptions and knowledge about the influences of infant Caregiving practices on infant and maternal well-being. A high score indicates greater appreciation of the influence caregiving practices. HFAK sample scores were more favorable than control scores, but group differences were negligible.

Maternal Self Ratings of Parenting: We hypothesized that family support worker success in promoting mothers parenting skill would lead to increased self-efficacy and satisfaction with the parenting role. The groups had similar scores on the Guidabaldi measure of satisfaction, but HFAK mothers had significantly higher ratings of self-efficacy on the Teti Maternal Self-Efficacy Scale (35.1 vs. 34.6,  $p < .05$ ).

### Parenting Behavior:

- Medical Home for Target Child: The program standard is for 95% of children to have a Medical Home. HFAK families did not achieve this standard, with 74% of children having a specific primary care provider. There was no difference between HFAK and control families in this outcome.
- Preventive Care: The HFAK standard for linkage with a Medical Home implies receipt of appropriate well child care. Very few children in either the HFAK or control group were found to have care in accordance with American Academy of Pediatrics guidelines. There was no difference between groups.
- Immunization Status: The HFAK standard is that 90% of children will be fully immunized by age two years. In fact, about a quarter of children were fully immunized; immunization status did not differ significantly by group.
- Quality of the Home Environment for Learning: Home quality scores were slightly higher in the HFAK group vs. control group. We tested for group differences in each of the instrument's six subscales: emotional/verbal responsivity, acceptance of child's behavior, organization of the home environment, provision of play materials, parental involvement with child, and opportunities for variety. The two groups did not differ significantly on any subscale; there was no trend toward a group difference on any subscale.

- Mother-Child Interaction: Family support workers aim to improve the quality of parent-child interaction through parenting education, role modeling and feedback. There was no difference between groups in this outcome.

### 3. Overall Effectiveness in Promoting Child Health and Development

Table IV.C.2 presents results for program impact on child health and development. This section summarizes those results.

- Hospitalizations, Emergency Department Utilization, and Injuries Requiring Medical Care: There was no evidence of positive program impact on child health as indicated by hospitalizations, emergency department use or injuries requiring medical care.
- Child Development: Children in both groups scored low on the Bayley Mental Development Index, but those in the HFAK group had significantly higher scores than those in the control group. There was no difference between groups in psychomotor development scores, but children in both groups scored well, leaving little room for improvement.
- Child Behavior: Mothers in the HFAK group were significantly less likely to rate their children's problem behavior as falling within the borderline/clinical range.

### 4. Program Effectiveness within Population Subgroups

For outcomes where we found a significant group effect, we expanded our regression models to incorporate hypothesized moderators and group by moderator interaction terms. In this way, we aimed to see if program effects applied to the sample overall or whether there was evidence that effects were limited to a specific subgroup.

For four outcomes with significant HFAK impact overall, effects were limited to families with lower baseline vulnerability. HFAK reductions in mild physical assault were limited to mothers with two or more children ( $B=-5.6$ ,  $p<.05$ ). The decrease in families with poor HOME scores was limited to families with moderate baseline FSC scores (AOR 0.32; 95% CI 0.17, 0.62;  $p<.01$ ) and families who were not violent at baseline (AOR 0.55; 95% CI 0.36, 0.84;  $p=.01$ ). HFAK impact in reducing externalizing problem behavior was limited to nonviolent families (AOR for normal externalizing behavior score 1.80; 95% CI 1.08, 3.00;  $p<.05$ ). Improved access to center-based parenting services was limited to nonviolent families (AOR 2.47; 95% CI 1.65, 3.69;  $p<.001$ ).

We also explored whether there were significant program effects within population subgroups for outcomes with a modest overall group difference. For outcomes with a modest, statistically non-significant group difference, there were five instances of moderation, three positive and two negative. HFAK reduced mild physical assault by mothers with two or more children (AOR 0.34,  $p<.05$ ) and mothers who were not in a violent relationship at baseline (AOR 0.43,  $p=.07$ ). Problem alcohol use was less common in HFAK mothers who were in a violent relationship at baseline (AOR = .32,  $p<.05$ ). On the other hand, HFAK decreased access to child support services (AOR 0.22; 95% CI 0.11, 0.45;  $p<.001$ ) among families with a high baseline FSC score and we found that HFAK mothers who were not in a violent relationship at baseline were significantly less likely to have completed high school by the Year 2 follow-up (AOR 0.14,  $p=.02$ ).

### 5. Mediators of Program Impact on Child Development and Behavior

HFAK aims to promote child outcomes by positively influencing family functioning and parenting. For child outcomes where we found a significant positive program impact – the Bayley Mental



Development Index and the Achenbach Child Behavior Checklist – we assessed whether and how these benefits for children were mediated by HFAK impact on parents. To be a potential mediator, a parent or family variable must be significantly related to study group (HFAK vs. control) and also to the child outcome of interest. Three parenting measures were potential mediators of the impact of HFAK on child development and behavior – fewer poor HOME scores, increased maternal self-efficacy scores, and increases in use of center-based parenting services.

For MDI scores, only one of these --- poor HOME scores --- met all three of Baron and Kenney's tests for mediation. However, the increase in MDI score for HFAK families was reduced only slightly, to 2.9 ( $p < .05$ ), when poor HOME score was considered as a covariate. This indicated that poor HOME score only partially mediated the impact of HFAK on MDI (Table IV. C4).

	Model 1			Model 2		
	B	95%CI	p	B	95%CI	p
Group	2.8	(1.2, 4.4)	.01	2.9	(0.7, 5.0)	.02
Poor quality home environment				-7.6	(-13.2, -2.1)	.02

<sup>1</sup> Models also control for baseline psychological resources and parents' relationship

Poor HOME score and maternal self-efficacy met the three tests for mediation of the HFAK impact on internalizing behavior. When these were added as covariates, the association of group with CBCL internalizing behavior weakened only slightly and remained statistically significant (AOR 1.6;  $p < .001$ ) (Table IV. C5). Neither poor HOME scores or access to center-based parenting services met the three tests for mediation of HFAK impact on externalizing behavior, either for families overall or for nonviolent families. Self efficacy did meet the criteria for mediation using families overall. However, when self efficacy is in the model the association of group with CBCL externalizing behavior weakened only slightly and remained statistically significant (AOR 1.42;  $p = .01$ )

	Model 1			Model 2		
	B	95%CI	p	B	95%CI	p
Group	1.8	(1.5, 2.3)	<.001	1.6	(1.4, 1.8)	<.001
Poor quality home environment				.27	(0.1, 0.6)	<.05
Maternal self efficacy				1.2	(1.1, 1.3)	<.05

<sup>1</sup> Models also control for baseline psychological resources and parents' relationship

#### 6. Association of Malleable Parent Risks with Abusive Parenting Behavior and Frequency of Use of Corporal Punishment

We did not find a significant HFAK impact on abusive parenting behavior. To better understand why the program failed to influence such behavior, we conducted analyses to test the association of malleable parent risks and parenting attitudes toward corporal punishment with each of three parenting measures --- self-reported severe physical assault, psychological aggression, and frequency of use of 'normative' corporal punishment. Tables IV.C6 through IV.C.8 summarize the results. Malleable parent risks were positively associated with each parenting measure; as the number of risks increased, so did the likelihood or frequency of use of each parenting measure. Favorable attitudes toward the use of corporal punishment were positively associated with both severe physical assault and normative corporal punishment.

Table IV.C6 Association of Malleable Parent Risks and Attitudes with Severe Physical Assault of Child<sup>1</sup>

	AOR	95%CI	p
Number of Risks <sup>2</sup>			
None	1.0		
One	4.1	(1.0, 16.2)	.04
Two or Three	5.2	(1.3, 20.8)	.02
Belief that Corporal Punishment is Effective	2.3	(0.9, 6.1)	.08

<sup>1</sup> Any severe physical assault is defined as having engaged in at least one of the following behaviors at least once in past year: hit child somewhere other than the bottom with a hard object; slap on face, head, ears; hit with fist or kick hard; throw or knock child down; shake child; choke child; or burn or scald child on purpose.

<sup>2</sup> Number of risks is a count of the number of major risk factors in which mother was positive at follow-up. The possible risk factors are depressive symptoms (CESD score  $\geq 20$ ); problem substance use (ever CAGE positive *and* drank in past year or any illicit drug use in past year); and partner violence (any incident of partner assault in past year).

Table IV.C7 Association of Malleable Parent Risks and Attitudes with Maternal Assault on Child's Self-Esteem<sup>1</sup>

	AOR	95%CI	p
Number of Risks <sup>2</sup>			
None	1.0		
One	2.5	(1.1, 5.5)	.02
Two or Three	4.2	(1.9, 9.3)	.001
Belief that Corporal Punishment is Effective	2.9	(1.5, 5.7)	.001

<sup>1</sup> Assault on child's esteem is defined as having engaged in at least one of the following behaviors at least once in past year: called child dumb or lazy; said you would leave child; swore or cursed at child; or slapped child on face, head or ears.

<sup>2</sup> Defined in Footnote 2 of Table IV.C6.

Table IV.C8 Association of Malleable Parent Risks and Attitudes with Frequency of Maternal Use of Normative Discipline<sup>1</sup>

	B	95%CI	p
Constant	15.6		
Number of Risks <sup>2</sup>			
None	ref		
One	0.03	(-6.2, 6.8)	.93
Two or Three	7.3	(.21, 14.4)	.04
Belief that Corporal Punishment is Effective	13.1	(6.9, 19.3)	<.001

<sup>1</sup> Normative discipline is defined as the number of times the mother has engaged in the following behaviors in the past year: slapped child on hand, spanked child on bottom with bare hand; threatened to spank or hit child but didn't do it; shouted, yelled, or screamed at child; and pinched child.

<sup>2</sup> Defined in Footnote 2 of Table IV.C6.

#### D. Relating Services Provided to Achievement of Outcomes

Process analyses showed many substantial departures of actual services from HFAK standards. Outcomes analyses showed that HFAK generally did not achieve its goals for preventing child maltreatment and improving family functioning and child health, but did reduce parenting stress, promote child cognitive development, and reduce child problem behavior. How does actual service delivery explain this constellation of outcomes? This is focus of the third hypothesis, that adherence to HFAK process standards is positively associated with achievement of outcomes.

## 1. Association of Duration of Enrollment with Attainment of Outcomes

If duration of enrollment in HFAK were associated with impact on outcomes, we would expect better outcomes for HFAK families with a higher 'dose' of home visiting, that is, those who were enrolled a longer time. This was not the case (Table IV.D1). Outcomes were not better for families with longer duration of HFAK enrollment. For example, families still enrolled at one year had outcomes remarkably similar to those of assigned to the HFAK group overall. The most pronounced difference in outcomes by duration of enrollment was for maternal report of using mild physical assault in disciplining the child; 74% of mothers enrolled at least a year vs. 87% of those enrolled less than a year reported using such tactics ( $p < .08$ ). Thus, crude measures of dose do not provide evidence of HFAK efficacy.

Table IV.D1. Outcomes by Duration of HFAK Enrollment

	All HFAK (n=126)	≥1 visit HFAK (n=117)	>6 Mos HFAK (n=99)	>12 Mos HFAK (n=73)
<b>CHILD ABUSE AND NEGLECT</b>				
Maternal self-reported behaviors <sup>1</sup>				
Psychological aggression	84%	85%	85%	82%
Psychological aggression (mean (sd))	11.2 (12.8)	11.6 (13.0)	11.5 (12.9)	11.8 (13.8)
Mild physical assault <sup>2</sup>	80%	80%	78%	74%
Severe assault	9%	9%	7%	6%
Neglectful behavior	19%	20%	22%	22%
Poor mother-child interaction score <sup>3</sup>	17%	17%	18%	17%
Poor quality home environment <sup>4</sup>	20%	19%	19%	18%
<b>FAMILY FUNCTIONING/PARENTING</b>				
Mother completed HS since baseline <sup>5</sup>	22%	22%	20%	22%
Maternal parenting stress (mean (sd))	75.9 (17.6)	75.5 (17.5)	76.1 (17.9)	76.2 (18.3)
Maternal depressive symptoms <sup>6</sup>	17%	14%	16%	16%
Partner violence <sup>7</sup>	29%	30%	30%	30%
Quality of home environment (mean (sd))	36.7 (4.2)	36.8 (4.2)	36.9 (4.1)	37.1 (4.1)
Mother-child interaction score (mean (sd)) <sup>8</sup>	15.5 (3.2)	15.5 (3.2)	15.5 (3.3)	15.4 (3.5)
<b>CHILD HEALTH/DEVELOPMENT</b>				
Adequate well child care <sup>9</sup>	4%	4%	5%	6%
Cognitive development (mean (sd))	87.6 (12.5)	87.5 (12.7)	87.3 (12.6)	87.2 (12.4)
Psychomotor development <sup>10</sup>	85%	84%	86%	88%
Child behavior (mean (sd))	49.8 (9.6)	49.6 (9.6)	50.0 (9.6)	50.1 (9.6)

<sup>1</sup> Traditional subscales of Conflict Tactics Scale; <sup>2</sup> Includes slapping on hand, arm or bottom with hand; pinching, hitting on bottom with a hard object; <sup>3</sup> Defined as score <35 on NCAST Caregiver Total Score; <sup>4</sup> Defined as score <33 on the HOME scale; <sup>5</sup> Includes only those mothers who had not yet completed high school at baseline: Control, n=51; HFAK, n=45; ≥1 visit, n=41; > 6mos HFAK, n=35; >12mos HFAK, n=23; <sup>6</sup> Defined as CESD score ≥24; <sup>7</sup> Defined as any partner assault in past year as indicated by the Conflict Tactics Scale; <sup>8</sup> NCAST caregiver contingency score; <sup>9</sup> Percent of children receiving APA recommended well child care visits by 2 years of age per pediatric medical record; <sup>10</sup> Percent of children scoring within normal limits (≥85) on the Bayley Scales of Child Development

## 2. Association of Home Visit Content with Attainment of Outcomes

**Reduction of Malleable Risks:** Home visitors discussed and acted on malleable parent risks for child maltreatment with a subset of HFAK families. If these actions were successful in reducing parent risks, we would expect to see fewer of these parents positive for risk at follow up as compared to control families and HFAK families where risks were not discussed and addressed in some way. To identify and control for potential bias, we identified baseline attributes associated with discussion of risks and controlled for these. Where there was a constellation of baseline attributes associated with discussion, we used propensity scores to control for bias. Where only a single baseline attribute was associated with discussion, we included it in our regression model as a covariate.

We found that discussion of a malleable risk was not associated with reduction of the risk at follow up (Table IV.D.2). Thus, even when HFAK services included discussion of malleable risks or specific actions to address them, we do not have evidence of improved outcomes. There are several possible explanations for this. It is possible that risks were more likely to be discussed in families where they were most severe and intractable. The quality of services provided might not have been adequate. Our measure does not include maternal trust of the home visitor because few mothers expressed trust in this regard. If trust of the home visitor is essential for discussion and action to be effective, our measure is too broad. Finally, our measure of ‘dose’ is still quite crude in that it is merely a binary measure of whether a risk was *ever* discussed or acted upon.

Table IV.D.2. Malleable Parent Risk Outcomes in Families Where the Family Support Worker Discussed or Acted vs. Those without Evidence of Discussion or Action						
	Any Discussion of Risk			Specific Action Taken to Address Risk		
	AOR	CI	P	AOR	CI	P
Maternal Substance Use <sup>1</sup>	1.51	.68, 3.38	.32	1.85	.71, 4.80	.21
Partner Violence <sup>1</sup>						
Any Incident	0.92	.38, 2.21	.92	0.67	.24, 1.87	.44
Incident Resulting in Injury	0.80	.28, 2.28	.68	0.91	.28, 2.98	.88
Poor Maternal Mental Health <sup>2</sup>	1.86	.86, 3.98	.11	1.34	.56, 3.24	.52
<sup>1</sup> Derived from multiple linear regression models controlling for baseline attributes as covariates						
<sup>2</sup> Derived from propensity models controlling for a constellation of baseline attributes						

*Promotion of Home Environment Quality, Parenting Knowledge and Favorable Parenting Attitudes:* While HFAK services did not impact malleable risks, the program was effective in promoting child development and reducing problem behaviors as measured by maternal report. Furthermore, the results showed favorable impact on parenting knowledge, empathy toward the child, realistic expectations, and the quality of the home environment for learning. All of these variables related to child outcomes at the bivariate level. As shown earlier, HFAK impact on child development was partially mediated by its impact on HOME scores (Table IV.C.4). In addition, HFAK impact on child behavior was mediated by its impact on HOME scores and on maternal empathy toward the child (Table IV.C.5).

How does home visit content explain positive impact on these aspects of parenting? In short, there was evidence of a consistent, curriculum-guided focus on parent-child interaction and child development. Home visitors frequently addressed issues of child development and parent-child interaction:

- 43% of all visits included parent role modeling and child development activities.
- 60% of all visits included education and information on child development and age-appropriate behavior.
- 51% of all visits included education or modeling on parent-child interaction.

Thus, our process and outcome findings support the premise stated at the start of this report:

***Every system is perfectly designed to achieve exactly the results it gets.***

In the concluding chapter of this report, we shall consider the HFAK model and implementation system and how these might be modified to improve results.

## V. DISCUSSION

### A. Interpretation of Findings

The study findings show that HFAK services deviated from the service model and failed to achieve many of the program’s intended outcomes, including prevention of child abuse and neglect. The

findings are consistent with those of other randomized trials of the HFA model, including studies in Hawaii, San Diego and Santa Barbara.<sup>35-39</sup> Replication of findings has given rise to concerns that the model itself is not a good match for the families targeted and would not achieve intended outcomes even if implemented faithfully.<sup>40;41</sup>

What exactly is the HFAK model? Clearly, it is consistent with the HFA model. At a general level, this consistency is evident in site adherence to HFA Critical Elements and credentialing requirements and in staff training by HFA trainers. At the level of specifics, the HFAK program also is consistent with stated HFA underlying principles and how they are translated into action via the implementation system.

Consider first the Child Welfare League's definition of the three levels of family services.<sup>42</sup> The first level is universal services to promote health and well-being. The second level of services targets families with problems that threaten stability; it aims to prevent adverse outcomes. Services at this level include case management, counseling and therapy, education, skill building and material assistance. The third level of services targets families in crisis, for example when removal of a child is imminent. Clearly, the HFA model targets families with a constellation of risks appropriate for services at the second level.

However, the HFA philosophy and implementation system seem geared to providing family services at the first level, not the second. This is evident in an emphasis on *selected* aspects of family support, empowerment, case management and the strengths-based approach.<sup>43-50</sup> Like family support programs in general,<sup>42;43;51-53</sup> the HFA model calls for home visitors to offer specific knowledge and skills about healthy child development; support families in accessing needed information and resources; and support the development of parental/family self advocacy.<sup>54-59</sup> Like family support programs in general,<sup>42;43;53;60</sup> the HFA model espouses strengths-based practices, empowerment, parent-practitioner partnerships, and voluntary participation in services.<sup>54-59</sup> Like Family Support America,<sup>51</sup> HFA assumes that all parents want to be "good parents" and do not need to be fixed. In short, the HFA philosophy and implementation system are true to many tenets of family support services and the strengths-based approach.

Even so, the model and implementation system seem to ignore or contradict other defining attributes of family support, empowerment, family-centeredness and the strengths-based approach. A case in point is disclosure of information regarding the risks for which families were targeted. In family support services, partnerships are built upon mutual trust and honesty. The service provider has an obligation to raise concerns s/he deems important and to provide information so that the family can evaluate options and make intelligent and informed parenting decisions.<sup>61</sup> It has been suggested that withholding such information is perhaps the greatest disservice one can show toward families.<sup>61</sup>

HFA family assessment and support workers, through the assessment process and home-based observations, are aware of parental behaviors that can have a negative impact on children. While usually not requiring a report to child welfare services, these behaviors may warrant intervention as described above. However, family assessment results typically are not shared with the parent at the time of program enrollment. Rather, the HFA model advises staff to be "non-judgmental," build trust, and wait for the parent to raise an issue rather than do so themselves. Dunst has identified four conditions that must be met before an individual perceives a need for resources: (1) perception of a discrepancy between what is and what should be; (2) assessment that the discrepancy is important personally; (3) identification of resources to meet the need; and (4) a belief in the ability to obtain such resources to meet the need.<sup>61</sup> Family support practitioners can provide information to support the parent in identifying a discrepancy, its possible consequences, and available resources. However, as in other randomized trials of this model,<sup>35;38</sup> we found little documentation of such information sharing.

On the surface, it might seem that a strengths-based approach is incongruent with a focus on risk reduction. This is not the case. The resilience approach is based on the conviction that strength can be forged through collaborative efforts to deal with adversity.<sup>62</sup> Resilience is the capacity to rebound from adversity strengthened and more resourceful; it is forged through adversity, not despite it. Life crises and hardship can bring out the best in us as we rise to challenges. A family resilience approach has much in common with many competence-based family therapy approaches: emphasizing a collaboration and

seeking to build on strengths and resources.<sup>63</sup> Proponents suggest that programs adopt and simultaneously implement two resilience-based strategies:<sup>63;64</sup>

- **First:** Risk must be reduced. Risk factors should guide intervention efforts, and the goal of intervention should be to reduce the effect of specifically targeted risk factors significantly.
- **Second:** Protective factors must be strengthened to mitigate risk, enhance protection, and promote resilience.

#### 1. Early HFAK Efforts to Address Malleable Parent Risks

Alaska established its first Healthy Families programs in the mid 1990s, early in the national HFA initiative. Prevent Child America provided excellent technical assistance through site development guides, standardized training, and conferences. At the time, parts of the model were “under construction”. Alaska state administrators made a commitment to collaborate with program sites in specifying details of the program. Thus began the tradition of Quarterly Meetings involving State and local program staff.

The group tackled developing a computerized data collection system data, program policies and procedures, and outcome indicators. It selected screening tools to monitoring child growth and development, substance abuse, and maternal stress to support referral to treatment services; and planned for meeting unmet training needs.

In 1996, well aware of the causal relationship of substance abuse, domestic violence and poor mental health with child maltreatment, the group defined process standards to reduce risks. The Quarterly Meetings provided an excellent format to discuss challenges of program implementation. Recurrent themes were the challenges of working with parents with “the big three” risks and the difficulty of discussing these issues with parents.

Throughout the late 1990s, the State arranged training by practitioners from the treatment community for staff at Quarterly Meetings. In 1999-2000 the State contracted with HFA trainers to provide advanced training for home visitors and special training in substance abuse for all staff. While staff appreciated the training, programs continued to struggle with addressing risks, explicitly noting that doing so was not strengths based and that parents would indicate their willingness to work on these issues in their own time.

#### 2. HFAK Program Evolution during the Study

This study was designed to promote interaction between program and research staff so that the research could inform practice and vice versa. Starting with the June 2000 Quarterly Meeting, the principal investigator shared information from baseline family interviews to help program staff understand the attributes of the families they served. Throughout the course of the study, she shared process findings so that programs became aware early on of discrepancies between process standards and services actually provided. As outcome interviews were completed, she presented the results of analyses confirming the program’s underlying assumption that malleable parent risks were associated with child maltreatment.

In reflecting on this feedback, State administrators and program managers identified contradictions in HFAK enrollment activities and home visiting services. They began to see incongruities between HFAK and HFA goals, such as differing emphasis on child abuse prevention and on risk reduction. They questioned the adequacy of core training in preparing staff to understand family strengths and needs and to build on the former to address the latter. One seasoned assessment worker expressed ethical concerns about conducting the KFSC without informed consent. Workers expressed a deep commitment to support families in a way that improves child outcomes. They requested additional training and support in their efforts.

State administrators and program leaders took this feedback very seriously. They conducted a thorough examination of the program model and implementation system. The following summarizes problems identified and actions to remedy them.

1. Disconnect between Family Assessment and Home Visiting Services
  - Consistent with early use of the Family Stress Checklist,<sup>65</sup> the parent was not informed that s/he was being assessed.
  - The assessment worker did not disclose her status as a mandatory reporter.
  - The assessment worker did not fully share assessment results with the parent; major strengths were shared, but not risks.
  - Families eligible for services were offered HFAK, described as a program to help relieve the stress of having a new baby while coping with other situations.
  - Individuals trained and skilled in identifying and discussing strengths provided home visiting services. They did not discuss the assessment findings with the parent, nor use these in developing the individual family service plan.
2. Contradictions between HFAK Philosophy and Goals
  - Strengths were emphasized in a way that discouraged addressing the identified risks that made families eligible for the program.
  - The individualized family service plan was used to address only family goals.
3. Core Training
  - Core training did not include skills development for addressing malleable parent risks for child maltreatment
  - Core training did not emphasize the links between risks and child maltreatment.
4. Supervision
  - Supervisors lacked clinical expertise in substance abuse, domestic violence and mental illness.
  - Home visitors lacked immediate access to clinical consultation in these areas.
5. Protocols
  - The program lacked protocols to address parental substance abuse, domestic violence, and substance abuse.
  - Staff feared that raising sensitive issues would threaten their establishment or maintenance of family trust.

State administrative staff and HFAK program managers developed and implemented a plan to address these issues. Together, they:

1. Developed program goals that include supporting parents in reducing risks for child maltreatment.
2. Developed and implemented an HFAK core training manual that includes:
  - a. HFAK goals and outcome indicators;
  - b. Description of family attributes;
  - c. Major malleable risk factors for child maltreatment; and
  - d. Motivational interviewing techniques.
3. Developed and implemented program policy to support:
  - a. Sharing program goals with parents;
  - b. Obtaining parent's informed consent before administering the KFSC;
  - c. Sharing KFSC results with the parent;
  - d. Home visitor discussion of assessment results with parent at start of home visiting; and

- e. IFSP development process to include review of risks identified on the KFSC and in subsequent home-based services.
- 4. Provided supplemental training to support discussion of risks:
  - a. Provided home visitors with an abbreviated version of assessment worker training to enhance home visitor understanding of assessment and skills in discussing risks with parents; and
  - b. Provided HFA advanced training for home visitors, training on boundaries, and on substance abuse.
- 5. Required that grantees obtain and use clinical consultation for substance abuse, mental health and domestic violence.

3. *Move from Promotion toward Prevention:*

In implementing these changes, HFAK stepped outside the traditional HFA/family support model of promotion toward a prevention model. In doing so it has not abandoned its commitment to family-centeredness, empowerment, and the strengths perspective. These approaches are consistent not only with promotion, but with prevention and treatment models as well. While HFAK continues to adhere to HFA critical elements it might now look very different from other HFA programs.

Evolution is a slow process. The changes described were based on information gathered over the course of the study. They may well have altered services for families assessed and enrolled in HFAK *after* the study cohort, but not the study cohort itself. Beyond these early changes in the HFAK model and implementation system, the study's outcome findings underscore the need for further development. Recommendations for future change are the subject of the next section.

B. Recommendations

The study results suggest several recommendations to improve HFAK effectiveness in achieving its goals:

- 1. Adopt a resilience-based practice approach to reduce risks while strengthening protective factors. The approach is consistent with empowerment, strengths-based, and family centered approaches and creates a foundation for working with at-risk parents to prevent child maltreatment through risk reduction as well as promoting the development of family strengths.<sup>63;64</sup>
- 2. Assure that program practices reflect an in depth understanding of and adherence to empowerment, strengths-based, and family centered values and beliefs.
- 3. To assure that program participation is truly voluntary, the HFAK goal to prevent child maltreatment should be shared with families at assessment.
- 4. Combine the assessment worker (parent visitor) and family support worker positions into a single position. Information gathering in the assessment process lays the groundwork for developing a partnership and collaborative work in identification of strengths, concerns and goal setting (IFSP development).<sup>43</sup> These functions should be performed by the same individual.
- 5. Implement comprehensive family-centered assessment practices that identify family concerns, strengths, resources and needs from both the family's and provider's perspectives.<sup>43;46;49</sup>



6. Current practice emphasizes the importance of fully informing families of the purpose of assessments, obtaining consent, and sharing full assessment results with the participant.<sup>43;48;49;66-68</sup> Assure that staff carry out these practices.
7. Strengthen the program's ability to work with parents on risk reduction:
  - a. Find and/or develop curricula specific for parenting risks
  - b. Develop/implement protocols that address risks.
  - c. Incorporate clinicians from mental health, domestic violence, child abuse and neglect, and substance abuse into the HFAK model to support staff.
  - d. Provide training in case management.
8. Simplify home visit documentation to capture:
  - a. Parent challenges, concerns, and triumphs
  - b. Home visitor observations of strengths and concerns
  - c. Assessment of what is seen and heard
  - d. Interventions completed during the visit, and
  - e. Plans for future actions.
9. Continue to use parenting curricula.
10. Provide competency based training for family support workers that enables them to negotiate agendas for home visits with parents to meet both program and parent objectives.
11. Continue integration of motivational interviewing into program practice.
12. Develop and implement at the local and state level a quality improvement plan that supports continued program development.

### C. Need for Continuing Research

Like most research, this study has answered some questions and raised many others. OCS and the HFAK network of home visiting providers have demonstrated their capacity to carry out rigorous research and to apply the findings to program and policy development. As we have learned, however, behavioral interventions are complex and efficacy is elusive. While the study findings strongly suggest the need for modifications to the model and implementation system, they also demonstrate that it is essential to test one's hypotheses at each step.

There are many important questions to address in the continued development of home visiting as a preventive intervention for at risk families. Important questions include the following:

- How should one measure home visitor attainment of critical skills to address family risks?
- How well do available training options prepare home visitors, as measured by attainment of core competencies?
- How can fidelity measures be used to assure the quality of home visiting services?
- How can home visiting be better integrated with pediatric primary care to promote child and family outcomes through enhanced concordance and reinforcement of messages?
- What approaches are most effective for integrating treatment services with home visiting?
- What is the impact of integration of treatment services and home visiting on reducing malleable risks?
- How will integration of the parent visitor and home visitor role impact family engagement in services and family trust?
- What impact will program enhancements have on parental risk reduction and child maltreatment?
- Is it possible to reduce malleable risks in a voluntary home visiting program?

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This randomized trial must be considered a success even though some findings were disappointing. The study design was rigorous. The collaborating groups were highly motivated to conduct the study faithfully and to learn from their shared experience. Every individual involved --- from parent visitors, family support workers and supervisors to program directors and state administrators --- did his or her part. HFAK site and OCS personnel helped select process and outcome measures, assured that family recruitment adhered to study protocols, and were instrumental in interpreting study findings. Their invaluable contributions have assured the relevance, timeliness and validity of the study findings both locally in Alaska and nationally.

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