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**Best Beginnings: A Randomized Trial of a Home Visiting Program for  
Substance Affected and Non Substance Affected Families**

**Final Report Submitted to ACYF Children's Bureau,  
Abandoned Infant's Assistance Program  
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**Elizabeth Anisfeld, Ph.D.  
Columbia University  
College of Physicians and Surgeons,  
Department of Pediatrics, and  
Alianza Dominicana, Inc.**

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## **AIA Final Report on Best Beginnings**

### **I. Executive Summary**

- **Provide brief, general overview of the program.**

Best Beginnings is a preventive intervention program using the Healthy Families America (HFA) Model to deliver services through home visits by community women to at risk families in which there is a pregnant woman or an infant under 3 months of age. It is located in an inner-city neighborhood with a large impoverished immigrant population.

Best Beginnings Plus (BB+) is a component within the general Best Beginnings (BB) program dedicated to serving families affected by substance abuse or HIV. In addition to the preventive approach inherent in the HFA model, BB+ uses the Harm Reduction Model to work with the substance affected families. With funding from the Abandoned Infants Assistance grant, the BB+ component was added to the general BB program.

Best Beginnings was established as a collaboration among a child abuse prevention agency (The New York Society for the Prevention of Cruelty to Children -NYSPCC), a community-based organization (Alianza Dominicana, Inc.) and a University medical center (Columbia University College of Physicians & Surgeons Department of Pediatrics and New York Presbyterian Hospital - NYPH).

Eligible families are identified during pregnancy whenever possible or immediately postpartum (infants up to 3 months of age only). Community women are trained as family support workers and are matched with eligible families. Through regular home visits they assess the needs of the families, provide support to family members, link them with needed services, provide educational information about childbirth, breastfeeding, nutrition, child development, and parenting, and refer them for education and job training, health care and mental health services. Services begin during pregnancy or after the birth of the target child and continue until the child reaches age 5 or enters fulltime daycare or Head Start. Families are initially visited weekly with visit frequency decreasing to quarterly as the family's needs lessen.

BB+ and non-BB+ families (families not affected by substance abuse) receive the same basic intervention. However, BB+ families receive more frequent home visits and more intense services when needed. The BB+ family support workers have previous experience working in the

substance abuse field and receive additional training in the Harm Reduction model and other tools necessary for working with substance affected families.

In order to assess the effectiveness of the intervention with both BB+ and non-BB+ families, a randomized trial was conducted from the beginning of the project. After it was determined that the family was eligible for the program, they were assigned at random (by a computer generated list of random numbers) to either a program group which received the intervention outlined above or to a control group which received home visits every 6 months to assess progress and make referrals for services if needed. More details of the randomized trial are given below in section C. Overview of the Evaluation.

- **Summarize process and outcome evaluation findings.**

#### *Implementation Findings*

The aim of goal 1 of the project was to identify and enroll families affected by substance use. One of the main findings from the implementation of this goal was that we were able to increase the percent of families identified as affected by substance use from the Initial Cohort (recruited from 10/1/96 through 3/5/03) to the New Cohort (recruited from 3/6/03 through 6/30/08) by the introduction of screening instruments (first the DUSI, followed by the Substance Use Questionnaire). However, the percent of those eligible who actually enrolled decreased from 80% to 69% between the 2 cohorts. There are two factors potentially affecting this decrease: programmatic changes affecting staff, and shifts in the demographic characteristics of the population over time.

Another finding from the implementation of goal 1 is that the definition of substance affected families was too broad and led to the inclusion of families for whom the use of substances had little effect on the family or the environment to which the child is exposed, and was more in line with cultural norms for the subpopulation included in the project. Future projects need to define clearly in advance what the target population to be served is.

The aim of goal 2 was to make regular home visits, to assess the needs of families, and to make referrals based on the needs assessment. Examination of the data reveals that the number of home visits and the content of those home visits conformed to the protocol. The program group received an average of 35 home visits during the 12- month postpartum period compared to the control group average of 3.9 visits. The content of the visits and the types of referrals

made covered activities relevant to the needs of the families. Service referrals were made and services received by the program group to a significantly greater extent than by the control group. Accompaniment to agencies and advocacy by the staff on behalf of program group families presumably contributed to the receipt of services by these families.

In order to enhance family functioning (goal 3), during the home visits workers were expected to address the needs of the mother and other family members for mental health services and educational advancement, and link them to services. This required intensive, on-going consistent efforts on the part of the staff to move the family toward receiving needed services. Examination of the process data indicates that this did indeed happen. The most frequent referral for the program group during the 12 month postpartum period was for GED preparation, with referrals for mental health counseling and English as a second language also frequent. Consistent with this is the finding that referrals for day care/baby sitting were also made with relatively high frequency.

The aim of goal 4 was to promote healthy child development and positive parent-child interaction. Through the implementation of this goal, information was provided to the families on relevant topics such as: preparation for childbirth, breastfeeding, basic infant care, health care, child development, parenting, and support for parent stress. Referrals were made for primary care for the child, early intervention services for the child, and health care for mother and child.

#### *Lessons Learned*

Our analysis of which household members were identified as substance users in the BB+ sample indicated that in approximately 45% of households from both cohorts, the father was the only user. In about one third, the mother was the only user. In the remainder, both the mother and the father (or other household members) were users. This information has implications for service provision. Interventions need to be targeted to fathers (in addition to mothers), who unfortunately are less available than mothers. It may not be sufficient to provide information to mothers about the potentially harmful effects of exposing infants to chaotic home environments and making safety plans for the infant when drug use is expected to occur. Fathers and other household members to whom the infant is exposed also need to be supported and worked with.

Another lesson learned is the importance of restricting the definition of substance affected family so that the resources of the program could go to working with families who really need

and could benefit from help. The criteria used in the present study were too loose (e.g., one beer). It would be important to study the normative cultural behavior and practices surrounding substance use in order to determine, define and distinguish what is “culturally normative” drinking and “problem” drinking along a whole cultural spectrum.

The substances of abuse in this project were mainly alcohol and marijuana, not cocaine or heroin. This has important implications for the nature of the intervention we were able to provide to these families. In most cases, it was possible to keep the infant in the home and provide support to the family to minimize potential harm to the infant.

Another lesson learned is that it IS possible to conduct a randomized trial within a service project housed in a community agency. One of the difficulties in doing this, however, is keeping track of families affected by substance use who are assigned to a control group. Future studies such as this should build in a mechanism for tracking control group families regularly without actually intervening.

### *Outcome Evaluation Findings*

#### *Barriers*

When the BB+ component was added to the general Best Beginnings program, the design chosen to evaluate the effectiveness of the BB+ intervention was the same design being used for the general BB program, namely, a randomized controlled trial (RCT). A major accomplishment of this project was successfully conducting a RCT within a service program utilizing service staff to administer and collect the information needed for the RCT. In the initial phases, this required intensive training and supervision, but gradually a culture of “evaluation” was established. However, other challenges arose along the way which presented barriers to conducting a valid analysis comparing outcomes for the program and control groups. Some of the challenges affecting the validity of the RCT included:

- Long term recruitment (12 years) – population characteristics changed over time
- Difficulty maintaining a substance affected control group
- Stability of the program and consistency of the intervention delivered– introduction of new methods for service delivery; effect of agency policies on morale, staff turnover, etc.
- High staff turnover lead to overburdened, less well trained staff and participant loss to follow-up

- High drop-out rates affect the generalizability of findings

The reality of the above factors is illustrated by the following. The New Cohort (recruited from 3/6/03 through 6/30/08) differed from the Initial Cohort (recruited from 10/1/96 through 3/5/03) on level of psychosocial risk, on the nature of substance use, and on the consistency and quality of the intervention they received. In addition, the high drop-out rate for the New Cohort (62% by 12 months) interfered with meaningful data analyses. The decision was therefore made to present outcome analyses using the participants in the Initial Cohort only. Since the relatively small sample size of this cohort limits the statistical power, we included Best Beginnings participants from the non BB+ component. Thus the program and control groups used in the analyses were comprised of both BB+ and non BB+ participants.

### *Findings*

The purpose of goal 3 was to enhance family functioning and reduce the potential harm of prenatal drug exposure. From the multiple regression analyses that were conducted, we found no evidence that the intervention significantly affected maternal psychosocial functioning as measured by depressive symptoms, parenting burden, feelings of mastery and perceived social support. However, a consistent finding was that a family's current level of Maternal/family stressors (e.g., financial, domestic violence, substance use, etc.) was clearly related to measures of mothers' psychosocial functioning.

Several measures were used to test the effectiveness of the intervention in promoting healthy child development (goal 4) with the following results.

(a) The prenatal intervention which emphasized and supported breastfeeding led to an increase in the likelihood of a mother breastfeeding her infant at discharge. This held true for BB+ as well as non BB+ families.

(b) Overall development of the child at 12 months was positively related to the family receiving public assistance and negatively related to the family's current level of Maternal/family stressors. There was a trend for the children from substance-affected families to perform less well on overall developmental tests. On mental development tests, female children were significantly more advanced than male children. There was a trend for the motor development of the substance-affected infants to be more advanced.

(c) The responsiveness of the infants to caregiver contingency was significantly greater for infants from families who were in the program group and received the parent-child interaction curriculum. On the other hand, if there was a second primary caregiver in the home (such as the father of the baby or the grandmother), the infant was less responsive.

### *Lessons Learned*

Even though the results of the outcome evaluation are preliminary and are based on a “mixed” sample of non-substance affected and substance-affected families, there are several lessons to be learned from the findings. Maternal/family problems or stressors were related to measures of infants’ developmental status as they were to maternal psychosocial status. In the future more effort needs to be directed to understanding what the stressors are and finding ways to address them. In the present study, the approach used was for staff to discuss the stressors with the family and make referrals for assistance whenever possible. Support was also provided to encourage the family to follow through on referrals. However, some of the stressors (e.g, domestic violence) may require a long term approach with more intensive services.

## **II. Introduction and Overview**

### **A. Overview of the community, population and problem.**

- **Describe the community in which the project is placed. Are there relevant characteristics that impact CW families?**

Best Beginnings is located in New York City and serves the upper Manhattan community of Washington Heights and Inwood (WH/I), which starts north of Harlem on 155<sup>th</sup> Street. The community runs approximately fifty city blocks until 207<sup>th</sup> Street, the northernmost tip of Manhattan Island. It is a traditional immigrant neighborhood densely built-up with block after block of tenement-style buildings, three-quarters of which are populated by Latinos mainly from the Dominican Republic, making WH/I the epicenter of the Dominican community in New York City.

The following table shows the key demographic characteristics of the targeted location as they relate to maternal-child health and medical care access. The figures indicate that Washington Heights ranks much higher than NYC averages and is among the highest risk

communities in New York City for key characteristics which put the health of childbearing-age women and their babies at risk. In general, Washington Heights/Inwood is an area impacted by high socioeconomic disadvantage with higher rates of teen parenting than the rest of New York City.

<b>Table. Characteristics of Washington Heights-Inwood From the 2006 Community Health Profile</b>			
	<u>Washington Heights- Inwood</u>	<u>Manhattan</u>	<u>New York City overall</u>
% Hispanic	71%	27%	27%
% foreign-born	51%	29%	36%
% of residents living in poverty	31%	20%	21%
% with no health coverage (current)	20%	13%	18%
% with no regular doctor/"medical home"	32%	24%	24%
% who received late or no prenatal care(2003-2004)	26%	22%	28%
Birth rate to teenage mothers (2003-2004)	<b>106 per 1,000</b>	(not available)	75 per 1,000

Note. Source: Community Health Profile: Take Care Inwood and Washington Heights (2<sup>nd</sup> edition, 2006), New York City Department of Health and Mental Hygiene ([www.nyc.gov](http://www.nyc.gov)).

Family Dysfunction rates for zip codes 10032 and 10033 (a composite of low birthweight, abuse and neglect, drug-using mothers, drug-addicted babies, out of wedlock births indices) are higher than NYC averages, especially for zip code 10032, which registers a 75 out of a highest risk score of 100.

Drug Exposure rates for zip codes 10032 and 10033 (a composite of drug deaths, drug diagnoses, drug crimes, AIDS IVU), are also higher than NYC averages, especially for 10032, which ranks a 76 out of a highest risk score of 100.

In 2001, according to NYC Department of Health and Mental Hygiene data, there were 2,465 people living with HIV/AIDS in Washington Heights, and 237 people newly diagnosed with HIV. While there are no available breakdowns in terms of the age or gender of those newly infected, according to surveillance data nation-wide and city-wide HIV is increasingly infecting women of color, pointing to a possibility of increased risk for pregnant and parenting women.

- **Describe the organization that runs the demonstration project, if relevant.**

Best Beginnings is a collaboration of three entities: Alianza Dominicana, Inc., The New York Society for the Prevention of Cruelty to Children, and Columbia University College of Physicians and Surgeons, Department of Pediatrics. Representatives of each of these agencies are members of a Directorate that meets on a regular basis to help govern the project. Their contribution is critical to the management of the project. Since 2001, Alianza Dominicana has been the lead agency.

Alianza Dominicana, Inc. was established in 1982 as the very first non-profit human service provider to offer comprehensive services to the Dominican/Latino immigrant community of New York City. Alianza's mission is to affirm and support the value of community life by promoting health, self-sufficiency, education and economic opportunities that assure the development of children, youth and families. It is a leading authority on Dominican-Americans, the largest immigrant group in New York State.

Throughout its history, Alianza has developed model initiatives and services that attend to families' multiple needs, in close collaboration with health care institutions, community- and faith-based organizations, government agencies, foundations and corporations. Alianza has more than two decades of experience providing more than twenty-six distinct types of culturally competent, comprehensive and integrated services, created with the unique linguistic, cultural, educational and service needs of Dominicans/Latinos in mind.

- **Describe the children and/or families in the project in general terms such as demographic characteristics, and other relevant information.**

During the 12 year contract period, 203 families were enrolled in Best Beginnings Plus (BB+) and provided with services for varying lengths of time. The families were all from designated census tracts in Washington Heights and thus reflect the ethnic, cultural and economic nature of the community. Detailed tables presenting the characteristics of the mothers and children are included in the Evaluation section. A summary will be provided here.

The majority of the mothers were immigrants (63% born outside the US) and of Dominican ethnicity (74%). Approximately one quarter of the mothers had been in the US for 4 years or less. The average age of the mother at the time the target child was born was 25 years, with 25% being under 20 years of age. More than half (57%) of the mothers had less than a high

school education. At the time of recruitment, 58% of the mothers were pregnant. The remainder had infants less than 3 months of age. For 55% of the sample, this was the first birth. While most (82%) of the mothers were unmarried, 63% of families had a second primary caregiver involved with the target child, either the biological father (39%) or the child's grandmother (21%).

In general, the families could be described as at high psychosocial risk arising from difficulties in the following areas: financial, housing, marital or family relationships, mental health, substance use, immigrant status. Information elicited at intake about what the family's current issues were provides the following picture: 94% reported financial difficulties, 63% marital or relationship difficulties, 54% inadequate housing, 36% depression, 16% domestic violence. At intake, 29% had no one contributing to household income and only 11% were employed full- or part-time. The Kempe Family Stress Inventory (KFSI), which measures psychosocial risk, was used to determine eligibility for the program, with a minimum score of 25 necessary for eligibility. The mean score on the KFSI was 41 with a range of 25 to 75. Forty-three percent of the families scored 45 or above.

Eligibility for the Best Beginnings Plus component was based on the family being affected by substance use or HIV. Substance use could be by the mother, father or other family member in daily contact with the child. In 33% of the families the mother-only had problematic substance use. In 45% the father-only had problematic substance use and in 18% of the families both the mother and father were involved with substance use. In 4 % of families, some other household member was involved.

- **Describe the problem that the project seeks to address. What is the project trying to accomplish in general?**

The project seeks to address the problem of the exposure of fetuses to drugs in utero and the subsequent abandonment of infants in hospitals following birth due to positive toxicology for drugs in the infant or mother, or family situations that are deemed not suitable for raising infants due to the presence of substance use. The project aims to address this problem by identifying substance use during pregnancy and working with the mother and the family before the infant is

born to decrease substance use and to support positive changes in the family environment so that the family can provide a nurturing environment for the child.

## **B. Overview of Program Model**

- **What are the project's specific goals, activities/interventions and outcomes?**

The project had four specific goals. The attached Logic Model outlines each goal, the interventions associated with it and the expected outcomes. A brief overview is provided here.

The *first goal* was to “identify, engage, and enroll families affected by substance abuse.” In order to accomplish this goal, the outreach staff routinely attended prenatal clinics operated by New York Presbyterian Hospital (NYPH) both within the medical center and in the community. They approached pregnant women and screened them for geographic eligibility, for psychosocial risk factors, and for evidence of substance use. The outreach team also routinely checked the maternity floors of NYPH facilities to identify women after birth who might be eligible. Eligible women were invited to enroll in the project which would offer them supportive services, referrals for needed services, information about child development, and guidance in child rearing. A family support worker made a home visit to engage the participant and the family, to explain the study, and to obtain informed consent. If they were interested, they were enrolled and assigned a family support worker. The outcomes measured for this goal were the number of substance affected families enrolled and the number receiving supportive home visiting services over time. The aim was to increase the number of substance affected families identified and enrolled.

The *second goal* was to “provide supportive services to families.” Once the family was enrolled, the family support worker made regular home visits using the Healthy Families America (HFA) model of service provision combined with the Harm Reduction model for working with substance using women/men. The service provision included assessing the needs of family members and making referrals based on need for services. The family support worker followed up on referrals to see that the participant received the service and advocated for the participant when necessary. In order to measure the amount and type of service provided, family support workers completed Home Visit Logs following each contact, and Service Referral forms whenever a service referral was made. The outcomes measured for this goal were the number of

home visits made and the content of the home visits, the number of service referrals made by type, and whether or not needed services were received by the families.

The *third goal* of the project was to “enhance family functioning and reduce potential harm of prenatal drug exposure.” The basis for working with the family was the relationship that the family support worker established with the family over time. From this foundation, the family support worker was able to assess maternal (and/or paternal) psychosocial needs and make referrals for services. Through use of harm reduction methods, the worker encouraged the mother to reduce the potential harmful effects of her drug use on the infant during pregnancy and following birth. A safety plan was prepared with the family to insure that the infant would be in a nurturing environment regardless of the condition of the mother. In order to improve the mother’s support system, the family support worker engaged with other family members, addressing domestic violence and making referrals for service if necessary. An alternative caregiver was identified who would be responsible for the infant if the mother was temporarily unavailable.

Another objective under this goal was to encourage maternal self-sufficiency by discussing with the mother her educational, training and vocational goals and making referrals to facilitate those plans. To assess the extent to which the specific activities linked to this goal were implemented, we reviewed information from the Home Visit Logs (e.g., what topics were discussed during home visits, what information was provided) and from the Service Referral forms (e.g., what types of referrals were made for the mother and for other family members). To assess the outcomes of this goal, we measured: status of drug use by the identified user, maternal depressive symptoms, maternal social support, maternal feelings of mastery, and whether the mother and other family members actually received needed services.

The *fourth goal* of the project was to “promote healthy child development and positive parent-child interaction.” The activities implemented to achieve this goal began in the prenatal period for those families (58%) who enrolled prenatally. They included preparing the mother for childbirth and breastfeeding, and supporting the mother throughout labor and delivery. Following birth, all families were linked to a medical care provider for the infant and were provided with a soft baby carrier to calm and sooth the infant and promote parent-child bonding. The family support worker encouraged and supported the mother to breastfeed, making referrals

to the Lactation Clinic if necessary. The worker also provided the family with information about child development, parenting, discipline, and with activities to promote the infant's development and parent-child interaction. Regular assessments of the child's progress were made using standard child development assessment tools (Ages and Stages Questionnaire - ASQ, Bayley Scales of Infant Development). Referrals were made to Early Intervention whenever the test results indicated that a further evaluation was indicated, so that intervention could begin as early as possible. The extent to which these activities were implemented was measured through information abstracted from the Home Visit Logs and the Service Referral Forms. To assess the outcomes of this goal, we measured: method of feeding (breast or bottle) at discharge from hospital, quality of parent-child interaction by means of a videotape (NCAST), child's cognitive and motor development (Bayley, ASQ), and whether or not early intervention services were received.

A basic premise of this project was that by implementing the above goals, fewer infants would be removed from their homes and placed in foster care. We kept a log of how many infants were removed and the circumstances of that removal and return.

- **Include a copy of the project's logic model.**

**Logic Model Linking Intensive Home Visiting to Prevention of Abandonment and Out-of-Home Placement**

<b>Goals/Objectives</b>	<b>Activities/Interventions</b>	<b>Outputs/Products</b>	<b>Outcomes/Results</b>
<b>Identify, engage, and enroll families affected by substance abuse</b>	Initial outreach - Screen - Interview with the Kempe & DUSI  Enrollment - Match with FSW - FSW makes home visit to engage and enroll participant, sign consent form	<ul style="list-style-type: none"> <li>• # of screens completed</li> <li>• # of interviews completed</li> <li>• # contacts</li> </ul>	# of substance affected families enrolled increases over time  # of families receiving support home visiting services
<b>Provide supportive services to families</b>	Service Provision - Make regular home visits using the HFA and Harm Reduction models to provide culturally responsive interventions - Assess needs of families - Make referrals based on needs assessment - Follow-up on referrals and advocate if necessary	<ul style="list-style-type: none"> <li>• # of home visits/contacts</li> <li>• content of contacts</li> <li>• # referrals for service by type</li> </ul>	Receipt of services

<p><b>Enhance family functioning and reduce potential harm of prenatal drug exposure</b></p>	<p>FSW builds relationship with family</p> <ul style="list-style-type: none"> <li>- Use harm reduction methods in working with family</li> <li>- Show video of effects of drug exposure in utero</li> </ul> <p>- Assess and address maternal psychosocial issues (depression, feelings of competence, etc)</p> <ul style="list-style-type: none"> <li>- Encourage mother to reduce potential harmful effects of her drug use</li> </ul> <p>- Improve support system by working with other family members and referring if necessary</p> <p>- Link family to community services- non-medical</p> <ul style="list-style-type: none"> <li>- Encourage mother to become self-sufficient by discussing and referring for – education, training, employment, daycare, etc.</li> <li>- Address violence in the home</li> </ul>	<ul style="list-style-type: none"> <li>• Family provided with information about harmful effects of drug use</li> <li>• Family prepares safety plan for infant</li> <li>• Family views video on drug effects on fetus</li> </ul> <p>Information provided about:</p> <ul style="list-style-type: none"> <li>• Substance abuse treatment</li> <li>• Mental Health/Counseling</li> <li>• Employment, education, training opportunities</li> <li>• Discussion of family relations</li> <li>• Crisis management/problem resolution</li> </ul> <p>Referrals made for services:</p> <ul style="list-style-type: none"> <li>• For mother – mental health, substance abuse, education, job training, employt, counseling, daycare, DV</li> <li>• For other family members-substance abuse, education, job training, employment, counseling, daycare, DV, etc.</li> </ul>	<p>Outcome Measures:</p> <p>Mother or other using drugs less</p> <p>Safety plan is activated w mother/other is using drugs</p> <p>Mothers less depressive symptoms</p> <p>CES-D</p> <p>Mothers exhibit more mastery on PSI</p> <p>Support System is stronger meas. by MSSSI (global support)</p> <p>Alternate caregiver available</p> <p>Mother received necessary services</p> <p>Other family members recei necessary services</p>
<p><b>Promote healthy child development and positive parent-child interaction</b></p>	<ul style="list-style-type: none"> <li>- Link mother and target child to medical care provider</li> <li>- Prepare mother for childbirth and breastfeeding</li> <li>- Encourage and support mother (doula) throughout labor and delivery</li> <li>- Encourage &amp; support mother to breastfeed</li> </ul> <p>- Provide soft baby carrier (snugli or Baby Bjorn) after birth to calm infant</p> <ul style="list-style-type: none"> <li>- Provide activities for bonding and parent-child interaction</li> </ul> <p>- Provide information about parenting, discipline and child management</p> <ul style="list-style-type: none"> <li>- Provide support to mother to reduce stress</li> <li>- Provide parenting, support &amp;/or psycho-educational groups</li> <li>- Assess child development with ASQ and Bayleys</li> <li>- Make referrals to Early Intervention</li> </ul>	<p>Information provided about:</p> <ul style="list-style-type: none"> <li>• Pregnancy or prenatal care; Basic infant care</li> <li>• Health care &amp;/or child health safety</li> <li>• Child development and age appropriate behavior</li> <li>• Parent-Child Interaction</li> <li>• Child management/discipline; Support for parenting stress</li> </ul> <p>Mother/other family member carrying infant in soft baby carrier – frequency and by whom</p> <p>Relevant referrals made:</p> <ul style="list-style-type: none"> <li>• WIC Lactation Clinic</li> <li>• BB support and parenting groups</li> <li>• Primary care provider</li> <li>• Early Intervention Services for child</li> </ul>	<p>Outcome Measures</p> <p>Method of feeding at discharge f hospital (breast vs bottle)</p> <p>Quality of parent-child interaction</p> <p>NCAST Videotape of Teaching Task</p> <p>Ainsworth Strange Situation (measure of attachment)</p> <p>Reduction in parenting stress</p> <p>PSI – Parenting Burden scale</p> <p>Child's Cognitive &amp; Motor Devel.</p> <p>Bayley scores</p> <p>ASQ scores</p> <p>Early Intervention services received</p>

- **Describe any collaborative partners involved in implementing the project and their role(s).**

Best Beginnings was established as a collaboration among 3 agencies/institutions, each bringing important assets and perspectives to the program. A Directorate comprised of representatives of the 3 agencies met regularly to establish procedures and policies for the program and to discuss any difficulties that arose.

The New York Society for the Prevention of Cruelty to Children (NYSPCC), a non-profit child protection agency, was the lead agency in the initial years of the project and provided leadership in establishing the program and knowledge about and access to child protection services.

Columbia University College of P & S and the Columbia University Medical Center provided a medical home for the families insuring access to high quality medical care for the families. Ongoing collaboration between Best Beginnings and the staff of the Department of Pediatrics proved useful to both parties. Biweekly case conferences at Best Beginnings, which included a presentation by Pediatric residents on a relevant topic and a presentation by Best Beginnings staff of a family with a medical-related issue, enriched the knowledge of the Best Beginnings staff and provided a window into the day-to-day lives of the families for the pediatric residents.

Alianza Dominicana, Inc., a large community based organization serving minority (mainly Hispanic) families in Washington Heights, provided a home for the project both in terms of physical space and in terms of cultural values and appropriateness. The large array of services within Alianza delivered in a culturally relevant fashion made an important contribution to the success of the program. In 2001, Alianza became the lead agency for Best Beginnings, replacing NYSPCC.

### **C. Overview of the Evaluation**

- **Describe the evaluation (research) design, data collection procedures and the data analysis plan.**

#### Evaluation Plan

##### Study Design and Procedures

In order to evaluate the effectiveness of Best Beginnings Plus in achieving its stated objectives, a randomized controlled trial (RCT) research design was used. Best Beginnings Plus families that received the intensive intervention (program group) were compared to families randomly assigned to a control group receiving minimal services (“less intensive intervention”). A randomized controlled research design, unlike non-experimental designs such as pre-post designs with non-equivalent comparison groups, allows an evaluator to rule out multiple sources of extraneous influence on outcomes through comparisons with a randomly assigned group of families not receiving the services.

After an initial screening for eligibility for Best Beginnings Plus at prenatal clinics, WIC sites, and the maternity floors operated by Columbia University Medical Center, families were invited to be interviewed to determine their eligibility for the program. Informed consent was solicited from the mother using informed consent protocols approved by Columbia University Human Subjects Review Committee. The consent form (in Spanish or English) was read and explained in detail. After the participant signed the consent form, families were assessed as to their risk level using the Kempe Family Stress Inventory and the Drug Use Screening Inventory (DUSI). If families were assessed as “high risk” on the Kempe (scoring 25 or higher) and/or had indications from the DUSI that the family was substance affected, they were designated as Best Beginnings Plus (BB+) and were randomly assigned, using a computer-generated list of random numbers, to either the program or control group. Families were then matched with a family support worker who initiated services.

##### Measures and Data Collection Schedule

Data were collected on a wide range of variables related to risk for out-of-home placement, and child maltreatment (indirect measures), including measures of parent-child

interaction quality, maternal social support, maternal depressive symptoms, maternal self-sufficiency, mother's perception of her child, and the presence of domestic violence in the home.

In addition to measures administered specifically for this grant, data were also collected as part of evaluation efforts supported from two additional sources: a) funds from the New York State evaluation of all its home visitation programs (Healthy Families New York), and b) a research grant (expired) provided by the Smith Richardson foundation to study the effects of Best Beginnings services on outcomes. All questionnaires and other instruments were available in both English and Spanish, and all data collectors were fully bilingual. All measures were administered in the participant's preferred language (English or Spanish). The Child Developmentalist and the Research Assistant administered assessments of child development, parent-child interaction and quality of the home environment. They were blind to the group status of the families they were assessing. All other measures were administered by the family assessment workers or the family support workers. The latter were aware of which group the participant was enrolled in.

Data collection occurred at the following time points: at intake, within one month of birth, and at 6, 12, 18, 24, 36, and 48 months postpartum. Dates of follow-up interviews and developmental assessments were determined using an infant's date of birth *unless the infant was born prematurely*, in which case dates of developmental assessments were calculated using the *expected* date of birth and dates of maternal follow-up interviews were calculated from the actual date of birth. The measures are listed below.

### Screening Instruments

Screening Form (Healthy Family New York (HFNY) Form) This short form was used to determine the presence or absence of 15 risk factors, including late or no prenatal care, inadequate emergency contacts, and abortion unsuccessfully sought or attempted for the target pregnancy.

Kempe Family Stress Inventory (KFSI; Murphy et al., 1985). This widely used 10-item scale was designed to measure a family's level of risk for subsequent child maltreatment. Information was obtained during a semi-structured interview conducted by a family assessment worker (FAW). Risk domains covered during the interview included the following: Parental history of being abused; Parental history of psychiatric illness, substance abuse, or criminality; Parent/s suspected of child abuse or neglect in the past; Current social isolation and/or depression; Multiple current stresses or crises; Unrealistic expectations regarding child developmental milestones; and Child unwanted. Scores of "0" (not present), "5" (mild), or "10" (severe) were assigned for each of the ten risk categories and then summed to create a total score (max of 100). In the present study, a score of 25 or higher for either parent was interpreted as indicating "high risk" and qualified a family for program enrollment

Drug Use Screening Inventory (DUSI) (Tarter, R.E., & Hegedus, A.M., 1991). This 14-item questionnaire was adapted for use to screen families for Best Beginnings Plus. The original version has only one set of questions, which are asked of the potential user. Since we were working with families in which some other member of the household may be the identified user, we made a second section in which we selected only those questions that are relevant about other members of the household who have daily contact with the target child. We also translated the questionnaire into Spanish.

### Substance Use Questionnaires

The information about parental substance use histories collected by family assessment workers as part of the Kempe Family Stress Inventory (KFSI) interview and the DUSI did not provide sufficient detail in a structured fashion about critical variables such as recency of use (for example, whether a mother used during her pregnancy), quantity/frequency of substance use, and the extent of use-related problems. For the last funding cycle, we therefore added 2 sets of questions to our assessment protocol. Since most of the questions were “follow-up” questions that were only asked of mothers who had previously indicated a possible history of problematic substance use, the additional questions did not add significantly to the overall burden on participants or workers.

The first set of questions was to be asked of all mothers during the Kempe interview, as part of section 2.

1. During the 30-day period *just before* you found out you were pregnant, about how many (tobacco) cigarettes did you smoke?
2. During the 30-day period *just before* you found out you were pregnant, about how many times did you drink one or more alcoholic beverages (beer, wine cooler, liquor, etc.)?
3. During the 30-day period *just before* you found out you were pregnant, about how many times did you smoke marijuana, or “weed”?
4. What other drugs, if any, did you use during the 30-day period just before you found out you were pregnant?

The second set of questions was asked only of mothers who had already reported a possible history of problematic substance use on the Kempe and/or the DUSI. The questions covered Alcohol Use, Marijuana Use, Marijuana Use Problems Inventory, and Reasons for Marijuana Use. These questionnaires are attached in the Appendix.

### Socio-Demographic Variables

Intake Form and Follow-up Form (HFNY Form). Information on demographic characteristics of mothers and families (including biological fathers and other second primary caregivers) was collected at intake and then updated at each follow-up assessment. Demographic variables measured included age, ethnicity, country of birth, number of years lived in the United States, highest grade in school completed, employment status, public assistance utilization, and health insurance.

Number of Maternal/Family Problems (HFNY Intake and Follow-up Forms). Information about current maternal/family problems was completed on the Intake form and at each follow-up. The participant was read a list of issues or concerns and asked to respond as to whether that item was currently an issue for them. The information elicited on the Follow-up Form was used to form a scale *Number of Maternal/Family Problems*. The following issues were included in the scale: Physical disability/health problems, Depression, Domestic Violence, Marital or

relationship difficulties, Financial difficulties/insufficient income, Homelessness or inadequate housing, Criminal activity/other legal problems, Social isolation/inadequate social support, Stress or emotional difficulties, Inadequate food, clothing, or household goods.

The measures listed below assessed characteristics of parental caregiving, parent-infant attachment and maternal psychosocial risk that have been associated in previous research and theory with risk for child maltreatment and abandonment.

### Parent-Child Relations

Nursing Child Assessment Teaching Scale (NCAST; Barnard, 1980). The NCAST scales are among the most well standardized tools for measuring characteristics of mother-infant interaction. The mother was given an age appropriate toy and asked to teach her child how to play with it. The videotaped interaction was later scored by an NCAST trained and certified scorer using the system developed by Barnard (1980). The 73 NCAST items cluster into six subscales: Sensitivity to cues, Maternal responsiveness to child's distress, Social-emotional growth fostering, Cognitive growth fostering, Clarity of child's cues, and Child's positive responsiveness to parent.

### Maternal Psychosocial Risk Measures

Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977)

The CES-D is a 20-item self-report measure of emotions, behaviors, and cognitions associated with depression, including sad mood and problems with sleep, appetite, physical energy level, and motivation. The total score was used as the measure of *Maternal Depressive Symptoms* in the analyses.

Maternal Social Support Index (MSSI; Pascoe, 1990). The MSSI is a 21-item measure of the quality and quantity of social support available to a mother. The following 3 items were combined to make a composite score called *Maternal Perceived Social Support*: How many people can you count on in times of need? How many people would be able to take care of your children for several hours if needed? How many people would be able to give you money, food or clothing for you and your baby?

Parenting Stress Index-Short Form (PSI; Abidin, 1995). The 36-item version of the PSI is a parent-report questionnaire for measuring levels of stress associated with the parenting role in parents of infants and young children. The PSI is considered an indirect measure of risk for maltreatment. The following 4 items were combined to make a scale called *Perceived Parenting Burden*: I feel trapped by my parental responsibilities; I am unable to do new and different things because of my parental responsibilities; I am unable to do things I like because of my parental responsibilities; I find myself giving up more of my life than I expected because of my child.

Pearlin-Schooler Mastery Scale (PSM; Pearlin & Schooler, 1978). The PSM is an 8-item self-report instrument designed to assess an individual's perceived sense of mastery and control over events and outcomes in their lives. In

prior research using the PSM or similar measures, low mastery/perceived control has been associated with numerous psychosocial and health-related risk factors and poor outcomes among adults. The following items were combined to make the *Maternal Global Mastery* measure: What happens to me in the future mostly depends on me. I can do just about anything I really set my mind to do. I have little control over the things that happen to me (-). There is little I can do to change many of the important things in my life (-). There is really no way I can solve some of the problems I have (-).

### Child Development Outcomes

Ages and Stages Questionnaire (ASQ; Squires et al., 1997, 2002) The ASQ is a developmental screening questionnaire that is designed to detect developmental delays and is designed to be completed by parents. ASQ items yield subscale scores for Communication, Gross motor, Fine motor, Problem solving, and Personal/social functioning. At Best Beginnings, the ASQ was administered by the mother in the home *with the guidance of the family support worker*. When a child's score fell below the established cutoff, a referral was made to Early Intervention for further assessment.

Bayley Scales of Infant Development (BSID, Bayley, 1969; BSID-II, Bayley, 1993).

The BSID and BSID-II are used to assess the mental, psychomotor, and behavioral development of infants and very young children, and are generally considered to give an accurate estimate of an infant's current functioning. At Best Beginnings, Bayleys were administered by a bilingual child development specialist who was blind to the Program/Control group assignment of families. After scoring the Bayley, the child developmentalist made recommendations to the family and to the family support worker about ways that they could attempt to maximize the infant's development. If an infant did not perform well on the Bayley, s/he was referred to Early Intervention for further assessment. The Bayley was administered every 6 months to both groups.

### Child Health Status/Health Care Utilization

Target Child Identification and Information and Birth Outcomes (TCID) (HFNY form). Family support workers used this form to record variables including infant gestational age, birth weight, nursery type, and toxicology status, as well as type of delivery, amount and timing of prenatal care received by a mother, and method of feeding that a mother used while in the hospital following delivery and at discharge.

Target Child's Medical Information (HFNY form). Family support workers used this form at intake and at each follow-up assessment, in order to record data on child immunizations, outpatient/primary care visits, lead screenings or assessments, and hospitalizations or use of the pediatric emergency department.

Method of Feeding at Hospital Discharge. A measure of whether an infant was being breastfed, bottle fed, or both at discharge from the hospital was derived from the information on the Target Child Identification and Birth Outcomes form.

### Measures of Service Provision and Protocol Implementation

In addition to collecting data on the outcomes of Best Beginnings Plus, the evaluation design included quantitative and qualitative (e.g., progress notes) data collection tools to record

the extent to which family support workers followed the program protocol as expected, and delivered appropriate services to Program and Control group families. The following instruments were used to accomplish these aims:

Home Visit Log. After each home visit (or other face to face contact), family support workers recorded the activities that took place during the home visit on the Home Visit Log. The types of activities recorded fall into the following categories: child development, parent/child interaction (parenting), health care, family functioning (general family issues), crisis intervention, program activities, and concrete activities.

Service Referral Form (HFNY form). In order to obtain information about the services to which the participants were referred and whether or not they received them, family support workers recorded on this form each time a referral was made, the date when the service started, and if not received, the reason why.

### Measure of Participant Satisfaction

Participant Satisfaction Survey (PSS) (BB). In order to assess how the participants felt about the services they were receiving and about the staff providing the service, each family was asked to complete a Participant Satisfaction Survey when the target child reached 18 months of age and upon completion of the program or at discharge.

### Data Analysis

Through analyzing the data collected systematically we will be able to assess progress towards achieving the goals of the project.

The effectiveness of the intervention was tested by comparing the results on outcome measures for the Program group with those for the Control group. The outcome areas examined are linked to the goals and activities of the project: number of families receiving home visiting services, receipt of social services, educational level of mother, parent-child relations, maternal psychosocial functioning, reduction in parenting stress, child developmental outcomes, utilization of health care services and other community resources by families.

Data analytic strategies included analyses of covariance, multiple regression and logistic regression analyses. We initially examined outcome data for key covariates extraneous to the program vs. control variable. We also examined for the presence of other key covariates in order to partial out the effects of other key variables prior to examining for the effects of the intervention. Extensive examination also focused on quantitative indicators of program quality, fidelity and implementation, using home visit logs and service referral data.

The evaluation of Best Beginnings Plus was conducted by the Columbia University College of Physicians & Surgeons Department of Pediatrics as a third party evaluation.

- **Discuss problems encountered in the implementation of the evaluation plan.**

Several (interconnected) problems arose in the implementation of the randomized trial that were unanticipated, but have implications for the interpretation of the results.

- |   |
|---|
| Challenges affecting the validity of the RCT  |
| <ul style="list-style-type: none"><li>• Long term recruitment – population characteristics change over time</li><li>• Stability of the program – introduction of new methods for service delivery; effect of agency policies on morale, staff turnover, etc.</li><li>• High staff turnover leads to overburdened, less well trained staff and participant loss to follow-up</li><li>• Low retention rates affect generalizability of findings</li></ul> |

The first issue stems from the fact that it took almost 12 years to recruit enough families to have a sample size sufficient to conduct meaningful analyses. Such long term recruitment runs the risk that changes will occur in the characteristics of the population over time. Data presented below confirm that this did indeed happen. The other potential risk of long term recruitment is to the stability of the program over time. The nature of the intervention that is being delivered may change as new methods and protocols are introduced. The program is also subject to changes at the agency level in policies, financial situation, morale, etc. These changes or policies at the agency level may have an effect on retention of project staff. Staff turnover can lead to overburdened, less well trained staff who have to carry on with the intervention. This in turn can lead to participant loss to follow-up. Low retention rates make it more difficult to draw conclusions from data analyses conducted on the remaining families.

In order to discuss these issues and others related to the conduct of the RCT, we will present information about the following:

- nature of the sample at intake
- nature of the follow-up sample (retention rates)
- nature of the setting in which the intervention took place.

### *Nature of the Sample at Intake*

To evaluate the effectiveness of the Best Beginnings Plus intervention with families affected by substance use, we conducted a randomized controlled trial (RCT). In analyzing the results, families assigned to the program group were compared to those assigned to the control group. Before performing such analyses, it is necessary to check that families assigned to the program group and those assigned to the control group do not differ on socio-demographic and other characteristics at intake (and at follow-up). We present data on this in the tables below.

An additional factor affecting the validity of the comparisons in the present RCT arises from the fact that it took 12 years to gather a large enough sample for statistical comparisons. Because of the long period of recruitment, changes may occur in the characteristics of the population over time. We present data to examine this possibility in the tables below.

#### *Baseline Characteristics of Sample at Intake*

The sample was recruited from October 1, 1996 through June 30, 2008. There were two distinct phases to the recruitment. The Initial Cohort was recruited from 10/1/96 through 3/5/03. Upon receipt of continued funding, a New Cohort was recruited from 3/6/03 through 6/30/08. Follow-up assessments were analyzed for families recruited from 10/1/96 through 3/31/07 only.

Baseline characteristics on mothers and families in the total sample ( $n=203$  families) are presented in Table 1. The information was obtained from several sources: the Screening Form, the Kempe interview (KFSI), the Intake Form completed at the time the family enrolled in the project and the Target Child Identification and Birth Outcomes Form completed after birth. Frequency distributions for several demographic variables are presented in Table 2.

Since a summary of the characteristics of the total sample was presented in the Introduction, let us proceed to examine the differences in baseline characteristics that occurred over the 12 years of recruitment. Table 3 provides data on the baseline characteristics that were significantly different by era of enrollment (i.e., Initial Cohort vs. New Cohort). Examination of these differences reveals that each of these significant differences is consistent with a pattern of relatively low psychosocial risk overall for the group of cases who enrolled 03/05/03 or later (New Cohort) compared to the group of cases who enrolled prior to 03/05/03 (Initial Cohort). For example, the mean risk score for the mother on the Kempe/KFSI for the initial cohort was 44 and for the new cohort 38.6, indicating a much lower level of psychosocial risk. At intake, the

percent of mothers indicating that depression was currently an issue for them was much higher for the Initial Cohort (54%) than for the New Cohort (18%). In addition, scores of the mothers in the Initial Cohort on the CES-D (measuring current depressive symptoms) (mean=20.7) were significantly higher than scores for the New Cohort (mean=15.3). There are several indicators of an improvement in the financial arena from the initial cohort to the new cohort: partner currently unemployed, no one contributing to household income, PC2 employed, receiving TANF, no health insurance. In addition to finding that the New Cohort had significantly more PC2's who were employed, it was also found that there was significantly more parenting involvement by the biological father in the New Cohort. All these differences indicate that the Initial Cohort was significantly more at risk than the New Cohort. It is not clear whether these differences are unique to our sample or reflect a general trend in the community towards more intact, financially stable households.

The next consideration about the nature of the sample is whether or not there were differences between the program group and the control group on baseline characteristics at intake. Table 4 provides data about statistically significant differences between the Program group and the Control group participants at intake. In comparison with the many group differences found in baseline characteristics between participants enrolled before versus after March 5, 2003 (see Table 3), there were relatively few differences in baseline characteristics between program and control group participants. More of the program group mothers were enrolled in the prenatal period and significantly more indicated that depression was an issue for them currently (44% for program group vs 26% for control group). More of the control group mothers had Medicaid at intake. The groups also differed on ethnicity with significantly more control group mothers being Dominican. Program group mothers enrolled prenatally reported significantly more depressive symptoms on the CESD than control group mothers enrolled prenatally. Program mothers also reported higher feelings of mastery than control group mothers.

Thus to summarize the findings on the nature of the sample at intake, there are 6 significant differences on baseline characteristics by program-control group vs. 13 differences by era of enrollment. Only 3 variables overlap, meaning that there is a significant program vs. control group difference and a significant difference by era of enrollment for the same variable

(i.e., % of PCIs with Medicaid at intake, % of PCIs who respond they are "depressed" on "PCI Current Issues" at intake, and mean CESD scores at intake). Coupled together, the aforementioned findings suggest that the confounding of program-control group status with era of enrollment actually should not interfere in a major way with our ability to look at program-control group differences on outcome variables in a statistically feasible way.

All the families in the project were identified as affected by substance use. Information about extent of substance use, type of substances used and by whom was obtained during the initial interview. Beginning in 2005, the Substance Use Questionnaires were administered to supplement the information obtained from the DUSI for the New Cohort. Table 5 provides information about which household members were substance users and which substances were most commonly used. In order to check whether this also changed over time, the table presents the data by era of enrollment. As can be seen, in approximately 45% of households from both cohorts, the father was the only user. In about one third, the mother was the only user. In the remainder, both the mother and the father (or other household members) were users.

In terms of the substances most commonly used by mothers, the usage pattern changed over time. In the Initial Cohort, marijuana was the substance most commonly used (37% of mothers), with alcohol being the second (26%) most common. In the New Cohort, the percent of mothers using alcohol-only increased to 71%, which is significantly higher than the percent for the Initial Cohort (26%). The percent of fathers using alcohol-only also increased from the Initial Cohort (63%) to the New Cohort (74%) but this difference did not reach significance. From a broader perspective, it is important to note that the substances of abuse in this project were mainly alcohol and marijuana, not cocaine or heroin. This has important implications for the nature of the intervention we were able to provide to these families. In most cases, it was possible to keep the infant in the home and provide support to the family to minimize potential harm to the infant.

In order to explore further the nature of substance use in this sample, we compared the program group to the control group in terms of the substances used by the mother and the father. From Table 6 it can be seen that the two groups were similar in terms of types of substances used by both the mother and the father.

### Nature of the Follow-up Sample

Families in the program group were provided with service until the target child turned 5 years of age or entered fulltime daycare or Head Start. Both program and control group families were assessed at the following intervals to obtain an update on the family situation and to administer psychosocial and developmental measures: 6, 12, 24, 36, and 48 months postpartum. Only the information obtained at the 6, 12, and 24 month assessments is being analyzed in this report.

In this section, we will examine the following variables. In each case, we will look for program-control group differences.

- the number of families who had dropped out by 6, 12, and 24 months;
- the completion rates for the 3 follow-up assessments; and
- the factors associated with dropping out before 12 months postpartum.

Finally, we will look to see if there are significant differences in baseline characteristics (at intake) between program and control group families who completed the follow-up assessments at 6 and 12 months of age. Such differences could lessen the validity of the comparisons on outcome variables and would require adoption of statistical measures to adjust for the differences.

### Rate of Drop-Out

Information about the rate at which participants dropped out of the program is presented in Table 7 by era of enrollment and program vs. control group status. Overall, families enrolled in the New Cohort were significantly more likely to drop out by 6 months postpartum than families enrolled in the Initial Cohort, 34.0% vs. 14.3%. Among *program group* participants examined separately, the dropout rate at 6 months postpartum was also significantly higher among families enrolled in the New Cohort than among families in the Initial Cohort, 40.0% vs. 14.7%. In the *control group*, families enrolled in the New Cohort were more likely to drop out by 6 months postpartum than families enrolled in the Initial Cohort, 30.5% vs. 13.3%, but this difference was not statistically significant at the  $p < .05$  level [ $\chi^2(1,89) = 3.15, p < .10$ ].

Among families who had not already dropped out by 6 months postpartum, families enrolled in the New Cohort were significantly more likely to dropout out by 12 months

postpartum than families enrolled in the Initial Cohort, 36.8% vs. 9.5%. However, this difference in dropout rates by era of enrollment was statistically significant for *program group* cases only [35.0% vs. 5.2%;  $\chi^2(1,78)=11.84, p<.001$ ]; among control group cases, the difference in dropout rates by era of enrollment (37.8% vs. 19.2%) did not reach significance.

Approximately 32% of families dropped out between 12 and 24 months postpartum. There were no significant differences in rates of drop-out between 12 and 24 months either by era of enrollment or by program vs. control group status.

#### *Completion Rates for Follow-Up Assessments*

Table 8 provides data on the number of families who completed follow-up assessments at 6, 12, and 24 months postpartum. At the 6 month follow-up time, there was no significant difference between program and control group families in the rate of completing assessments, with 75% of program group families and 64% of control group families completing assessments.

At 12 months, program group families were significantly more likely than control group families to complete follow-up assessments, with 67% of program group families and 48% of control group families completing assessments [ $\chi^2(1,185)=7.33, p<.01$ ].

Also at 24 months, program group families were significantly more likely than control group families to complete follow-up assessments, with 47.5% of program group families and only 32% of control group families completing assessments [ $\chi^2(1,171)=4.16, p<.05$ ].

#### *Factors Associated with Dropout Before 12 Months Postpartum*

Table 9 provides information about the variables that were found to be significantly associated with dropping out of the program before 12 months postpartum, separately for the Program group and the Control group

Program group families who dropped out before 12 months postpartum appear to have had significantly *more* support from the biological father than families who remained in the program. On the scale measuring Biological Father's Parenting Involvement, those who dropped out had a mean of 8.1 and those who remained in the program a mean of 6.9 ( $t=-2.68, P<.01$ ).

For control group families, there were 3 factors significantly associated with dropping out before 12 months postpartum. (a) Families who dropped out were significantly more at risk at intake. The mean Kempe score for the dropouts was 43 and for the non dropouts 38 ( $t=-2.26,$

$P < .05$ ). (b) Control group mothers who dropped out had less education. Control group mothers who dropped out before 12 months postpartum had a significantly lower average score on a 4-level variable measuring highest grade completed at intake 2.3 vs. 2.7 ( $t = 2.38$ ,  $P < .05$ ). Only 34% of the dropouts had at least a high school education, whereas 57% of the non dropouts had this amount of education. (c) There was also a difference in parity: 42% of the control group dropouts were first time mothers compared to 65% of non dropouts ( $\chi^2 = 4.34$ ,  $P < .05$ ).

The combination of mother's Kempe total score, mother's educational achievement, and parity (primiparous versus multiparous) predicts 17.8% of the differences in dropout status between individual control group families at 12 months postpartum [ $P < .01$ ].

#### *Differences in Baseline Characteristics between Program and Control Group Follow-up Samples*

In order to determine whether the loss to follow-up by 6 months postpartum resulted in differences between the program group and the control group participants on baseline characteristics, we compared the 2 groups. This information is presented in Table 10. There were only three baseline characteristics on which they differed significantly: percent reporting depression at intake, feelings of mastery reported by the mother at intake, biological father's parenting involvement. On this latter variable, the control group participants remaining at 6 months had reported a higher level of involvement by the biological father than had the program group participants. On the other hand, a significantly higher percent of program group mothers than control group mothers had reported depression as a current issue at intake. This mirrored the findings for the intake sample when a higher percent of the program group over the control group had reported depression as an issue.

The results of a similar analysis comparing program and control group participants who completed the 12 month follow-up assessment are presented in Table 11. There are 12 significant differences on baseline characteristics between program and control group participants who completed the 12 month assessment. In comparison, there were only 6 significant differences at Intake (Table 4). Five of the differences at 12 months (*prenatal intake, depression, Dominican ethnicity, CES-D, PSM – reversed direction*) are characteristics on which

the program and control total sample differed at intake. Depending on the particular outcome variable that is being looked at, these variables may need to be controlled for statistically.

Three of the 12 differences are related to drop out (see Table 9) and are characteristics on which there were no program-control group differences at intake.

*Kempe/KFSI score* – There is no significant program vs. control group difference in mother's total Kempe score in the total (intake) sample; however, higher Kempe scores predict greater likelihood of dropout before 12 months among control group moms only *and*, correspondingly, control group moms in the 12 month follow-up sample have a significantly lower average Kempe score compared to program group moms in the 12 month follow-up sample.

*Mother's education* – The same thing that was described for the Kempe can be said for the educational level variable (1-4 scale), on which there is no program vs. control group difference at intake, but lower educational level predicts greater likelihood of dropout in the control group only, and correspondingly you see a higher mean educational level for the control group vs. the program group in the 12 month follow-up sample.

*Biological father's parenting involvement* – The only significant predictor of dropout before 12 months among program group moms is the 3-item father's parenting involvement scale, with *higher* scores predicting greater likelihood of dropout; consistent with this, in the 12 month follow-up sample, the program group has a significantly lower mean Father Involvement score compared to the control group, despite the fact that there was no program vs. control group difference on the scale at intake.

Three of the remaining characteristics on which the 12 month program and control group follow-up samples differ are related to financial and housing stability (Table 11).

*Partner unemployed* (from Initial Screen) – The program group had a significantly higher percent of unemployed partners than the control group (34% vs. 15%).

*PC2 employed full- or part-time* – The program group had a significantly lower percentage of PC2's who were employed compared to the control group (46% vs. 67%).

*Inadequate housing* – a higher percent of program group families (60%) reported inadequate housing than control group families (34%).

The final difference between program and control group completers at 12 months is that control group mothers were older on average (26.9 years) than program group mothers (23.8 years) on the date of the target child's birth.

*Parity of the mother* – Parity is another one of the three variables related to dropout before 12 months in the control group only, with multiparas being more likely to drop out than primiparas. However, in contrast to the mother's Kempe Score and educational level, which also predicted dropout among controls, the program and control groups did not differ significantly on parity at intake, *and* there was no significant difference between program and control group 12 month completers on parity measured at baseline.

As shown in Table 11, among prenatally enrolled mothers who completed follow-up interviews at 12 months postpartum, the program group had a significantly higher average CES-D Total Score at intake compared to the control group. Also among prenatally enrolled mothers who completed follow-up interviews at 12 months postpartum, the program group had a significantly higher average CES-D Total Score at 6 months postpartum compared to the control group,  $t(38)=-2.64, p<.05$ .

Among postnatally enrolled participants who completed follow-up interviews at 6 months postpartum (see Table 10) and among postnatally enrolled participants who completed follow-up interviews at 12 months postpartum (Table 11), program group mothers had a significantly lower average Mastery Scale score at intake compared to control group mothers.

Although there were no program-control group differences among 12 month completers on the Sum of 6 PC1 Issues at intake, program group completers at 12 months did have a significantly higher average score compared to control group completers at 12 months on the Sum of PC1 Issues at 6 months,  $M(SD)=2.5(1.7)$  versus  $1.6(1.5)$ ,  $t(91)=-2.50, p<.05$ .

The findings summarized above show: a) that program and control group participants were somewhat different at intake and that they became more dissimilar between intake and 12 months, due at least in part to selective attrition. Overall, the pattern of significant program vs. control group differences at intake, and especially at follow-up at 12 months postpartum, indicates a program group with a higher average level of overall risk compared to the control group.

### *Nature of the Setting in Which the Intervention Took Place*

As mentioned previously, the program involved collaboration among 3 agencies. In general that model worked very well. However, there were times when difficulties within one or other of the entities had an effect on the implementation of the evaluation plan.

For example, administrative changes within the medical center resulted in difficulties for the Outreach staff in gaining access to the clinic population at certain of the sites at which they regularly recruited potential participants. Also, access to medical records for enrolled families became more difficult to attain. New procedures at one of the CUMC sites were perceived as less user-friendly by the families and they began to seek their medical care from private medical providers in the community.

Policies and procedures arising from financial difficulties at the community based organization were associated with high staff turnover at Best Beginnings. High staff turnover tended to overburden the remaining staff and this influenced the adequacy of service they were able to provide to the families. This in turn was reflected in a high rate of participant loss to follow-up. Low retention rates interfere with the ability to interpret any results that might show differences between the program and control groups.

Examination of the rate of staff turnover during the period of the Initial Cohort and during the period of the New Cohort yielded the following information. During the 6 ½ year period of the Initial Cohort, there were only 5 BB+ family support workers. They stayed an average of 27 months. Two of these were promoted to supervisor and continued to work with BB+ families. During the 5 year 2 month period of the New Cohort, 12 BB+ family support workers were hired, staying for an average of only 16 months. Half of these workers stayed less than 8 months. (There is a 6 month training/probationary period.) As noted above, the retention rate of participants declined significantly from the Initial Cohort to the New Cohort. By 12 months postpartum, only 22% of the Initial Cohort had dropped out; whereas, 56% of the New Cohort had dropped out.

### Changes over time in the Nature of Service Delivery

Another challenge affecting the validity of the RCT is changes over time in the methods of service delivery. Over the 12 year period, the staff received ongoing trainings in many different aspects of the program, and new protocols for service delivery were introduced. The implementation of new protocols and changes in methods of service delivery were found to be imperative and inevitable in order to hone our service delivery and retain participants in the program. Retaining the control group sample for an extended period of time proved to be especially challenging since home visits were limited to twice a year with no other planned contacts unless initiated by the participant. During the final four years of the study, we found it imperative to implement a policy of placing a monthly phone call to our control group families in order to maintain and retain our control group sample. In addition, presented with the challenge of retaining families in the control group, a 2:1 ratio for assigning families to the BB+ control group versus the BB+ program group was introduced to increase the control group sample. The 2:1 ratio proved to be an effective method for increasing the sample size of the control group compared to the program group.

In reviewing information during the assessment and service delivery phase, it became evident that staff needed more guidance in gathering and recording specific information provided by families regarding their substance use. To ensure that this information would be captured on a consistent basis, BB+ Family Support Workers began, during the final 2 years of the project, to complete a substance use questionnaire (SUQ) with each family shortly after the family's inception into the program. Dr. James Sandy provided training to the staff on the implementation of the forms. Information acquired from the administration of this form was integrated into the tables showing amount and type of substance use by family members.

Over the 12 year period, staff received consistent ongoing staff development trainings to further enhance service delivery. The utilization of AIA training funds facilitated these trainings for BB+ staff. On-going trainings were provided by Healthy Families New York (OCFS) over the 12 year period to the staff of the regular Best Beginnings component as well as to the BB+ staff.

This concludes the discussion of problems encountered in implementation of the evaluation plan.

### **III. Project Implementation/Process Evaluation**

#### **A. Intervention/Activity for Goal No. 1**

##### Goal 1. Identify, engage and enroll families affected by substance abuse

- State intervention/activity.  
See next section - Outputs
- Outputs (No. served or other project results. See Logic model.)

For Goal 1, the outputs that resulted from the intervention activity will be integrated into the description of the activity. Table 12 presents data on the outputs generated by activities associated with Goal 1. Statistics are presented separately by era of enrollment, i.e., for the Initial Cohort (recruited from 10/1/96 through 3/4/03) and for the New Cohort (recruited from 3/5/03 through 6/30/08) as well as the total for the entire recruitment period.

##### Outreach/Identification

A screening process was established to locate pregnant women and women with newborns who are at risk of abandoning their infants due to substance use in the family. Recruitment of families affected by substance abuse for the BB+ component was not a separate process from recruitment of families into the regular BB program. The Outreach Worker and Family Assessment Workers (FAWs) reached out to all women in the target area. On the average, Best Beginnings outreach staff made face to face contact with 460 pregnant or parenting women per month (5,522/year). Participants were recruited in three ways: (i) at the New York Presbyterian Hospital Ambulatory Care Network (ACN) prenatal clinics, including the substance abuse prenatal clinic, and WIC sites; (ii) by recruiting families delivering babies at Allen Pavilion and Sloane Hospital of New York Presbyterian Hospital; and (iii) by reaching out in the community (beauty salons, local supermarkets, bodegas, pharmacies, churches, schools, and community agencies) and through block by block recruitment.

##### Screening/Assessment

The goal of the Outreach Worker and the FAWs was to screen all pregnant women and families of newborns in the targeted census tracts (253, 261 and 269 in zip codes 10032 and 10033). Ninety-three percent of families residing in the target area who were screened scored

positive (5106/5522) on the Screening Form (e.g., unstable income, unmarried, less than 12 years of education) and therefore qualified for the full assessment. See Table 12.

The FAWs conducted interviews on 29% (i.e., 1500) of the 5106 families who were positive on the Screen, using the Kempe Family Stress Inventory (KFSI) developed by C. Henry Kempe to determine psychosocial factors and level of risk. The Drug Use Screening Inventory (DUSI) was administered to 827 families to determine the presence and amount of substance use by the mother or other individual coming into daily contact with the infant. Ninety-six percent of the families (1440/1500) who were interviewed with the Kempe scored 25 or over and were thus considered at risk and eligible to enroll in the program. Families who were assessed as at risk on the Kempe (scoring 25 or higher) and/or had indications from the DUSI or from the interview that the family was substance affected, were designated as Best Beginnings Plus (BB+) and were randomly assigned, using a computer-generated list of random numbers, to either the program group (intense services) or the control (less intense services) group. Families were then matched with a family support worker (FSW).

Sixteen percent of those with positive Kempes were assigned to the BB+ component. (The remaining 84% were assigned to the regular BB program.) In the Initial Cohort only 13% were assigned to the BB+ component, compared to 18% in the New Cohort. This discrepancy arose because the introduction of the DUSI during the New Cohort recruitment period led to identification during intake of more families involved with substance abuse. For the Initial Cohort, some families were initially assigned to BB, but with further acquaintance with them, the FSW realized that there was substance use in the family and they were then reassigned to BB+.

Enrollment

The FSW assigned to a family made an initial home visit to explain the program in detail to the family and answer any questions they had about the services being offered and to elicit the *commitment of the family to follow through on the program*. If the family wished to proceed, a Family Rights and Confidentiality form was signed. The date of that visit was considered the Intake Date into the program. At times it was necessary to make several home visits and numerous phone calls before the family decided whether or not to join the program. Table 12 provides statistics on the number of phone calls (over 7000), attempted visits (1802), and actual

visits (2497) that were made during the preintake period. A total of 217 families were enrolled in BB+ over the entire period. Complete intake information was available on 203 participants, 109 of whom had been assigned to the program group and 94 to the control group.

#### Differences by era of enrollment

There are several outstanding differences between the activities for the Initial Cohort and the New Cohort. In terms of assessment, for the Initial Cohort, 53% of those screened were located and administered the Kempe. For the New Cohort, the comparable figure was only 19%. In terms of enrollment, 80% of families in the Initial Cohort who had scored positive on the Kempe and were therefore eligible for the program actually enrolled. For the New Cohort, only 69% of those eligible enrolled. A comparison of the Preintake activity during the 2 time periods reveals that there were twice as many attempted home visits for the New Cohort as there were for the Initial Cohort. This indicates that the lower rate of enrollment for the New Cohort was not because the FSWs were not trying to engage the families. They made many outreach attempts to visit the families in order to offer them the opportunity to take part in the program.

- Contextual Events or Community Changes influencing Activity No. 1.

The main venue for the recruitment of families into Best Beginnings is the system of outpatient clinics located in the community and operated by the Ambulatory Care Network (ACN) of New York Presbyterian Hospital (NYPH). Best Beginnings has a long-standing collaborative relationship with NYPH and the ACN facilitated by the presence on the Directorate of representatives of the Department of Pediatrics, and other collaborative activities that are ongoing. In the last few years, there has been a change in leadership of the ACNs and it has become difficult to recruit in several of the clinics (Broadway, Dyckman and 181). The new administration at the ACNs was unfamiliar with our partnership with the hospital, leading to challenges for our staff in accessing potential participants from the ACN clinics. With the assistance of our partners in the Department of Pediatrics and consistent outreach and meetings with the new leadership of the ACNs, we were able to regain access to these sites.

In recent years it has become increasingly difficult to recruit families because there are two new programs operating in the same catchment area and thus competing for the same families, namely Early Head Start and the Nurse Family Partnership. This is a difficult problem because

all three programs serve the same age range and offer somewhat similar interventions. Early Head Start and the Nurse Family Partnership have more extensive resources and offer more services than does Best Beginnings, a Healthy Families America (HFA) program.

- Challenges/Barriers regarding Activity No.1.

Another challenge to recruitment arises from the fact that we recruit families by the census tract they reside in. This was necessitated by the fact that the BB+ component was added on to the already existing HFNY BB program in which recruitment is restricted to a catchment area, defined by census tracts. Since at the time of the initial screening it is not known who is eligible for BB+, it would be extremely difficult to set up two different sets of recruitment protocols with differing residential requirements.

The nature of populations within census tracts can change over time and this will affect the number of substance using families residing within a given area. For example, when BB began operating in 1994, the catchment area was dominated by the drug culture. However, some years later during Guiliani's tenure as mayor, the area was swept clean and the drug culture moved to another area. Therefore the number of families potentially exposed to drugs in our initial catchment area was reduced.

Another major challenge was how to identify substance affected families. In the initial period, we relied on information gathered during the in-depth interview for the Kempe. However, in many cases we found out as we began to work with the families that our initial assessment tool (the Kempe) did not provide sufficient background information about substance use within the family. Therefore we started using a drug screening instrument, the Drug Use Screening Inventory (DUSI). Since our definition of substance affected families included use of drugs by any family member who came in contact with the infant, we adapted the DUSI for use with other family members as well as the mother. The DUSI did identify more eligible families, but was inadequate at quantifying the amount of use and the timing of use. Consequently, the range of eligible families became too broad. For example, some families became eligible simply because the mother used drugs some time in her past or once during pregnancy. As part of our application for refunding, we devised a Substance Use Questionnaire (SUQ) which was administered by the FAW during the initial interview. The SUQ provided much more detailed

information about the type, amount and circumstances of substance use. However, administration of the DUSI and SUQ added to the length of the initial interview and the FAWs found it to be burdensome for the families. The next step in our attempts to identify substance use and gather information about the extent of substance use was to leave the administration of the SUQ for the FSW after she had made her initial contact with the family and begun to provide service.

A challenge to retaining families, especially in the control group, arose from the nature of the design of the RCT. Control group families were visited once every 6 months with periodic telephone calls in between to maintain contact. This design simply does not work with substance using families who tend to move and disappear and are hard to locate. Visiting them more frequently would help to maintain contact with them, but would be offering more of an intervention than is desirable for a “control” group. This is a dilemma faced by all researchers trying to use an experimental design on a population that is marginal and mobile.

The final challenge was the difficulty of enrolling families in the New Cohort period. The atmosphere in the country toward undocumented immigrants affected the willingness of families to trust any authority figure or organization. People were afraid to get involved, especially if there was any drug use in the family and family members were undocumented. In addition, due to some changes in the financial situation of the lead agency, staff morale was not always high and this showed up in the unwillingness of staff to go the extra mile for the program.

- Lessons learned about how to deal with challenges regarding Activity No. 1

One of the lessons we learned is the necessity for expanding the catchment area to include areas where there is a higher prevalence of substance use. This was not possible in the present case because the BB+ component was piggy-backed onto the regular HFNY prevention program. But if one were setting up a program like this independently, it would be possible to design it in such a way that any family living within a broader residential area that was substance affected would be eligible.

The second lesson learned is the importance of restricting the definition of substance affected family so that the resources of the program could go to working with families who really need and could benefit from help. The criteria used in the present study were too loose (e.g., one beer). It would be important to study the normative cultural behavior and practices around

substance use in order to determine, define and distinguish what is “culturally normative” drinking and “problem” drinking along a whole cultural spectrum.

In the present study, the introduction of the SUQ helped us gather important information about the timing and amount of use, which enabled us to more clearly define substance use in the families we were working with. From this, it became clear that many of the families in the study were not seriously affected by the amount of use. The resources could have been used for families with greater need.

During the course of the RCT study, we dealt with the problem of the loss of control families by adjusting the ratio for assigning families to the control or program group. During the later period of the study, the random assignment was set up with a 2:1 ratio of control to program cases, that is, for every case assigned to the program group, 2 cases would be assigned to the control group. This ratio was used by the computer as the basis for establishing the random assignment list. This method was successful in yielding almost equal numbers in the control and program groups by the end of the study.

However, for the future another solution will need to be found. The families assigned to the control group were just as needy as those assigned to the program group. After recruiting, identifying as substance affected and enrolling those families, it would seem to be important to keep track of them and assure that they are connected with some agency or service that can offer them help. In terms of conducting RCTs with substance affected families, it is necessary for the research staff to maintain contact with them more frequently than once every 6 months. Perhaps a visit or contact once a month would be needed.

The final area where we could learn a lesson concerns the difficulties encountered in enrolling families during the latter part of the project (i.e., during the New Cohort period). The presence of two other major programs in the same area raises the issue of coordination of services at the community level. Some umbrella organization needs to be seriously considering the distribution of resources in the Washington Heights area. If one program is already functioning in an area, it would seem wise for other programs to offer services in other areas that are also in need.

## B. Intervention/Activity for Goal No. 2.

### Goal 2. Provide supportive services to families

- State intervention/activity

The intervention activities for goal 2 consisted of providing services and making referrals. Details of the activities may be found in the Introduction, section “Overview of Program Model.” A quick summary follows.

#### Service Provision

Make regular home visits using the HFA and Harm Reduction models to provide culturally responsive interventions.

Assess needs of families.

#### Referrals

Make referrals based on needs assessment.

Follow-up on referrals and advocate for the family if necessary.

- Outputs (No. served or other project results. See Logic model.)

#### Service Provision

##### *Number of home visits/contacts*

Table 13 and Table 14 present information on the total number of visits received during the *prenatal* period by the program group and the control group. (There was no difference between the two groups in number of months enrolled prenatally.) During the prenatal period, program group mothers received 9.3 prenatal visits on average. As expected, they received significantly more prenatal visits than control group mothers, who received only 1.3 visits. The program group also received significantly more prenatal visits per month (a mean of 3.3 visits) on average compared to control group mothers who received a mean of 0.6 visits per month.

Information on the number of visits during the *postnatal* period through 12 months postpartum is presented in Table 15 and Table 16. During the postnatal period, program group mothers received 35 visits on average during the 12 month period. As expected, they received significantly more postnatal visits than control group mothers who received only 3.9 visits on average. The program group also received significantly more postnatal visits per month (a mean of 2.9 visits) compared to control group mothers who received a mean of 0.3 visits per month.

In order to see the extent to which the activities were provided as outlined in the protocol and logic model, we analyzed information collected from two sources: home visit logs, service referrals. The resulting tables provide information about activities related to goals 2, 3 and 4. In this section we will discuss the results for goal 2.

### Service Provision

#### *Content of home visits*

Table 17 presents the frequencies of commonly reported activities in the home as recorded on the home visit logs for visits occurring in the *prenatal* period, separately for program and control groups. The entries in the table are the percent of all visits in which that activity was reported and they are presented in descending order by frequency of occurrence in the program group. Two activities relevant to goal 2 stand out: advocacy/accompaniment to medical providers and advocacy/accompaniment to non-medical providers. Both these activities occurred significantly more frequently for program group than for control group families. Advocacy/accompaniment to medical providers occurred on 9% of visits for program families and 0% of visits for control families. In contrast, both groups received information about health care services on approximately 9% of visits.

During the 12 months *postpartum* there were no activities related to goal 2 that occurred with sufficient frequency to analyze.

### Referrals

#### *Number of referrals for service – program versus control group*

Workers used information obtained from their assessment of the family's needs to make referrals. There were 2 types of service referrals – worker active and information-only. The protocol called for referrals for control group families to be of the information-only type. For the program group, the worker could be active in the referral process, following up, and advocating to make sure the family received the service. These were labeled worker active referrals. Was there a difference in the numbers of the different types of referrals between the 2 groups and did the program group actually receive more service?

Table 18 provides information to answer this question in the *prenatal* period. Control group families received slightly more information-only referrals on average than did the program group. As expected, prenatally enrolled program group mothers were significantly more likely

than prenatally enrolled control group mothers to have received at least one worker-active service referral during the prenatal period. Forty-one percent (27/66) of program group mothers received at least one worker-active service referral prenatally, compared to only 11.1% (5/45) of control group mothers.

As expected, prenatally enrolled program group mothers actually received a significantly greater number of services on average compared to prenatally enrolled control group mothers. The mean number of services received as a result of prenatal service referrals was .9 for the program group and .4 for the control group, a difference that is significant at the .01 level.

Table 19 provides information pertaining to service referrals in the *postnatal* period through 12 months postpartum. Program group participants received an average of 5.5 information-only referrals, significantly more than the control group (mean 3.1). They also received significantly more worker-active referrals than the control group (program group mean=1.4; control group mean=0.2). In conformity with the protocol, worker-active service referrals were rare among control group participants, with only 17.9% (7/39) of participants having received one or more worker-active referrals and only 5% (2/39) having received two or more worker-active referrals by 12 months postpartum. By contrast, 62.5% (40/64) of program group participants received one or more worker-active referrals and 43.7% (28/64) received two or more worker-active referrals by 12 months postpartum.

By 12 months postpartum program group participants received significantly more services as a result of the service referrals that were made than did control group participants. Eighty-nine percent (57/64) of program group participants received one or more services, compared to only 36% (14/39) of control group participants. Similarly, 67% (43/64) of program group participants received two or more services as a result of service referrals made by 12 months postpartum, compared to only 5% (2/39) of control group participants.

In summary, in both the prenatal and postnatal periods, the program group received significantly more services than the control group, probably as a result of the worker becoming active in the referral process. This is confirmed by the finding from the home visit log data, that the workers accompanied program group families to visits to medical and non-medical providers and advocated for them. They did not do this for control group families, as per the protocol.

### *Types of Service Referrals*

Information about the most common types of referrals for service in the *prenatal* period can be found in Table 20. Some of these referrals were for basic services identified from the intake needs assessment (e.g., housing, food pantry) and are part of Goal 2. Others are related to Goals 3 and 4 of the project and will be discussed in those sections.

From Table 20 it can be seen that among the six categories of service referrals most commonly made in the *prenatal* period, five of those overlap between program and control group – childbirth education, mental health counseling, food pantry, housing, and GED preparation. Food pantry and housing referrals are referrals that would be made based on the initial needs assessment as part of goal 2.

Table 21 presents information on *postnatal* service referrals to 12 months postpartum. Program group participants accounted for 71% (381/534) of all postnatal service referrals made to 12 months postpartum for either mother or baby, whereas 29% of all such referrals (153/534) were made for control group participants. Among program group participants, 85% (324/381) of referrals were made for mothers whereas 15% (57/381) were made for babies; among controls, 87% (135/153) of all referrals were made for mothers and 13% (18/153) were made for target children.

Similar to the prenatal results, there is a large overlap between the types of referrals made for program group mothers and for control group mothers. Many of these referrals were for basic services such as: housing assistance/emergency shelter, food pantry/stamps, Medicaid. English as a Second Language referrals were also high in both groups. Topping the list of referrals for children for both groups was Child primary care, with Medicaid referrals also being at a high rate for the control group.

However, as mentioned previously, fewer of the referrals for control group participants resulted in receipt of services. As shown in Table 19, program group families received an average of 2.2 services by 12 months, whereas control group families received an average of 0.7 services. This suggests that it is not enough just to make a referral, but that the added support and advocacy of an active worker may be necessary to facilitate the actual receipt of services.

- Contextual Events or Community Changes influencing Activity No. 2

One of the biggest challenges facing the provision of services is the lack of sufficient resources in the community especially for Spanish speaking families. Referrals can be made, but in many cases there are waiting lists for services. This means that the participant may not get the service or may get it too late. An example is the lack of AA groups in the community for Spanish speakers.

- Challenges/Barriers regarding Activity No.2

Another barrier arises from the fact that, since welfare reform, many more mothers are working full or part time. Apart from the scheduling problems this presents, many of the mothers may simply not have enough time to be involved in a program that entails home visits and bringing the child in for developmental assessments.

In general a major challenge/barrier to good service provision in the present program has been worker turnover. For example, during one 4-year period of the program there were 8 different family support workers in the BB+ component. The orientation and training of each worker involves intensive resources and takes up to 6 months. When workers leave and new workers are assigned, it becomes difficult to hang on to participants and to get to know them sufficiently well to become aware of what services they need. Substance abusing families in particular tend to take a longer time to begin to trust staff and to open up and be willing to listen to what the program has to offer.

- Lessons learned about how to deal with challenges regarding Activity No. 2.

One of the lessons learned pertains to the difficulty of providing services to working mothers. The program adopted a system of rotating late hours, so that each worker would have one evening when she worked late. The Child Developmentalist also worked one evening a week and appointments for developmental assessments were scheduled for that evening.

C. Intervention/Activity for Goal No. 3

Goal 3. Enhance family functioning and reduce potential harm of prenatal drug exposure

- State intervention/activity

The intervention activities for goal 3 were aimed at enhancing family functioning and reducing the potential harm to the infant of drug exposure in utero and of a chaotic environment pre and postnatally. Details of the recommended activities may be found in the Introduction, section “Overview of Program Model.” A quick summary follows of activities for the family support worker.

- Build relationship with family.
- Use harm reduction methods in working with family, to minimize the effects of drug use on the fetus/infant.
- Show video of effects of drug exposure in utero on fetus.
- Assess and address maternal psychosocial issues (depression, feelings of competence, etc.).
- Encourage mother to reduce potential harmful effects of her drug use.
- Improve support system by working with other family members and making referrals for them if necessary.
- Link family to community services, non-medical.
- Encourage mother to become self-sufficient by discussing and referring for – education, training, employment, daycare, etc.
- Address violence in the home and make referrals for family members.

- Outputs (No. served or other project results. See Logic model.)

The following outputs/products were listed in the Logic Model.

Family provided with information about harmful effects of drug use

Family prepares safety plan for infant

Family views video on drug effects on fetus

Information provided about:

Substance abuse treatment

Mental Health/Counseling

Employment, education, training opportunities

Discussion of family relations

Crisis management/problem resolution

As mentioned previously, in order to see the extent to which the activities were provided as outlined in the protocol, we analyzed information collected from home visit logs and service referrals. In this section we will discuss the results for goal 3.

### Service Provision

#### *Content of home visits*

Table 17 presents the frequencies of commonly reported activities in the home as recorded on the home visit logs for visits occurring in the *prenatal* period, separately for program and control groups. The entries in the table are the percent of all visits in which that activity was reported and they are presented in descending order by frequency of occurrence in the program group. In interpreting these figures it should be kept in mind that during the prenatal period the program group received an average of 9.3 visits and the control group an average of only 1.3 visits.

Family functioning and/or family relationships were discussed on 26% of the prenatal visits for the program group and 45% for the control group. Educational and/or employment opportunities were a topic of discussion on 14% of visits to the program group and on 26% of visits to the control group in the prenatal period. Another important goal 3 area that was addressed on 10% of visits to program families and 12% of visits to control families was problem-solving/decision- making or crisis management/problem resolution. Violence in the household was discussed on 4% of visits to each group. Workers with program group families provided advocacy and/or accompaniment to non-medical providers on 8% of visits, compared to 1.4% for control group families.

From these results it appears that the workers were indeed covering areas important to goal 3 in their discussions during home visits to both program and control group families during the prenatal period. Based on these visits, workers made referrals for services that would help to further the goal of enhancing family functioning and limiting the potential harm of exposing the fetus to drugs.

Table 22 presents information on the content of home visit logs for visits occurring during the 12 months *postpartum*. Home visit log activities are listed in descending order by average

(mean) frequency of the activity in the program group. Program families received an average of 35 visits during the 12 month period and control group families received only 4 visits.

The third most frequent topic/activity (the first two were related to goal 4) for the program group visits during the 12 months postpartum was discussion of family functioning and/or family relationships with an average of 15 visits on which this was discussed. For the control group this was a topic on only 1.7 of the visits. This difference is statistically significant ( $p < .0001$ ). Visits with discussion of educational and/or employment opportunities were also frequent with a mean of 10.6 visits for the program group and only 1.3 for the control group. Teaching of problem-solving/decision-making skills occurred on average on 6.4 of visits to the program group and only 0.4 visits to the control group. One of the concerns when setting up the program was that workers would focus only on crisis management and not have time to address underlying problems such as family functioning and mental health issues. It is therefore interesting to note that help with crisis management was listed as an activity on only 2.6 visits on average for the program group during the 12 months postpartum. In the prenatal period, it was the sixth most frequent activity, well after discussion of family functioning and discussion of educational/employment opportunities.

### Referrals

In order to achieve the objectives of goal 3, referrals were to be made for needed services.

The Logic Model lists the suggested types of referrals as follows:

For mother – mental health, substance abuse, education, job training, employment, counseling, daycare, domestic violence

For other family members - substance abuse, education, job training, employment, counseling, daycare, domestic violence, etc.

### *Types of Service Referrals*

Table 20 presents the most common types of service referrals (both information-only and worker-active referrals) made for the mothers during the *prenatal* period. Prenatal service referrals for mother-only make up 86% of all prenatal referrals. The five most frequent types are similar for the program and control groups and include two types of referrals relevant to goal 3: mental health counseling and GED preparation. In order to enhance family functioning it is

essential to address mental health issues and to encourage the mothers to seek counseling. A related goal 3 objective is to encourage the mother to become self-sufficient. For this it is necessary that she progress in her education on the path to obtaining a permanent job. Obtaining your GED is one step on that path.

Table 21 presents the most common types of service referrals made during the *postnatal* period for program and control group participants separately and for mothers and target children separately. Similar to during the prenatal period, amongst the most common types of referrals for both program and control group mothers were referrals for GED preparation and for mental health and other counseling. Postnatal referrals were made for both groups for English as a Second Language. The control group also received referrals for parent aide services. All these referrals support the effort to strengthen the family and make the mother more self-sufficient.

- Contextual Events or Community Changes influencing Activity No. 3

As mentioned under goal 2, one of the biggest challenges in terms of getting needed services for families is the lack of sufficient services in the community. Referrals can be made, but in many cases there are waiting lists for services. This means that the participant may not get the service or may get it too late. An example is the shortage of Spanish-speaking mental health workers in the community which may result in a mother having to wait for services.

- Challenges/Barriers regarding Activity No.3.

Another barrier arises from the cultural attitudes toward receiving certain types of services, e.g., mental health. Some people may feel that there is a taboo against discussing family problems with someone outside the family and they may also be concerned about being labeled. Program staff may work very hard with a particular mother and finally get her to agree to go for counseling only to find that there is a waiting list.

- Lessons learned about how to deal with challenges regarding Activity No. 3.

What we have learned about the challenge of encouraging families to follow through on referrals for such things as domestic violence, depression or substance use is that it requires a lot of patience and persistence on the part of the worker. The worker needs to give a consistent message and find creative ways of working with the family to overcome barriers.

#### D. Intervention/Activity for Goal No. 4

##### Goal 4. Promote healthy child development and positive parent-child interaction

- State intervention/activity

The goal of the interventions recommended for goal 4 was to promote healthy child development and to promote positive interaction between parent and child. These activities began in the prenatal period and included helping the mother prepare for a positive delivery experience by preparing her for childbirth and for breastfeeding. Some of the recommended activities are summarized below.

- Link mother and target child to medical care provider
- Prepare mother for childbirth and breastfeeding
- Encourage and support mother (workers acting as doulas) throughout labor and delivery
- Encourage & support mother to breastfeed
- Provide soft baby carrier (snuggli or Baby Bjorn) after birth to calm infant
- Provide activities for bonding and parent-child interaction
- Provide information about stages of child development, parenting, and discipline
- Provide support to mother to reduce stress
- Provide parenting, support &/or psycho-educational groups
- Assess child development with ASQ and Bayley
- Make referrals to Early Intervention

- Outputs (No. served or other project results. See Logic model.)

In order to measure the extent to which the activities were provided as outlined in the protocol and logic model, we analyzed information collected from two sources: home visit logs, service referrals. In this section we will discuss the results for goal 4.

In the Logic Model we suggested measuring the following outputs for goal 4.

Information provided about:

- Pregnancy or prenatal care
- Basic infant care

- Health care &/or child health safety
- Child development and age appropriate behavior
- Parent-Child Interaction
- Child management/discipline
- Support for parenting stress
- Mother/other family member carrying infant in soft baby carrier

### Service Provision

#### *Content of home visit logs*

Table 17 presents the frequencies of commonly reported activities in the home as recorded on the home visit logs for visits occurring in the *prenatal* period, separately for program and control groups. The entries in the table are the percent of all visits in which that activity was reported and they are presented in descending order by frequency of occurrence in the program group. In interpreting these figures it should be kept in mind that during the prenatal period the program group received an average of 9.3 visits and the control group an average of only 1.3 visits.

During the prenatal period, the most commonly reported activity for both groups was provision of information about pregnancy and prenatal care, occurring on almost 60% of visits. The second most common activity for the program group was provision of information about basic infant care, feeding and/or food preparation occurring on 21% of visits. This type of information was only provided on 11% of visits to the control group, a difference that is significant. Presumably a lot of the information provided to the program group under this category was information and discussion about breastfeeding.

As recommended, basic information about child health, child development and child safety was provided to both groups.

Table 22 presents information on the content of home visit logs for visits occurring during the 12 months *postpartum*. Program families received an average of 35 visits during the 12 month period and control group families received only 4 visits.

During the postnatal period, the frequency of all activities related to goal 4 was significantly higher for the program group than for the control group. For example, the most frequent activity was discussion/modeling of parent-child interaction which took place on an average of 20 visits

for the program group and 1.8 visits for the control group. Similarly, the program group received significantly more visits during which information about child development was provided (mean of 1.9 for the program group and 1.7 for the control group). Support for parenting stress was provided on an average of 7.3 visits to the program group, but only 0.4 visits to the control group. From this information, it seems clear that during the postnatal period the program group received a lot of information relevant to goal 4 as outlined in the logic model, and much more information than the control group.

### Referrals

In order to achieve the objectives of goal 4, referrals were to be made for needed services. The Logic Model lists the suggested types of referrals as follows:

- WIC Lactation Clinic
- Best Beginnings support and parenting groups
- Primary care provider
- Early Intervention Services for child

Table 20 presents the most common types of service referrals (both information-only and worker-active referrals) made for the mothers during the *prenatal* period. Prenatal service referrals for mother-only make up 86% of all prenatal referrals. The most common type of referral for both the program and control groups was for Childbirth Education, related to the goal 4 objective of promoting positive parent-child interaction by beginning right at birth.

Table 21 presents the most common types of service referrals made during the *postnatal* period for program and control group participants separately and for mothers and target children separately. The most common referral for target children in both groups was to a primary care provider (representing 40% of program group referrals and 28% of control group referrals). The second most common referral for control children was for Medicaid (28% of referrals). Program group children also received referrals for Immunizations (7% of referrals) and for Early Intervention (5.3% of referrals). Mothers from both groups received referrals for Medicaid (program group 7% of referrals and control group 8% of referrals).

During the period of the Initial Cohort, 10 program group children and 6 control group children received referrals for Early Intervention. During the New Cohort period, 31 program group children and 7 control group children received referrals for Early Intervention.

As mentioned earlier, there were significant differences between the number of services actually received by the program and control groups as a result of these referrals both in the prenatal period and in the postnatal period, with the program group receiving significantly more services on average than the control group. Thus it appears that the intervention was effective in obtaining needed services for the program group participants.

- Contextual Events or Community Changes influencing Activity No. 4

The shortage of slots for women to take childbirth preparation classes in Spanish was a problem in our community. There were simply not enough places available. To overcome this challenge we applied for a grant to the Johnson & Johnson Foundation Community Outreach Program to set up a Childbirth Prep Center in our agency. The Center teaches childbirth classes in Spanish in our agency but is open to the whole community. Following the initial funding, we obtained continued funding from the Department of Health Infant Mortality Reduction Initiative.

Fortunately, Early Intervention services are provided through federal funding. Our families also have access to the NYPH WIC center for financial assistance and for consultation on breastfeeding through the Lactation Clinic.

- Challenges/Barriers regarding Activity No.4.

As mentioned under goal 3, a barrier arises from cultural attitudes toward receiving certain types of services, e.g., mental health. Some people may feel that there is a taboo against discussing family problems with someone outside the family and they may also be concerned about being labeled. Similar challenges are present regarding receiving early intervention services for infants. Program staff worked very hard with families to get them to understand the value of intervening early with infants who are showing signs of difficulties in learning or behavior. However, there may be very strong taboos against early intervention and the families may be concerned about the infant being labeled as having a problem. Cultural attitudes may also become an issue when infants are being assessed. For example, it may not be acceptable for male infants to be asked to handle dolls as part of a standardized assessment.

Another barrier that may arise in the promotion of parent-infant interaction is the tendency of workers to be problem focused. They may get involved in all the family issues that present themselves and not find time during the home visit to get to focus on parent-child interaction. The finding presented above that the most frequent activity during the postnatal period for the program group was discussion/modeling of parent-child interaction which took place on an average of 20 visits for the program group is reassuring in this respect.

- Lessons learned about how to deal with challenges regarding Activity No. 4.

One lesson that was learned is the importance of training staff on how to overcome taboos against early intervention. The training must involve open discussion of the issues so that staff can express their own feelings and concerns about labeling infants and sending them for services. The staff may have similar concerns to the families.

In terms of focusing on the promotion of parent-child interaction, the workers need to be taught the skills to direct the conversation away from immediate issues and toward focusing on the infant and his place in the family. In addition to trainings on these topics, the skills should be discussed and reinforced in weekly supervision.

Another major challenge/barrier to good service provision arose from the rate of worker turnover. In the Best Beginning Plus component, the turnover during one 4 year period was high, with 8 workers being hired, trained and receiving families and then moving on. A program such as this requires a high investment in staff training up front before the workers can even begin to take on cases. Losing a worker who has been trained and has a whole caseload is demoralizing to the other staff who have to take over the cases and leads to a high drop-out rate among families and more worker turn-over.

#### **IV. Project Outcome Evaluation**

In section II. C. Overview of the Evaluation, we discussed some of the problems encountered in the implementation of the evaluation plan. We will elaborate on the issues here and explain why we decided to restrict our presentation of outcome results for goals 3 and 4 to analyses done on the Initial Cohort only. Results for goals 1 and 2 were presented as part of the Process Evaluation and include data from both the Initial and the New Cohorts.

##### *Baseline Characteristics of the Sample*

From Table 3 we saw that the baseline characteristics of the Initial Cohort and the New Cohort were significantly different on many variables. The overall picture that emerged was that the New Cohort was lower psychosocial risk than the Initial Cohort.

##### *Substance Use*

From Table 5 it can be seen that the nature of the drugs being used by the mother changed from the Initial Cohort to the New Cohort. In the Initial Cohort, more than half (54%) of mothers were using marijuana or marijuana and alcohol, whereas in the New Cohort 71% of mothers were using alcohol only. It's not clear why this shift has occurred but it may be related to the fact that the New Cohort is lower risk and the alcohol use takes place as part of casual, culturally normative drinking rather than as part of an addiction.

##### *Rate of Drop-out*

From Table 7 it can be seen that the drop-out rates for the New Cohort are not only much higher than for the Initial Cohort, but they are such that they interfere with any meaningful attempt to draw conclusions from data analyses. By 6 months 34% of the New Cohort had dropped out, by 12 months another 37% had dropped out and by 24 months another 32%. From intake through the 12 month follow-up, 62% of the families in the New Cohort had dropped out, compared to 22% for the Initial Cohort.

##### *Staff Turnover*

During the period of the New Cohort, the staff turnover rate was greater than during the initial period. High turnover compromises the validity of the intervention being delivered since it takes time for new staff to become experienced at delivering the service required. It also affects retention of participants.

In summary, the New Cohort differed from the Initial Cohort on level of psychosocial risk, on the nature of substance use, and on the consistency and quality of the intervention they received. In addition, the high drop-out rate (62% by 12 months) precludes any meaningful data analyses. We will therefore present preliminary outcome analyses using the participants in the Initial Cohort only. Since the relatively small sample size of this cohort limits the statistical power, we will include Best Beginnings participants from the non BB+ component. Thus the program group and the control group will be comprised of both BB+ and non BB+ participants.

#### *Sample Used for Outcome Analyses*

As part of the general Best Beginnings program, data were collected on all families enrolled in either the non BB+ component or the BB+ component. The analyses to be presented here are based on two samples of subjects: (a) BB+ families from the Initial Cohort (recruited from 10/1/96 through 3/4/03) on whom we have follow-up data at least through 12 months of age ( $n=100$ ) and (b) non BB+ families from the cohort that was recruited from 1994 through 2000 ( $n=438$ ).

Tables 23 and 24 summarize the results of multiple regression analyses predicting outcomes for goals 3 and 4. These multiple regression analyses were initially performed in a step-wise manner. Tables 23 and 24 show only the *final* regression model for each outcome examined.

#### Summary of Findings and Implication of Findings from Outcome Analyses

##### Goal 3: *To enhance family functioning and maternal psychosocial functioning*

#### Findings (Table 23):

Mothers who have more family problems/stressors feel that parenting is more of a burden. They exhibit more depressive symptoms, and feel less mastery/control over their lives.

Mothers who are not married at intake feel that parenting is more of a burden.

In addition, women who report being in contact with a greater number of relatives weekly perceive that they have more social support.

Implications: As expected, a family's current level of Maternal/family stressors is clearly related to measures of mothers' psychosocial functioning. By encouraging relatives to visit and provide

support to mothers, we may be able to increase mothers' perceptions of having family support, and possibly to decrease symptoms of depression.

*Goal 4: I. To maximize healthy child development*

Findings (Table 24):

General, overall development of the child at 12 months is positively related to the family receiving public assistance and negatively related to the number of problems (e.g., financial, domestic violence, substance use, etc.) the family is confronting. There is a trend for the children from substance-affected families to perform less well on overall developmental tests.

Female children were significantly more advanced on mental development tests than male children.

There is a trend for the motor development of the substance-affected infants to be more advanced.

Implications: Maternal/family problems or stressors are related to measures of infants' developmental status as they were to maternal psychosocial status. More efforts need to be put into addressing the stressors, by referring families for assistance whenever possible and providing support in the home.

*Goal 4: II. To increase the frequency of breastfeeding as a method of promoting healthy infant growth and mother-child responsiveness*

Finding (Table 24):

Families in the program group who received the prenatal intervention, which included provision of information about and support for breastfeeding, were more likely to be breastfeeding at discharge from the hospital.

Implication: This finding that the prenatal intervention (emphasizing and supporting breastfeeding) led to an increase in the likelihood of a mother breastfeeding her infant at discharge seems to hold true for BB+ as well as non BB+ families. We found no evidence in the analyses that exposure to the prenatal intervention was any less effective in increasing breastfeeding among mothers from substance-affected compared to non-substance-affected families.

The importance of this initial step toward a healthier infant and a more responsive mother cannot be underestimated especially for infants in families affected by substance use.

*Goal 4: III. Enhancing the quality of parent-child interaction*

Findings (Table 24):

The responsiveness of the infants to caregiver contingency was significantly greater for infants from families who were in the program group and received the parent-child interaction curriculum. On the other hand, if there was a second primary caregiver in the home (such as the father of the baby or the grandmother), the infant was less responsive.

Implications: The intervention aimed at promoting responsiveness of the infant and mother to each other's cues had a positive effect. This finding applies also to the substance-affected families. However, it will be necessary to work more diligently with other caregivers in the home to increase their positive involvement in interactions with the mother and infant.

Summary of Findings of Outcome Analyses

In general, the outcome analyses presented here indicate that the interventions implemented in Best Beginnings can be effective. However, in order to analyze in more detail which practices are effective and the extent to which they are effective for substance-affected families, we would need a larger sample of substance-affected families on whom we have follow-up data. The difficulties of recruiting and maintaining a substance affected population have been discussed above. These difficulties become even more acute when trying to maintain a control group of substance-affected families in order to collect data for a RCT.

The core variable that was related to all the outcomes was the Maternal/Family problems variable. Information elicited at intake about what the family's current issues were provides the following picture: 94% reported financial difficulties, 63% marital or relationship difficulties, 54% inadequate housing, 36% depression, 16% domestic violence. At intake, 29% had no one contributing to household income and only 11% were employed full- or part-time. The Best Beginnings program addressed many of these issues, but not all are easily "fixed" by a preventive program. Future programs will need to find ways to address the issues that comprise this variable.

## V. Conclusions

- **Describe and interpret the overall impact of the project on children and families. Include discussion of any relevant process evaluation data that may help to interpret outcomes.**

Through this project, many families affected by substance use were identified and received supportive services in the home, including information about the effects of exposure to drugs in utero on the developing fetus, information about childbirth, breastfeeding, child development and parenting. Through use of the Harm Reduction model, the workers were able to guide the mother or other family member involved with substances to consider the effects of the drug use on the health and environment of the child and to make plans to insure the safety and wellbeing of the infant. Because the staff worked with family members other than the identified user, some families were able to keep the target child in the home and out of foster care.

The families also received referrals for mental health, education, job training and child care. The children born to project mothers received regular developmental assessments and were referred to early intervention services when necessary. Identifying and treating developmental problems early heads off difficulties when the child reaches school age.

The fact that the BB+ component was integrated into the general BB program (non substance users) had an impact on both types of families. They intermingled at workshops, parties, trips, etc. and the BB+ families had an opportunity to get to know families not affected by substance use, and vice versa.

- **Describe and interpret the overall impact of the project on the individual agencies and organizations involved. Include discussion of any relevant process evaluation data that may help to interpret outcomes.**

The fact that a randomized controlled trial was conducted as part of this project had a significant impact on both lead agencies: The New York Society for the Prevention of Cruelty to Children (NYSPCC) at the start, and Alianza Dominicana, Inc., later in the project. The details of executing the RCT were discussed at the monthly Directorate meetings attended by members of both lead agencies and Columbia University Department of Pediatrics. All involved came to

appreciate the difficulties of such a task, but learned that it is possible to orient service providers in a community agency to their roles and train them to become effective executors of a RCT. As part of the Johnson & Johnson Community Health award, training in database management and statistics was provided not only to Best Beginnings staff, but to selected staff members of Alianza. Thus the whole agency benefited by the presence of Best Beginnings in the agency. NYSPCC also became more aware of the intricacies of working with a community agency.

The project also had an impact on the health care providers in the Pediatric clinics. There was open communication between the pediatricians and the family support workers and the pediatricians came to respect the work of the family support workers and rely on them to take care of social and other issues with the families. They frequently commented on how much they appreciated the work of the project. They immediately knew which families on their caseload were Best Beginnings families because of the type of questions the families asked and the knowledge they had about child health issues.

Another way in which the program impacted the community agency was through the educational advancement of the program staff during the course of the project. Extensive in-house training was offered to all staff as part of the program. In addition, many workers returned to school (evenings and weekends) and obtained degrees (Associates or Bachelor's or Master's). This required a lot of commitment since they all had families and were working fulltime. In addition to gaining skills and knowledge for themselves, the workers also served as role models for the families they were serving. Information on changes in educational level is presented below.

Changes in Educational Level of BB Workers from Hiring through September 2006

	High school	Associates Degree	Bachelor's Degree	Master's Degree	Currently working towards degree
Education - when hired	18.2%	72.7%	9.1%		
Education - Sept. 2006	0%	18.2%	36.4%	27.3%	18.2%

- **Describe any impact in the community. Include discussion of any relevant process evaluation data that may help to interpret outcomes.**

Although the project was not designed to measure the impact on the community, we became aware of how the information and training we provided to both the staff (most of whom were community residents) and the families spread throughout the community and was passed from one family member to another in a widening circle of influence. For example, information on childbirth preparation, breastfeeding, child development, parent child interaction and the availability of resources was spread from family to family and amongst agency staff who were also community residents. In response to inquiries about childbirth preparation courses in Spanish, we opened a Childbirth Prep Center in which the classes were conducted by a Spanish speaking nurse educator from the medical center. This Center fulfilled a need in the community.

Another potential impact on the community that emanated from our project was the attitude to families affected by substance use. We were promoting a non-punitive approach through the Harm Reduction model and our staff came to adopt this approach to these families. Presumably, this attitude carried over into their interactions with medical personnel and other social service providers in the community and into their lives outside the workplace.

## **VI. Implications of Results and Recommendations**

- **Present recommendations to administrators of future, similar projects.**

The first recommendation we would make to administrators is to define carefully the population you feel you can best serve with the resources you have available and with your intended purpose. For example, since we were using the Harm Reduction model and the Healthy Families America primary prevention approach, we knew *a priori* we could not enroll hard core drug users. We restricted the population to families in which one member was using alcohol or marijuana. However, we did not further specify the amount of use, type of use, frequency of use, etc. and so the sample varied greatly on these parameters. As a result, the BB+ sample included some families for whom the regular BB program would have been sufficient. However, without the BB+ component they would not have been identified and would not have received the services they needed. In conclusion, we felt that if we had been more selective at the intake stage it might have been possible to target higher need families. This would require assessment

tools that specify the parameters of use of substances by potential project members. Such information is often difficult to elicit until a relationship has been established with the family.

The second recommendation focuses on the importance of doing everything possible to retain project staff. Agency policies can have powerful effects on staff retention/turnover. High staff turnover initiates a cascade of events that can undermine the viability of a project. Efforts should be made to nurture staff, to show appreciation to staff, and to provide opportunities for staff to relax together, and even to discuss the challenges of the job as a group with someone outside the immediate program.

- **Present recommendations to project funders.**

The main recommendation to funders reflects the first recommendation to administrators. Make sure that the program to be funded has defined carefully the population they feel they can best serve with the resources they have available and that fits with the intended purpose of the project. It may be advisable for the program to do preliminary work to find out if the population they intend to serve is available in significant numbers to make it worthwhile to invest in starting the project.

Another recommendation to funders would be to fund projects proposed by agencies with a proven track record indicating that they have the capacity to conduct the project and to provide a supportive environment for project staff who will be expected to work with high risk families under stressful circumstances.

- **Present recommendations to the general field.**

The importance of providing supportive services to families affected by substance use cannot be overstated. The effects on the developing fetus of drug use during pregnancy and the effects on infant development of raising an infant in a home environment that does not provide security and positive stimulation, both emotional and physical, are well known. Whatever can be done to link the family with the resources they need to provide that positive environment will help to produce a healthier infant and child – a future citizen. A program such as Best Beginnings that refers families for needed services and provides support to the family in the

home and information about child development and how to promote positive parent-child interaction can contribute significantly to producing a healthy, secure child.

Underlying this approach is the assumption that early intervention can have profound effects on the course of development of infants living in families affected by substance use. We would therefore recommend that priority be given to programs targeting pregnant women and women with infants under 3 months of age.

Table 1

[Table 120308B. [revised 01-29-09]]

*Baseline Characteristics of Mothers and Families in the Total BB+ Sample<sup>a</sup>*

Mother's Kempe total score	M(SD)=41.3(11.5); range 25-75
% with prenatal intake	58.1% (118/203)
Mother's age in years on target child's date of birth	M(SD)=24.7(6.2); range 14-43
% teenage mothers (less than 20 years old on date of target child's birth)	25.7% (52/202)
% first-time mothers	54.5% (104/191)
% of families with problematic <i>maternal</i> substance use	51.0% (103/202)
% of families with problematic <i>paternal</i> substance use	66.0% (132/200)
% of families with problematic <i>maternal and paternal</i> substance use	17.8% (36/202)
<i>Items From Initial Screening Form</i>	
% unmarried	87.6% (176/201)
% with history of or current depression	54.5% (108/198)
% with marital or relationship difficulties	51.0% (103/202)
% with a partner who was unemployed	22.3% (43/193)
% with a history of abortions	20.5% (41/200)
% who unsuccessfully sought or attempted to abort the target pregnancy	18.5% (37/200)
% with a history of psychiatric care	17.9% (36/201)
<i>Selected Items From KFSI/"PCI Current Issues"</i>	
% with financial difficulties/insufficient income	94.0% (189/201)
% with marital or relationship difficulties	63.2% (127/201)
% with social isolation	54.8% (109/199)
% with inadequate housing	54.2% (109/201)
% with depression	35.8% (72/201)

% with inadequate food	22.0% (44/200)
% with current or history of CPS involvement <sup>b</sup> (among multiples only)	18.6% (16/86)
% with domestic violence	16.0% (32/200)
% with health problems or a physical disability	8.5% (17/201)
<i>Intake Form</i>	
% born outside the U.S.	63.0% (126/200)
Number of years mother had lived in the U.S. (among foreign-born)	M(SD)=8.4(6.7); range 0.5-30
% of Dominican ethnicity	74.1% (140/189)
% proficient in spoken English	61.0% (122/200)
% unmarried	82.3% (167/203)
% with less education than a high school diploma or GED	57.4% (116/202)
% employed full- or part-time	11.4% (23/202)
% with no one contributing to household income	28.6% (57/199)
% receiving Temporary Assistance for Needy Families (TANF)	18.4% (37/201)
% of families with a second primary caregiver (PC2) for the target child	63.4% (128/202)
% of families with a PC2 who was employed full- or part-time	50.3% (90/179)
% of families with a PC2 who was the target child's biological father	39.4% (80/203)
% of families with a PC2 who was the target child's grandmother	21.2% (43/203)
% of mothers receiving Medicaid	72.9% (145/199)
% of mothers with no health insurance	10.6% (21/199)
% receiving WIC benefits	87.7% (178/203)
<i>TC Birth Outcome/ID Form</i>	
% of target children delivered before 38 weeks gestation	8.6% (17/197)

% of target children with a birth weight of less than 2500 grams (5.5 pounds)	10.2% (20/196)
% of target children not in a well baby nursery after birth	9.8% (19/194)
% of target children delivered by C-section	36.5% (72/197)

*Note.* <sup>a</sup>Among BB+ participants enrolled through 06/30/08 who completed intake interviews and did not drop out prior to the birth of the target child. All demographic characteristics are those of mothers, except where otherwise indicated.

<sup>b</sup>Not part of "PCI Current Issues".

Because the sample included two pairs of twins, the total sample size was 203 families versus 205 target children/mother-child dyads. Denominators of less than 203 indicate missing data, except for variables listed under "TC Birth Outcome/ID Form", in which case denominators of less than 205 indicate missing data.

*M(SD)=mean(standard deviation).*

Table 2

[Table 121108A. [revised 01-22-09]]

*Frequency Distributions for Selected Demographic Variables in the Total BB+ Sample*Mother's KFSI Total Score

$\bar{x}$	$f(x)$
25-30	27.1% (55/203)
35-40	30.0% (61/203)
45-55	34.5% (70/203)
60-75	8.4% (17/203)

Trimester of enrollment

$\bar{x}$	$f(x)$
1 <sup>st</sup>	5.4% (11/203)
2 <sup>nd</sup>	22.2% (45/203)
3 <sup>rd</sup>	30.5% (62/203)
Enrolled postnatally	41.9% (85/203)

Number of Years Living in the U.S. at Intake

$\bar{x}$	$f(x)$
U.S.-born	37.0% (74/200)
4 years or less	24.5% (49/200)
5-7 years	7.0% (14/200)
8 or more years	31.5% (63/200)

Mother's Age in Years on Date of Target Child's Birth

$\bar{x}$	$f(x)$
14-19	25.2% (51/202)
20-33	63.4% (128/202)
34+	11.4% (23/202)

Biological Father's Parenting Involvement (3-9 scale)<sup>a</sup>

$\bar{x}$	$f(x)$
3-4	15.3% (27/177)
5-8	18.1% (32/177)
9	66.7% (118/177)

Note. Total sample size=203; denominators of less than 203 indicate missing data. KFSI=Kempe Family Stress Inventory. <sup>a</sup>A score of "3" indicates no involvement with the target child physically, emotionally, or financially; a score of "9" indicates a father who was "very involved" in all three domains.

Table 3

[Table 120208A. [revised 08-01-09]]

Statistically Significant Differences in Baseline Characteristics By Era of Enrollment<sup>a</sup>

	<u>Enrolled prior to</u> <u>March 05, 2003</u> (total n=98)	<u>Enrolled March 05,</u> <u>2003 through June</u> <u>26, 2008</u> (total n=105)	<u>Inferential statistics</u>
<u>Initial Screening</u> <u>Questionnaire Items</u> % with a partner who was currently unemployed	33.0% (29/88)	13.3% (14/105)	$\chi^2(1,193)=10.64^{***}$ OR 0.31 (0.15-0.64)
% who reported abortion of target child was unsuccessfully sought or attempted	27.4% (26/95)	10.5% (11/105)	$\chi^2(1,200)=9.44^{**}$ OR 0.31 (0.14-0.67)
% who reported a history of or current depression	71.0% (66/93)	40.0% (42/105)	$\chi^2(1,198)=19.08^{****}$ OR 0.27 (0.15-0.49)
<u>Kempe Assessment</u> Mother's total score (range: 25-75)	44.1(12.5)	38.6(9.8)	$t(184)=3.47^{***}$
<u>("PCI Current</u> <u>Issues")</u> % with health problems and/or physical disability	13.3% (13/98)	3.9% (4/103)	$\chi^2(1,201)=5.71^*$ OR 0.26 (0.08-0.84)
% with depression	54.1% (53/98)	18.4% (19/103)	$\chi^2(1,201)=27.74^{****}$ OR 0.19 (0.10-0.36)
% with inadequate housing	62.2% (61/98)	46.6% (48/103)	$\chi^2(1,201)=4.95^*$ OR 0.53 (0.30-0.93)

<u>Intake Form</u> % with no one contributing to household income	43.6% (41/94)	15.2% (16/105)	$\chi^2(1,199)=19.54****$ OR 4.30 (2.20-8.41)
	<u>Enrolled prior to March 05, 2003</u>	<u>Enrolled March 05, 2003 through June 30, 2008</u>	<u>Inferential statistics</u>
% with a PC2 who was employed	39.6% (38/96)	62.7% (52/83)	$\chi^2(1,179)=9.48**$ OR 2.56 (1.40-4.69)
% who were receiving TANF	25.0% (24/96)	12.4% (13/105)	$\chi^2(1,201)=5.32*$ OR 0.42 (0.20-0.89)
% with no health insurance	15.8% (15/95)	5.8% (6/104)	$\chi^2(1,199)=5.28*$ OR 0.33 (0.12-0.88)
% receiving Medicaid	57.9% (55/95)	86.5% (90/104)	$\chi^2(1,199)=20.60****$ OR 4.68 (2.33-9.37)
<u>TCID Form</u> Biological father's parenting involvement (range: 3-9)	<u>M(SD) (n=83)</u> 6.5(2.4)	<u>M(SD) (n=96)</u> 8.5(1.5)	$t(133)=-6.44****$
<u>Other</u> CES-D at prenatal intake	<u>M(SD) (n=53)</u> 20.7(10.8)	<u>M(SD) (n=52)</u> 15.3(12.2)	$t(103)=2.40*$
CES-D at postnatal intake	<u>M(SD) (n=28)</u> 19.1(13.4)	<u>M(SD) (n=38)</u> 11.4(9.2)	$t(45)=2.62*$

Note. \*\*\*\* =  $p < .0001$ , \*\* =  $p < .01$ , \* =  $p < .05$ . PCI=Primary caregiver #1 (mother). PC2=Primary caregiver #2. CES-D=Center for Epidemiologic Studies Depression Scale. M(SD)=mean(standard deviation).

<sup>a</sup>Among BB+ participants who completed intake interviews on or before 6/30/08 and who did not drop out prior to the birth of the target child.

There were a number of statistically significant differences on baseline characteristics between BB+ participants who enrolled prior to 03/05/03 and those BB+ participants who enrolled 03/05/03 or later; each of these significant differences is consistent with a pattern of relatively low psychosocial risk overall for the group of cases who enrolled 03/05/03 or later compared to the group of cases who enrolled prior to 03/05/03.

Table 4

[Table 120308A. [revised 08-01-09]]

*Statistically Significant Differences in Baseline Characteristics Between BB+ Program Group and BB+ Control Group Participants<sup>a</sup>*

	<u>BB+ Program group</u> (total n=109)	<u>BB+ Control group</u> (total n=94)	<u>Inferential statistics</u>
% with prenatal intake	64.8% (70/108)	50.0% (47/94)	$\chi^2(1,202)=4.53^*$ OR 1.84 (1.05-3.24)
<u>PC1 Current Issues</u> % with depression	44.0% (48/109)	26.1% (24/92)	$\chi^2(1,201)=6.99^{**}$ OR 2.23 (1.22-4.06)
<u>Intake Form</u> % with Medicaid	66.4% (71/107)	80.4% (74/92)	$\chi^2(1,199)=4.96^*$ OR 0.48 (0.25-0.92)
% of Dominican ethnicity	68.0% (68/100)	80.9% (72/89)	$\chi^2(1,189)=4.08^*$ OR 0.50 (0.26-0.99)
<u>Other</u> CES-D at prenatal intake	<u>M(SD)</u> (n=61) 20.3(11.7)	<u>M(SD)</u> (n=44) 14.8(11.2)	$t(103)=-2.43^*$
PSM at postnatal intake	<u>M(SD)</u> (n=32) 24.8(3.5)	<u>M(SD)</u> (n=24) 22.2(2.9)	$t(54)=3.00^{**}$

Note. PC1= Primary caregiver #1 (biological mother). CES-D=Center for Epidemiologic Studies Depression Scale. M(SD)=mean(standard deviation). PSM=Pearlin-Schooler Mastery Scale. \*\*= $p < .01$ , \*= $p < .05$ .

<sup>a</sup>Among all BB+ participants who completed intake interviews on or before 06/30/08 and who did not drop out prior to the birth of the target child.

In comparison with the number of group differences found in baseline characteristics between BB+ participants enrolled before versus after March 5, 2003 (see Table 120208A), there were relatively few differences in baseline characteristics between BB+ program group and BB+ control group participants.

Table 5

[Table 052808A, [revised 01-19-09]]

*Household Members Identified as Substance Users and Substances Most Commonly Used in BB+ Families, Separately By Era of Enrollment<sup>a</sup>*

	<u>Initial BB+ Cohort</u> (enrolled prior to 3/04/03; total n=98 families, 0 with missing data)	<u>Newer BB+ Cohort</u> (enrolled 3/04/03-6/30/08; total n=105 families, 1 with missing data)
<u>Substance users/abusers in the target child's household</u>		
% Biological father only	45.9% (45/98)	44.2% (46/104)
% Mother only	35.7% (35/98)	30.8% (32/104)
% Mother and biological father or other household member	13.3% (13/98)	22.1% (23/104)
% Other household member only	5.1% (5/98)	2.9% (3/104)
<u>Substance(s) most commonly used by mothers<sup>a</sup></u>	<u>Initial BB+ Cohort</u> (total n=48, 13 with missing data)	<u>Newer BB+ Cohort</u> (total n=55, 0 with missing data)
Alcohol only	25.7% (9/35)	70.9% (39/55)
Marijuana only	37.1% (13/35)	21.8% (12/55)
Alcohol and marijuana	17.1% (6/35)	7.2% (4/55)
<u>Substance(s) most commonly used by fathers<sup>b</sup></u>	(total n=63, 7 with missing data)	(total n=69, 0 with missing data)
Alcohol only	62.5% (35/56)	73.9% (51/69)
Marijuana only	17.9% (10/56)	17.4% (12/69)
Alcohol and marijuana	1.8% (1/56)	2.9% (2/69)

Note. <sup>a</sup>Among 203 BB+ mothers who completed intake interviews on or before 6/30/08 and who did not drop out prior to the birth of the target child.

Table 6

[Table 011909A.]

*Substances Used Among Mothers and Fathers in Substance-Affected Families, in the Total Sample and Separately for Program and Control Group Participants*

*I. Substances Used By Mothers (in families in which mother was a user, 103/203 families)*

	<u>Total Sample</u> (n=103 total, 13 missing)	<u>Program Group</u> (n=56 total, 11 missing)	<u>Control Group</u> (n=47 total, 2 missing)
Alcohol only	53.3% (48/90)	46.7% (21/45)	60.0% (27/45)
Marijuana only	27.8% (25/90)	31.1% (14/45)	24.4% (11/45)
Alcohol and marijuana	11.1% (10/90)	13.3% (6/45)	8.9% (4/45)
Cocaine	5.6% (5/90)	4.4% (2/45)	6.7% (3/45)
Other (multiple substances)	4.4% (2/90)	4.4% (2/45)	0.0% (0/45)

*II. Substances Used By Fathers (in families in which father was a user, 132/203 families)*

	<u>Total Sample</u> (n=132 total, 11 missing)	<u>Program Group</u> (n=67 total, 9 missing)	<u>Control Group</u> (n=65 total, 2 missing)
Alcohol only	71.1% (86/121)	69.0% (40/58)	73.0% (46/63)
Marijuana only	18.2% (22/121)	22.4% (13/58)	14.3% (9/63)
Alcohol and marijuana	2.5% (3/121)	0.0% (0/58)	4.8% (3/63)
Cocaine	5.8% (7/121)	5.2% (3/58)	6.3% (4/63)
Other (multiple substances)	2.5% (3/121)	3.4% (2/58)	1.6% (1/63)

*Note. The total sample includes participants who completed intake interviews prior to 7/01/08.*

Table 7

[Table 101908A. - revised 2-16-09]

## BB+ Dropout Rates for 3 Different Assessment Intervals By Program Versus Control Group

## Status and Era of Enrollment

I. % Dropped Out By 6 Months Postpartum(among all completers of intake interviews)<sup>a</sup>

Overall	Program	Control	
<u>All BB+:</u>			
	24.0% (46/192)	23.3% (24/103)	24.7% (22/89)
<u>Enrolled prior to 3/05/03:</u>			
	14.3% (14/98)	14.7%	13.3%
<u>Enrolled 3/05/03 or later:</u>			
	34.0% (32/94)	40.0%	30.5%

Overall, BB+ families who enrolled after 3/05/03 were significantly more likely to dropout out by 6 months postpartum compared to BB+ families who enrolled before 3/05/03, 34.0% vs. 14.3% [ $\chi^2(1,192)=10.28, p<.001; OR=3.10(1.53-6.29)$ ]. Among *program group cases* examined separately, the dropout rate at 6 months postpartum was also significantly higher among families enrolled after 3/05/03 compared to families enrolled before 3/05/03, 40.0% vs. 14.7% [ $\chi^2(1,103)=8.27, p<.01; OR=3.87(1.49-10.03)$ ]. Among *control group cases*, families enrolled after 3/05/03 were more likely to drop out by 6 months postpartum compared to families enrolled before 3/05/03, 30.5% vs. 13.3%, but this difference was not statistically significant at the  $p<.05$  level [ $\chi^2(1,89)=3.15, p<.10$ ].

II. % Dropped Out Between 6 and 12 Months Postpartum

(among non-dropouts at 6 months postpartum)<sup>b</sup>

	Overall	Program	Control
<u>All BB+:</u>	20.6% (29/141)	12.8% (10/78)	30.2% (19/63)
<u>Enrolled prior to 3/05/03:</u>	9.5% (8/84)	5.2%	19.2%
<u>Enrolled 3/05/03 or later:</u>	36.8% (21/57)	35.0%	37.8%

Among families who had not already dropped out by 6 months postpartum, families enrolled after 3/05/03 were significantly more likely to dropout out by 12 months postpartum than families enrolled before 3/05/03, 36.8% vs. 9.5% [ $\chi^2(1,141)=15.51, p<.0001$ ; OR=5.54(2.24-13.71)]. However, this difference in dropout rates by era of enrollment was statistically significant for *program group* cases only [35.0% vs. 5.2%;  $\chi^2(1,78)=11.84, p<.001$ ; OR=9.87(2.24-43.43)]; among *control group* cases, there was no significant difference in dropout rates by era of enrollment (37.8% vs. 19.2%).

III. % Dropped Out Between 12 and 24 Months Postpartum

(among non-dropouts at 12 months postpartum)<sup>c</sup>

	Overall	Program	Control
<u>All BB+:</u>	31.6% (31/98)	31.8% (21/66)	32.3% (10/32)
<u>Enrolled prior to 3/05/03:</u>	31.6% (24/76)	32.7%	28.6%
<u>Enrolled 3/05/03 or later:</u>	31.8% (7/22)	27.3%	36.4%

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*Note.* <sup>a</sup>Eleven families in which a target child had not reached 6 months of age by 9/30/08 were not included in these analyses. <sup>b</sup>Five families in which a target child had not reached 12 months of age by 09/30/08 were not included in these analyses. <sup>c</sup>Fourteen families in which a target child had not reached 24 months of age by 09/30/08 were not included in these analyses.

Table 8

[Table 101908B. [revised 01-22-09]

*Completion Statistics For Follow-Up Assessments at 6, 12, and 24 Months Postpartum, For All BB+ Families Enrolled Through 6/30/08\**

<u>Follow-up</u>	<u>Number of assessments</u>
<u>Assessment</u>	<u>completed and completion rate</u>
6 months	<b>134/192, 69.8% (11 missing)</b> <b>Program 77/103, 74.8% (6 missing);</b> <b>Control 57/89, 64.0% (5 missing)</b>
12 months	<b>108/185, 58.4% (18 missing)</b> <b>Program 68/101, 67.3% (n=8 missing);</b> <b>Control 40/84, 47.6% (n=10 missing)</b> $[\chi^2(1,185)=7.33, p<.01, OR=2.27(1.25-4.12)]$
24 months	<b>70/171, 40.7% (32 missing)</b> <b>Program 47/99, 47.5% (n=10 missing);</b> <b>Control 23/72, 31.9% (n=22 missing)</b> $[\chi^2(1,171)=4.16, p<.05, OR=1.93(1.02-3.63)]$

*Note. \*Families were coded as missing whenever a target child had not reached the follow-up age indicated (6, 12, or 24 months postpartum) by 9/30/08.*

*As shown in the table, program group participants were significantly more likely than control group participants to complete follow-up assessments at 12 months and 24 months postpartum; there was no program-control group difference in completion rates at 6 months postpartum.*

Table 9

[Table 101908C. [revised 01-22-09]]

*Variables Significantly Associated With Dropout Before 12 Months Postpartum, Separately for BB+ Program Group Versus BB+ Control Group Cases*

### I. Program Group

Compared to BB+ program group cases who completed follow-up assessments and were still enrolled in Best Beginnings at 12 months postpartum, program group cases who dropped out of Best Beginnings before 12 months postpartum had a significantly *higher* average score on a 3-item scale measuring Biological Father's Parenting Involvement [means/standard deviations: 8.1(1.9) versus 6.9(2.4),  $t(63)=-2.68$ ,  $P<.01$ ]. Among program group participants who had the maximum possible score of "9" on the Father Involvement (FI) scale, indicating that the biological father was "very involved" with the child "emotionally", "physically", and "financially", 42.3% (22/52) dropped out before 12 months compared to 14.6% (6/41) of participants with FI scores of 8 or less [ $P<.01$ ]. Similarly, 39% (23/59) of participants who had an FI score of 7 or greater dropped out before 12 months compared to 14.7% (5/34) of participants with a score of 3-6 [ $P<.05$ ]. BFPI scores predict 8.1% of the differences in dropout status between individual program group families at 12 months postpartum [ $P<.05$ ].

### II. Control Group

Compared to non-dropouts, control group dropouts had a significantly *higher* average Kempe total score (mother) [43.3(10.2) vs. 38.2(10.7),  $t(83)=-2.26$ ,  $P<.05$ ]; this difference is *not* attributable to a difference in maternal substance use, since there was no difference between the groups in the percentage of mothers who had a history of problematic substance use.

BB+ control group mothers who dropped out of Best Beginnings before 12 months postpartum also had a significantly lower average score on a 4-level variable measuring highest grade completed at intake [2.3(0.7) vs. 2.7 (0.9),  $t(82)=2.38$ ,  $P<.05$ ; 1=less than grade 8, 2=grade 8-11; 3=high school diploma or GED, 4=vocational school after high school or higher].

Control group dropouts were also significantly *less* likely to be first-time mothers (*more* likely to be multips) compared to control group completers at 12 months [41.7% (15/36) vs. 65.1% (28/43) first-time mothers,  $\chi^2(1,79)=4.34$ ,  $P<.05$ , OR 0.38 (0.15-0.95)].

The combination of mother's Kempe total score, mother's educational achievement, and parity (primip versus multip) predicts 17.8% of the differences in dropout status between individual control group families at 12 months postpartum [ $P<.01$ ].

Table 10

[Table 122308A. [revised 07-26-09]]

Statistically Significant Differences in Baseline Characteristics Between BB+ Program Group and BB+ Control Group Participants Who Completed a 6 Month Follow-up Assessment<sup>a</sup>

	<u>BB+ Program group</u> (total n=77)	<u>BB+ Control group</u> (total n=57)	<u>Inferential statistics</u>
<u>PCI Current Issues</u> % with depression	45.5% (35/77)	24.6% (14/57)	$\chi^2(1,134)=6.16^*$ OR 2.56 (1.21-5.43)
<u>TCID Form</u> Biological father's parenting involvement (3-9 scale)	<u>M(SD)</u> (n=74) 7.1(2.3)	<u>M(SD)</u> (n=51) 8.0(2.1)	$t(112)=2.23^*$
<u>Other</u> PSM at postnatal intake	<u>M(SD)</u> (n=17) 22.2(3.3)	<u>M(SD)</u> (n=18) 25.2(4.0)	$t(33)=2.34^*$

Note. PCI=biological mother. M(SD)=mean(standard deviation). PSM=Pearlin-Schooler Mastery Scale. <sup>a</sup>Among all BB+ participants who completed intake interviews and did not drop out prior to the birth of the target child. \*=P<.05.

Table 11

[Table 122308B. [revised 07-31-09]]

Statistically Significant Differences in Baseline Characteristics Between BB+ Program Group and BB+ Control Group Participants Who Completed a 12 Month Follow-up Assessment<sup>ab</sup>

	<u>BB+ Program group</u> (total n=68)	<u>BB+ Control group</u> (total n=40)	<u>Inferential statistics</u>
% with prenatal intake	64.7% (44/68)	40.0% (16/40)	$\chi^2(1,108)=6.23^*$ OR 2.75 (1.23-6.15)
<u>Initial Screening Questionnaire</u>			
% with a partner who was unemployed	33.9% (21/62)	15.4% (6/39)	$\chi^2(1,101)=4.18^*$ OR 2.82 (1.02-7.79)
<u>KFSI</u>	<u>M(SD)</u> (n=68)	<u>M(SD)</u> (n=40)	
Mother's KFSI Total Score	43.8(12.2)	38.8(10.8)	$t(106)=-2.18^*$
<u>PCI Current Issues</u>			
% with depression	48.5% (33/68)	23.7% (9/38)	$\chi^2(1,106)=6.29^*$ OR 3.04 (1.25-7.37)
% with inadequate housing	60.3% (41/68)	34.2% (13/38)	$\chi^2(1,106)=6.34^*$ OR 2.92 (1.28-6.68)

<i>Intake Form</i> % of Dominican ethnicity	66.1% (39/59)	89.5% (34/38)	$\chi^2(1,97)=6.78^*$ OR 0.23 (0.07-0.74)
% with a PC2 who was employed full- or part-time	46.3% (31/67)	66.7% (24/36)	$\chi^2(1,103)=3.92^*$ OR 0.43 (0.19-1.00)
Mother's educational achievement (1-4 scale)	$\underline{M(SD)}$ (n=68) 2.4(0.7)	$\underline{M(SD)}$ (n=40) 2.7(0.9)	$t(69)=2.01^*$
<i>TCID Form</i> Mother's age on date of target child's birth	$\underline{M(SD)}$ (n=68) 23.8(5.5)	$\underline{M(SD)}$ (n=40) 26.9(7.4)	$t(65)=2.34^*$
Biological father's parenting involvement (3-9 scale)	$\underline{M(SD)}$ (n=65) 6.9(2.4)	$\underline{M(SD)}$ (n=35) 8.0(2.0)	$t(79)=2.58^*$
<i>Other</i> CES-D Total Score at prenatal intake	$\underline{M(SD)}$ (n=39) 19.0(10.2)	$\underline{M(SD)}$ (n=17) 12.2(10.2)	$t(55)=-2.28^*$
PSM at postnatal intake <sup>b</sup>	$\underline{M(SD)}$ (n=16) 21.9(3.4)	$\underline{M(SD)}$ (n=17) 24.9(3.8)	$t(31)=-2.41^*$

Note.  $M(SD)$ =mean(standard deviation). *KFSI*=Kempe Family Stress Inventory.

*PC1*=biological mother. *PC2*=primary caregiver #2. *CES-D*=Center for Epidemiologic Studies Depression Scale. *PSM*=Pearlin-Schooler Mastery Scale. <sup>a</sup>Among all BB+ participants who completed intake interviews and did not drop out prior to the birth of the target child. <sup>b</sup>Administration of the *PSM* began during July, 1996.  $*=p<.05$

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As shown in the table, among prenatally enrolled mothers who completed follow-up interviews at 12 months postpartum, the program group had a significantly higher average *CES-D* Total Score at intake compared to the control group. Also among

*prenatally enrolled mothers who completed follow-up interviews at 12 months postpartum, the program group had a significantly higher average CES-D Total Score at 6 months postpartum compared to the control group,  $t(38)=-2.64, p<.05$ .*

*Among postnatally enrolled participants who completed follow-up interviews at 6 months postpartum (see Table 10) and among postnatally enrolled participants who completed follow-up interviews at 12 months postpartum (this table), program group mothers had a significantly lower average Mastery Scale score at intake compared to control group mothers.*

*Although there were no program-control group differences among 12 month completers on the Sum of 6 PC1 Issues at intake, program group completers at 12 months did have a significantly higher average score compared to control group completers at 12 months on the Sum of PC1 Issues at 6 months,  $M(SD)=2.5(1.7)$  versus  $1.6(1.5)$ ,  $t(91)=-2.50, p<.05$ .*

Table 12. Outreach and Enrollment Statistics for Two Eras of Enrollment and Overall

	<u>Initial Cohort</u>	<u>New Cohort</u>	<u>Total</u>
	10/1/96--3/4/03	3/5/03--6/30/08	10/1/96-6/30/08
# of Screens completed	1,638	3,884	5522
# of positive Screens	1,564	3,542	5106
% screens that were positive	95%	91%	93%
# of Kempes completed	827	673	1500
% of positive Screens that were Kemped	53%	19%	29%
# of positive Kempes	768	672	1440
% positive Kempes/Kempes	93%	99%	96%
# of DUSI	166	661	827
# assigned to BB	666	551	1217
# assigned to BB+	102	121	223
% assigned to BB+	13%	18%	16%
# enrolled in BB	513	350	863
# enrolled in BB+	105*	112	217
Total # enrolled	618	462	1080
% pos Kempes enrolled (total)	80%	69%	75%
PreIntake: Phone Calls	3581	3565	7146
PreIntake: Visit Attempted	603	1199	1802
PreIntake: Visit Conducted	1231	1266	2497

\* Some families initially assigned to BB were reassigned to BB+ when it became clear that there was substance use in the family.

Table 13

(Table 071309A).

Total Number of Prenatal Visits Received and Number of Prenatal Visits Received Per Month  
By Program Versus Control Group Membership, Among Prenatally-Enrolled BB+  
Participants

	<u>Control group</u>	<u>Program group</u>	<u>Inferential statistics</u>
	<u>M(SD) / range</u>	<u>M(SD) / range</u>	
Total number of prenatal visits received <sup>a</sup>	(n=41) 1.3(0.7) / 0-3	(n=63) 9.3(5.9) / 0-23	$t(65)=-10.60, P<.0001$
Number of months enrolled prenatally	(n=47) 3.1(2.0) / 0.1-7.3	(n=70) 3.2(1.8) / 0.1-7.0	$t(115)=-0.33, ns$
Number of prenatal visits received per month <sup>a</sup>	(n=39) 0.6(0.7) / 0.0-2.5	(n=63) 3.3(1.8) / 0.0-10.2	$t(86)=-10.64, P<.0001$

Note. M(SD)=mean(standard deviation). <sup>a</sup>Several positive outliers were removed or re-coded in order to reduce skewness; inferential tests were performed using re-coded variables.

As expected, program group mothers received significantly more prenatal visits and significantly more prenatal visits per month on average compared to control group mothers. There was no difference between the two groups in number of months enrolled prenatally.

Table 14

(Table 071309B.)

*Frequency Distributions for Total Number of Prenatal Visits Received, Separately for BB+ Program Group and BB+ Control Group Participants Enrolled Prenatally*

Total number of prenatal visits	<u>Control group (n=41)</u>			<u>Program group (n=63)</u>		
	<u>x</u>	<u>f(x)</u>	<u>%</u>	<u>x</u>	<u>f(x)</u>	<u>%</u>
	0	6	14.6%	0	2	3.2%
	1	17	41.5%	1-3	10	15.9%
	2	17	41.5%	4-7	11	17.5%
	3	1	2.4%	8-10	15	23.8%
				11-16	15	23.8%
				17-23	10	15.9%

Table 15

(Table 042009A. (revised 04-27-09))

*Total Number of Postnatal Visits Received and Number of Postnatal Visits Received Per Month By Program Versus Control Group Membership, Among BB+ Completers at 12 Months*

	<u>Control group</u> (total n=39)	<u>Program group</u> (total n=66)	
	<u>M(SD)/range</u>	<u>M(SD)/range</u>	<u>Inferential statistics</u>
Total number of postnatal visits received to 12 months postpartum <sup>a</sup>	3.9(1.1) / 1-5	35.0(9.8) / 20-68	$t(68)=-25.60, P<.0001$
TC's age in months on date of 12 month follow-up <sup>a</sup>	12.5(0.6) / 11.6-14.0	12.1(0.6) / 11.1-14.1	$t(102)=-3.28, P<.001$
Number of postnatal visits received <i>per month</i> to 12 months postpartum	0.3(0.1) / 0.1-0.6	2.9(0.8) / 1.6-5.5	$t(68)=-26.62, P<.0001$

*Note. M(SD)=mean(standard deviation). <sup>a</sup>Several positive outliers were removed or re-coded in order to reduce skewness; inferential tests were performed using re-coded variables. By itself, program versus control group membership accounted for 78.5% of the variability in number of postnatal visits received per month to 12 months. Controlling for baseline characteristics that significantly differentiated program and control group completers at 12 months and that were also significantly related ( $P<.01$ ) to the number of postnatal visits received per month to 12 months did NOT result in any significant change in the percentage of variability in number of postnatal visits received per month to 12 months that was accounted for by program versus control group membership.*

Table 16

(Table 042709A).

*Frequency Distributions for Total Number of Postnatal Visits and Total Number of Postnatal Visits Per Month to 12 Months Postpartum, Separately for BB+ Program Group and BB+ Control Group Participants (Among Completers At 12 Months Only)*

Total # of postnatal visits to 12 months	Control group (n=39)			Program group (n=66)		
	$\bar{x}$	$f(x)$	%	$\bar{x}$	$f(x)$	%
	1	1	2.6%	20-28	17	25.8%
	2	3	7.7%	29-34	19	28.8%
	3	9	23.1%	35-42	18	27.3%
	4	11	28.2%	43-68	12	18.2%
	5	15	38.5%			

  

Total # of postnatal visits <i>per month</i> to 12 months	Control group (n=38)			Program group (n=64)		
	$\bar{x}$	$f(x)$	%	$\bar{x}$	$f(x)$	%
	0.08-0.24	9	23.7%	1.55-2.35	16	25.0%
	0.25-0.31	8	21.1%	2.41-2.76	16	25.0%
	0.32-0.40	10	26.3%	2.81-3.43	16	25.0%
	0.41-0.55	11	28.9%	3.45-5.52	16	25.0%

Table 17

(Table 072009A. (rev. 10-20-09))

*Frequencies of Commonly-Reported Home Visit Log Activities for Prenatal Visits, Separately for BB+ Program Group and BB+ Control Group Participants Who Enrolled Prenatally and Received at Least One Prenatal Visit – with relevant goals*

	<u>% of All Program Group Visits With HVL Activity x Reported</u> (50 participants received a total of 536 prenatal visits)	<u>% of All Control Group Visits With HVL Activity x Reported</u> (37 participants received a total of 74 prenatal visits)	<u>Inferential statistics</u> (where applicable)
<u>Visit Log Activities</u> Provision of pregnancy and/or prenatal care info Goal 4	58.2% (312/536)	59.5% (44/74)	
Discussion of family functioning and/or family relationships Goal 3	26.1% (140/536)	44.6% (33/74)	OR(.27-.72)=0.44***
Provision of info about basic infant care, feeding, and/or food preparation Goal 4	21.0% (106/505)	10.8% (8/74)	OR(1.02-4.71)=2.19*
Discussion of educational and/or employment opportunities Goal 3	14.4% (77/536)	25.7% (19/74)	OR(.27-.86)=0.49*
Provision of information about child health Goal 4	10.6% (57/536)	6.8% (5/74)	

Problem-solving/decision-making or crisis management/problem resolution Goal 3	9.7% (52/536)	12.2% (9/74)	
Advocacy and/or accompaniment - medical services or providers Goal 2	9.1% (49/536)	0.0% (0/74) <sup>a</sup>	-----
Provision of info about health care providers or services Goal 2 & 4	8.8% (47/536)	9.5% (7/74)	
Advocacy and/or accompaniment - non-medical services or providers Goal 2 & 3	8.2% (44/536)	1.4% (1/74) <sup>a</sup>	-----
Provision of information about child development Goal 4	8.0% (43/536)	10.8% (8/74)	
Provision of information about child safety Goal 4	6.9% (37/536)	4.1% (3/74)	
Address violence in the household Goal 3	3.9% (21/536)	4.1% (3/74)	

Note. HVL=Home Visit Log. "info"=information. OR=Odds Ratio.

HVL activities listed in descending order by frequency of occurrence in program group.

<sup>a</sup> Inferential test not valid due to small numerator in the control group.

\*\*\* =  $P < .001$ ; \* =  $P < .05$

Table 18

(Table 070509B).

*Summary: Results of Inferential Tests for Program-Control Group Differences on Prenatal*

*Service Referral Variables*

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I. Number of Prenatal Information-Only Service Referrals (0=0, 1=1, 2=2, 3=3, 4=4 or more)<sup>a</sup>  
Program Group M(SD)=1.9(1.4), Control Group M(SD)=2.1(1.4);  
***t*(109)=0.76, ns.**

*Control group mothers actually received a significantly greater number of information-only referrals on average compared to program group mothers. (Although the size of the difference between groups is actually quite small, it was statistically significant nonetheless.)*

II. Number of Prenatal Worker-Active Service Referrals (0 versus 1 or more)<sup>a</sup>  
Forty-one percent (27/66) of program group mothers received at least one worker-active service referral prenatally, compared to only 11.1% (5/45) of control group mothers;  
**OR(1.94-15.85)=5.54, *p*<.001.**

*As expected, prenatally enrolled program group mothers were significantly more likely than prenatally enrolled control group mothers to have received at least one worker-active service referral during the prenatal period.*

III. Number of Services Received as a Result of Prenatal Service Referrals (0=0, 1=1, 2=2 or more)<sup>a</sup>  
Program Group M(SD)=0.9(0.9), Control Group M(SD)=0.4(0.8);  
***t*(103)=-2.99, *p*<.01.**

*As expected, prenatally enrolled program group mothers received a significantly greater number of services on average compared to prenatally enrolled control group mothers.*

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*Note. M(SD)=mean(standard deviation). <sup>a</sup>Each of the three variables shown in the table was re-coded in order to reduce or eliminate the substantial positive skewness that characterizes the frequency distributions of the original variables in both the program and the control group.*

Table 19

(Table 042209A.)

*Service Referrals Received Postnatally to 12 Months Postpartum, For BB+ Program and Control Group Participants Who Completed Follow-Up Interviews at 12 Months*

	<u>BB+ Program group</u> (total n=65)	<u>BB+ Control group</u> (total n=39)	<u>Inferential statistics</u>
Number of information-only referrals received by 12 months postpartum	<u>M(SD)</u> 5.5(3.7)	<u>M(SD)</u> 3.1(3.3)	$t(102)=-3.44, P<.001$
Number of worker-active referrals received by 12 months postpartum <sup>a</sup>	1.4(1.4)	0.2(0.4)	$t(79)=-6.64, P<.0001$
Number of services received as a result of service referrals made by 12 months postpartum <sup>a</sup>	2.2(1.3)	0.7(1.0)	$t(101)=-6.36, P<.0001$

*Note.*  $M(SD)$ =mean(standard deviation). <sup>a</sup>Variable was re-coded in order to reduce skewness caused by positive outliers.

*Worker-active service referrals were rare among control group participants, with only 17.9% (7/39) of participants having received one or more worker-active referrals and only 5% (2/39) having received two or more worker-active referrals by 12 months postpartum. By contrast, 62.5% (40/64) of program group participants received one or more worker-active referrals and 43.7% (28/64) received two or more worker-active referrals by 12 months postpartum. Eighty-nine percent (57/64) of program group participants received one or more services as a result of service referrals made by 12 months postpartum, compared to only 36% (14/39) of control group participants. Similarly, 67% (43/64) of program group participants received two or more services as a result of service referrals made by 12 months postpartum, compared to only 5% (2/39) of control group participants.*

*In a series of multiple regression analyses (not shown here), we demonstrated*

*that the association between program versus control (P vs C) group membership and number of service referrals received is mediated by the number of home visits that were received. That is, controlling statistically for the relationship between P vs C group membership and number of home visits received eliminates the statistical association between P vs C group membership and frequency of receipt of both information-only and worker-active service referrals.*

Table 20

(Table 070509A. (revised 12-01-09))

*Most Common Types of Prenatal Service Referrals, Separately By Program Versus Control Group*

Program Group (n=62 participants)		Control Group (n=43 participants)	
1. Childbirth education Goal 4	15.5% (30/194)	1. Childbirth education Goal 4	18.5% (23/124)
2. Mental health counseling Goal 3	9.8% (19/194)	2. GED preparation Goal 3	9.7% (12/124)
3. Food pantry Goal 2	6.7% (13/194)	3. Mental health counseling Goal 3	7.3% (9/124)
3. Housing Goal 2	6.7% (13/194)	4. Food pantry Goal 2	6.5% (8/124)
4. GED preparation Goal 3	5.7% (11/194)	5. Housing Goal 2	5.6% (7/124)
4. Medicaid Goal 2/4	5.7% (11/194)	5. Parent aide services Goal 3	5.6% (7/124)

*Note. SR=service referral. Tabled figures represent the percentages of all prenatal SRs that fell into the specific SR categories listed; denominators represent the total number of prenatal SRs that were made for each group. Includes prenatal SRs made for PC1 (mothers) only, which make up 85.9% (318/370) of all prenatal SRs. Includes information-only and worker-active SRs. The six categories of SRs shown in the table represent 50.0% of all prenatal SRs made for program group mothers and 53.2% of all prenatal SRs made for control group mothers.*

Table 21

(Table 043009A.)

*Postnatal Service Referrals to 12 Months Postpartum: Frequencies of the Most Common Types of Referrals, Separately by Program Versus Control Group Membership*

<u>I. Service Referrals for Mothers</u>			
<u>Program Group</u>		<u>Control Group</u>	
GED preparation	8.3% (27/324 referrals)	Parent aide services	8.9% (12/135 referrals)
Housing assistance/emergency shelter	8.3% (27/324)	Food Stamps	8.1% (11/135)
Medicaid	7.1% (23/324)	Medicaid	8.1% (11/135)
Mental health counseling-other	5.9% (19/324)	Day care/baby-sitting	8.1% (11/135)
Food pantry	5.2% (17/324)	GED preparation	7.4% (10/135)
English as a Second Language	5.2% (17/324)	Housing assistance/emergency shelter	6.7% (9/135)
		English as a Second Language	5.9% (8/135)
		Mental health counseling-other	5.2% (7/135)
<u>II. Service Referrals for Target Children</u>			
<u>Program Group</u>		<u>Control Group</u>	
Child primary care	40.4% (23/57)	Child primary care	27.8% (5/18)
Day care/baby-sitting	15.8% (9/57)	Medicaid	27.8% (5/18)
Medicaid	12.3% (7/57)	WIC	11.1% (2/18)
Immunization	7.0% (4/57)		
Early Intervention	5.3% (3/57)		

*Note. Program group participants accounted for 71.3% (381/534) of all postnatal service referrals made to 12 months postpartum for either mother or baby, whereas 28.7% of all such referrals (153/534) were made for control group participants. Among program group participants, 85.0% (324/381) of referrals were made for mothers whereas 15.0% (57/381) were made for babies; among controls, 88% (135/153) of all referrals were made for mothers and 12% (18/153) were made for target children.*

Table 22

(Table 042709B).

Frequencies of Selected Home Visit Log Activities During Postnatal Visits to 12 Months Postpartum, Separately By Program Versus Control Group

	<u>M(SD)</u>	<u>Median</u>	<u>Skewness</u>	<u>Range</u>
# of visits with discussion/ modeling of parent-child interaction	<u>P</u> : 20.4(11.3)	18.0	0.51	0-47
	<u>C</u> : 1.8(1.4) <i>t</i> (70)=-13.33, <i>P</i> <0001	2.0	0.68	0-5
# of visits with provision of child development information	<u>P</u> : 19.0(9.1)	18.0	0.57	0-48
	<u>C</u> : 1.7 (1.3) <i>t</i> (72)=-15.34, <i>P</i> <0001	1.0	0.63	0-5
# of visits with discussion of family functioning/ relationships	<u>P</u> : 15.1(12.2)	13.0	1.05	0-50
	<u>C</u> : 1.7(1.5) <i>t</i> (70)=-8.96, <i>P</i> <0001	1.0	0.67	0-5
# of visits with provision of child health and/or safety information <sup>a</sup>	<u>P</u> : 14.1(8.5)	12.5 / (12.5)	1.10 / (-0.27)	0-43 / (0-25)
	<u>C</u> : 1.4(1.2) <i>t</i> (77)=-15.57, <i>P</i> <0001	1.0	0.56	0-4
# of visits with discussion of education and/or employment	<u>P</u> : 10.6(8.8)	8.5	0.88	0-32
	<u>C</u> : 1.3(1.4) <i>t</i> (73)=-8.56, <i>P</i> <0001	1.0	0.81	0-4
# of visits with provision of support for parenting stress <sup>a</sup>	<u>P</u> : 7.3(7.8)	5.0 / (3.0)	1.77 / (0.21)	0-37 / (0-7)
	<u>C</u> : 0.4(0.8) <i>t</i> (76)=-10.69, <i>P</i> <0001	0.0 / (0.0)	1.89 / (1.01)	0-3 / (0-1)
# of visits with teaching of problem-solving/ decision-making skills <sup>a</sup>	<u>P</u> : 6.4(7.4)	5.0 / (2.0)	1.88 / (0.37)	0-33 / (0-5)
	<u>C</u> : 0.4(0.7) <i>t</i> (99)=-7.46, <i>P</i> <0001	0.0	1.50	0-2

	<u>M(SD)</u>	<u>Median</u>	<u>Skewness</u>	<u>Range</u>
# of visits with provision of basic infant care information (including feeding and food preparation) <sup>a</sup>	<u>P</u> : 6.2(5.3) <u>C</u> : 0.4(0.6) <i>t</i> (76)=-12.13, <i>P</i> <0001	4.0 / (4.0) 0.0 / (0.0)	1.39 / (-0.19) 0.84 / (0.45)	0-26 / (0-8) 0-2 / (0-1)
# of visits with help with crisis management/ problem resolution <sup>a</sup>	<u>P</u> : 2.6(4.9) <u>C</u> : 0.3(0.8) <i>t</i> (72)=-6.46, <i>P</i> <0001	1.0 / (1.0) 0.0 / (0.0)	4.62 / (1.24) 3.74 / (2.31)	0-34 / (0-9) 0-4 / (0-1)

*Note. M(SD)=mean(standard deviation). P=program group; C=control group. Home Visit Log activities are listed in descending order by average frequency of the activity in the program group. <sup>a</sup>Inferential tests were performed using re-coded variables, and descriptive statistics that are both italicized and in parentheses are for re-coded variables. Variables were re-coded in order to reduce skewness and therefore allow for valid inferential tests of program-control group differences to be conducted.*

*Table 23. Summary of Results of Multiple Regression Analyses for Selected Outcome Measures at 12 Months – Goal 3*

*Predicting Maternal Psychosocial Outcomes at 12 Months Postpartum*

*A. Maternal Perceived Parenting Burden* (4-item scale derived from the Parenting Stress Index)  
 [Adjusted R<sup>2</sup>=.278; F(9,136)=7.20, p<.0001]

<u>Predictor variables</u>	<u>Standardized partial regression coefficients</u>
Parenting Burden at 6 months	0.46****
Maternal/family issues at 12 months	0.23***
Mother married at intake	-0.19*

*B. Maternal Depressive Symptoms* (CES-D Total Score)  
 [Adjusted R<sup>2</sup>=.228; F(9,162)=6.61, p<.0001]

<u>Predictor variables</u>	<u>Standardized partial regression coefficients</u>
Depressive symptoms at intake	0.43****
Maternal/family issues at 12 months	0.22**

*C. Maternal Global Mastery* (Pearlin-Schooler Mastery Scale)  
 [Adjusted R<sup>2</sup>=.038; F(10,177)=1.73, p<.10]

<u>Predictor variables</u>	<u>Standardized partial regression coefficients</u>
Maternal/family issues at 12 months	-0.26**

*D. Maternal Perceived Social Support* (derived from the Maternal Social Support Index)  
 [Adjusted R<sup>2</sup>=.391; F(9,221)=17.44, p<.0001]

<u>Predictor variables</u>	<u>Standardized partial regression coefficients</u>
Maternal perceived support at intake	0.27****
Number of relatives seen weekly at 12 months	0.40****

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Table 24. Summary of Results of Multiple Regression Analyses for Selected Outcome Measures at 12 Months – Goal 4

I. Predicting Child Developmental Outcomes at 12 Months Postpartum

A. ASQ Composite Score at 12 Months

[Adjusted R<sup>2</sup>=.181; F(9,293)=8.39, p<.0001]

<u>Predictor variables</u>	<u>Standardized partial regression coefficients</u>
ASQ Composite Score at 6 months	0.39****
Maternal/family problems at 12 months	-0.19***
Family received AFDC/TANF between intake and 12 months	0.13*
Substance-affected family	-0.12 <sup>+</sup>

B. Bayley Mental Development Index at 12 Months

[Adjusted R<sup>2</sup>=.124; F(9,175)=3.88, p<.0001]

<u>Predictor variables</u>	<u>Standardized partial regression coefficients</u>
ASQ Composite Score at 12 months	0.36****
Target child is female	0.17*

C. Bayley Psychomotor Development Index at 12 Months

[Adjusted R<sup>2</sup>=.109; F(8,178)=3.84, p<.0001]

<u>Predictor variables</u>	<u>Standardized partial regression coefficients</u>
ASQ Composite Score at 12 months	0.33****
Substance-affected family	0.17 <sup>+</sup>
Mother's English proficiency	0.13 <sup>+</sup>

Note. ASQ=Ages and Stages Questionnaire. Inferential test is multiple regression with simultaneous entry of predictor variables.

\*\*\*\*=p<.0001 \*\*\*=p<.001 \*=p<.05 <sup>+</sup>p<.10

II. Binary Logistic Regression Analysis Predicting Some/Any Breastfeeding While in Hospital Following Delivery [Range adjusted  $R^2=.049-.073$ ;  $F(7,407)=20.47$ ,  $p<.01$ ]

<u>Predictor variables</u>	<u>Unstandardized partial regression coefficients (and standard errors)</u>
Mother's highest grade achieved in school (1-5 scale)	0.25(.13) <sup>†</sup>
Mother was exposed to the prenatal intervention	<b>0.97(.29)***</b>

*Note.* Inferential test is multiple regression with simultaneous entry of predictor variables.

\*\*\*= $p<.001$  † $p<.10$

III. Predicting Parent-Child Interaction Outcomes at 12 Months Postpartum

A. Cognitive-Emotional Growth-Fostering (12-item scale derived from the NCAST)  
[Adjusted  $R^2=.181$ ;  $F(7,92)=3.02$ ,  $p<.01$ ]

<u>Predictor variables</u>	<u>Standardized partial regression coefficients</u>
Cognitive growth-fostering at 6 months	0.31**
Mother's English proficiency	0.22*

B. Child Positive Responsiveness to Caregiver Contingency Scale (6-item NCAST scale)  
[Adjusted  $R^2=.309$ ;  $F(7,96)=7.58$ ,  $p<.0001$ ]

Child positive responsiveness to caregiver at 6 months	0.31**
Program group family	<b>0.31****</b>
<u>Presence of a second primary</u> caregiver for target child at intake	-0.20*

*Note.* Inferential test is multiple regression with simultaneous entry of predictor variables. \*\*\*\*= $p<.0001$

\*\*= $p<.01$  \*= $p<.05$

## AIA Final Report Appendix

### **A. Substance Use Questionnaires**

The first set of questions was asked of all mothers during the Kempe interview, as part of section 2.

1. During the 30-day period *just before* you found out you were pregnant, about how many (tobacco) cigarettes did you smoke?
2. During the 30-day period *just before* you found out you were pregnant, about how many times did you drink one  
or more alcoholic beverages (beer, wine cooler, liquor, etc.)?
3. During the 30-day period *just before* you found out you were pregnant, about how many times did you smoke marijuana, or “weed”?
4. What other drugs, if any, did you use during the 30-day period just before you found out you were pregnant?

The second set of questions was asked only of mothers who had already reported a possible history of problematic substance use on the Kempe and/or the DUSI. The questions covered Alcohol Use, Marijuana Use, Marijuana Use Problems Inventory, and Reasons for Marijuana Use. These questionnaires are attached in the Appendix.

#### 1. ALCOHOL

Have people ever annoyed you by criticizing your drinking or suggesting that you should cut down?  
Have you ever felt you ought to cut down on your drinking?  
Have you ever tried to cut down on your drinking and been unable to do so?  
Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?  
*Note:* Items adapted from Sokol, Delaney-Black, & Nordstrom, 2003.

Estimate the following for: the month or so before pregnancy, and during pregnancy.

Number of times per month that you drank 5 or more drinks on one occasion  
Number of times per month that you drank 3-4 drinks on one occasion

Number of times per month that you drank just 1-2 drinks on one occasion  
Did you drink alcohol almost every day, even if only a small amount?  
*Note.* Source: Barr & Streissguth, 2001.

#### 2. MARIJUANA

How old were you the very first time you tried marijuana?  
During the 30 days or so before you found out that you were pregnant, how often did you use marijuana?  
Never            1-3 times            several times per month    several times per week    nearly every day  
During your pregnancy (*after* you found out that you were pregnant), how often did you use marijuana?  
Never            1-3 times            several times per month    several times per week    nearly every day  
When was the last time (most recent occasion) that you smoked marijuana?

#### MARIJUANA USE PROBLEMS INVENTORY

Circle a number from 1 to 4 to show how often each one happened to you in the past during the *most recent* period of time when you were using marijuana on a regular basis.  
Circle a 1 if it Never Happened, a 2 if it Happened One Time, a 3 if it Happened Two Times, and a 4 if it

Happened More Than Two Times.

You had trouble controlling *the amount* of marijuana you smoked; you smoked more marijuana than you intended to.

You had trouble resisting marijuana when it was offered to you.

You tried to stop smoking marijuana or to cut down, but you couldn't.

You felt physically sick after you stopped smoking marijuana for a day or longer.

You had trouble sleeping after you stopped smoking marijuana for a day or longer.

You lost your appetite for food after you stopped smoking marijuana for a day or longer.

You were bothered or annoyed by things more easily than usual after you stopped smoking marijuana for a day or longer.

You had more of a temper, got mad more easily after you stopped smoking marijuana for a day or longer

You were more nervous, more afraid of things than usual after you stopped smoking marijuana for a day or longer.

You noticed your heart was beating faster or more strongly than usual after you stopped smoking marijuana for a day or longer.

#### REASONS FOR MARIJUANA USE

During the most recent period of time when you were using marijuana on a regular basis, how often did you use it in order to:

(Circle a number from 1 to 5 to show how often each reason for using marijuana was true for you in the past when you were using marijuana on a regular basis. 1=Never 2=Rarely 3=Sometimes 4=Usually/Most of the Time 5=Always.)

Feel more self-confident around other people.

Relax.

Forget about my problems or worries.

Cheer up when I was in a bad mood.

Calm down when I was feeling nervous or "stressed out".

Calm down when I was feeling angry.

Help me sleep.

Help me concentrate (pay attention) better.

Help me forget about things I didn't want to think about.

## B. Logic Model Linking Intensive Home Visiting to Prevention of Abandonment and Out-of-Home Placement

**Logic Model Linking Intensive Home Visiting to Prevention of Abandonment and Out-of-Home Placement**

<b>Goals/Objectives</b>	<b>Activities/Interventions</b>	<b>Outputs/Products</b>	<b>Outcomes/Results</b>
<b>Identify, engage, and enroll families affected by substance abuse</b>	<p>Initial outreach</p> <ul style="list-style-type: none"> <li>- Screen</li> <li>- Interview with the Kempe &amp; DUSI</li> </ul> <p>Enrollment</p> <ul style="list-style-type: none"> <li>- Match with FSW</li> <li>- FSW makes home visit to engage and enroll participant, sign consent form</li> </ul>	<ul style="list-style-type: none"> <li>• # of screens completed</li> <li>• # of interviews completed</li> <li>• # contacts</li> </ul>	<p># of substance affected families increases over time</p> <p># of families receiving support visiting services</p>
<b>Provide supportive services to families</b>	<p>Service Provision</p> <ul style="list-style-type: none"> <li>- Make regular home visits using the HFA and Harm Reduction models to provide culturally responsive interventions</li> <li>- Assess needs of families</li> <li>- Make referrals based on needs assessment</li> <li>- Follow-up on referrals and advocate if necessary</li> </ul>	<ul style="list-style-type: none"> <li>• # of home visits/contacts</li> <li>• content of contacts</li> <li>• # referrals for service by type</li> </ul>	Receipt of services
<b>Enhance family functioning and reduce potential harm of prenatal drug exposure</b>	<p>FSW builds relationship with family</p> <ul style="list-style-type: none"> <li>- Use harm reduction methods in working with family</li> <li>- Show video of effects of drug exposure in utero</li> </ul> <p>- Assess and address maternal psychosocial issues (depression, feelings of competence, etc)</p> <p>- Encourage mother to reduce potential harmful effects of her drug use</p> <p>- Improve support system by working with other family members and referring if necessary</p> <p>- Link family to community services- non-medical</p> <p>- Encourage mother to become self-sufficient by discussing and referring for – education, training, employment, daycare, etc.</p> <p>- Address violence in the home</p>	<ul style="list-style-type: none"> <li>• Family provided with information about harmful effects of drug use</li> <li>• Family prepares safety plan for infant</li> <li>• Family views video on drug effects on fetus</li> </ul> <p>Information provided about:</p> <ul style="list-style-type: none"> <li>• Substance abuse treatment</li> <li>• Mental Health/Counseling</li> <li>• Employment, education, training opportunities</li> </ul> <ul style="list-style-type: none"> <li>• Discussion of family relations</li> <li>• Crisis management/problem resolution</li> </ul> <p>Referrals made for services:</p> <ul style="list-style-type: none"> <li>• For mother – mental health, substance abuse, education, job training, employ, counseling, daycare, DV</li> <li>• For other family members-substance abuse, education, job training, employment, counseling, daycare, DV, etc.</li> </ul>	<p>Outcome Measures:</p> <p>Mother or other using drugs less</p> <p>Safety plan is activated</p> <p>mother/other is using drugs</p> <p>Mothers less depressive symptoms</p> <p>CES-D</p> <p>Mothers exhibit more mastery of</p> <p>Support System is stronger r</p> <p>by MSSl (global support)</p> <p>Alternate caregiver available</p> <p>Mother received necessary services</p> <p>Other family members necessary services</p>
<b>Promote healthy child development and positive parent-child interaction</b>	<ul style="list-style-type: none"> <li>- Link mother and target child to medical care provider</li> <li>- Prepare mother for childbirth and breastfeeding</li> <li>- Encourage and support mother (doula) throughout labor and delivery</li> <li>- Encourage &amp; support mother to breastfeed</li> </ul> <p>- Provide soft baby carrier (snuggli or Baby Bjorn) after birth to calm infant</p>	<p>Information provided about:</p> <ul style="list-style-type: none"> <li>• Pregnancy or prenatal care; Basic infant care</li> <li>• Health care &amp;/or child health safety</li> <li>• Child development and age appropriate behavior</li> <li>• Parent-Child Interaction</li> <li>• Child management/discipline; Support for parenting stress</li> </ul> <p>Mother/other family member carrying infant in soft baby carrier – frequency and by whom</p>	<p>Outcome Measures</p> <p>Method of feeding at discharge hospital (breast vs bottle)</p> <p>Quality of parent-child interaction</p> <p>NCAST Videotape of Teaching Ainsworth Strange Situation (measure of attachment)</p> <p>Reduction in parenting stress</p> <p>PSI – Parenting Burden scale</p>

	<ul style="list-style-type: none"> <li>- Provide activities for bonding and parent-child interaction</li> <li>- Provide information about parenting, discipline and child management</li> <li>- Provide support to mother to reduce stress</li> <li>- Provide parenting, support &amp;/or psycho-educational groups</li> <li>- Assess child development with ASQ and Bayleys</li> <li>- Make referrals to Early Intervention</li> </ul>	<p>Relevant referrals made:</p> <ul style="list-style-type: none"> <li>• WIC Lactation Clinic</li> <li>• BB support and parenting groups</li> <li>• Primary care provider</li> <li>• Early Intervention Services for child</li> </ul>	<p>Child's Cognitive &amp; Motor Deve.  Bayley scores  ASQ scores  Early Intervention services rece</p>
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MAR 26 2010

*Alianza Dominicana, Inc.*  
2410 Amsterdam Ave. 3<sup>rd</sup> floor, New York, N.Y. 10033  
Tel: (212)923-5440 Fax: (212) 740-7024

March 22, 2010

Ms. Patricia Campiglia  
Children's Bureau Portals Office Building  
Suite 800  
1250 Maryland Avenue, SW  
Washington, DC 20024

Dear Ms. Campiglia

Please find enclosed ~~Final Report~~ for contract #:90CB-0137/02 Best Beginnings Plus.

Allow me to thank you and the Children's Bureau beforehand for your support and the opportunity to better serve children and families in our community.

Should you have any questions please call Ms. Milagros Batista at 212-740-1960 Ext.3674 or Ms. Rosa Morel at 212-740-1960 Ext. 3656. Thank you again!

Sincerely,

Rosa Morel, MSW  
Program Director

