Kent County Prevention Initiative Evaluation 2008

Executive Summary

SRA International, Inc.
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1 OVERVIEW OF PREVENTION INITIATIVE

In 2000, Kent County made a long-term commitment to improving the well-being of children and families through the establishment of the Kent County Prevention Initiative (KCPI). The County established three areas of focus in which to invest resources for prevention activities: primary prevention family support services, early intervention for children at risk of abuse or neglect, and primary, secondary and tertiary substance abuse (SA) services. As such, beginning in 2003 the KCPI began providing expanded funding to four strategic programs: two primary prevention family support programs, Healthy Start (HS) and Bright Beginnings (BB); one child abuse and neglect early intervention program, Early Impact (EI); and one family focused substance abuse early intervention program, Family Engagement Program (FEP).

Included in the County's vision for prevention is the necessary investment in evaluation of prevention activities, to determine the short-and long-term effectiveness of the KCPI and identify areas where the Initiative could be strengthened as it evolves and matures. Figure 1 depicts the overall vision and logic of the KCPI design. As illustrated, the KCPI's four component programs are expected to produce certain immediate outcomes in the targeted participants that lead to other longer term community level outcomes with the ultimate goal of reducing the burden of youths and families engaged in costly education, justice, mental and physical health services.

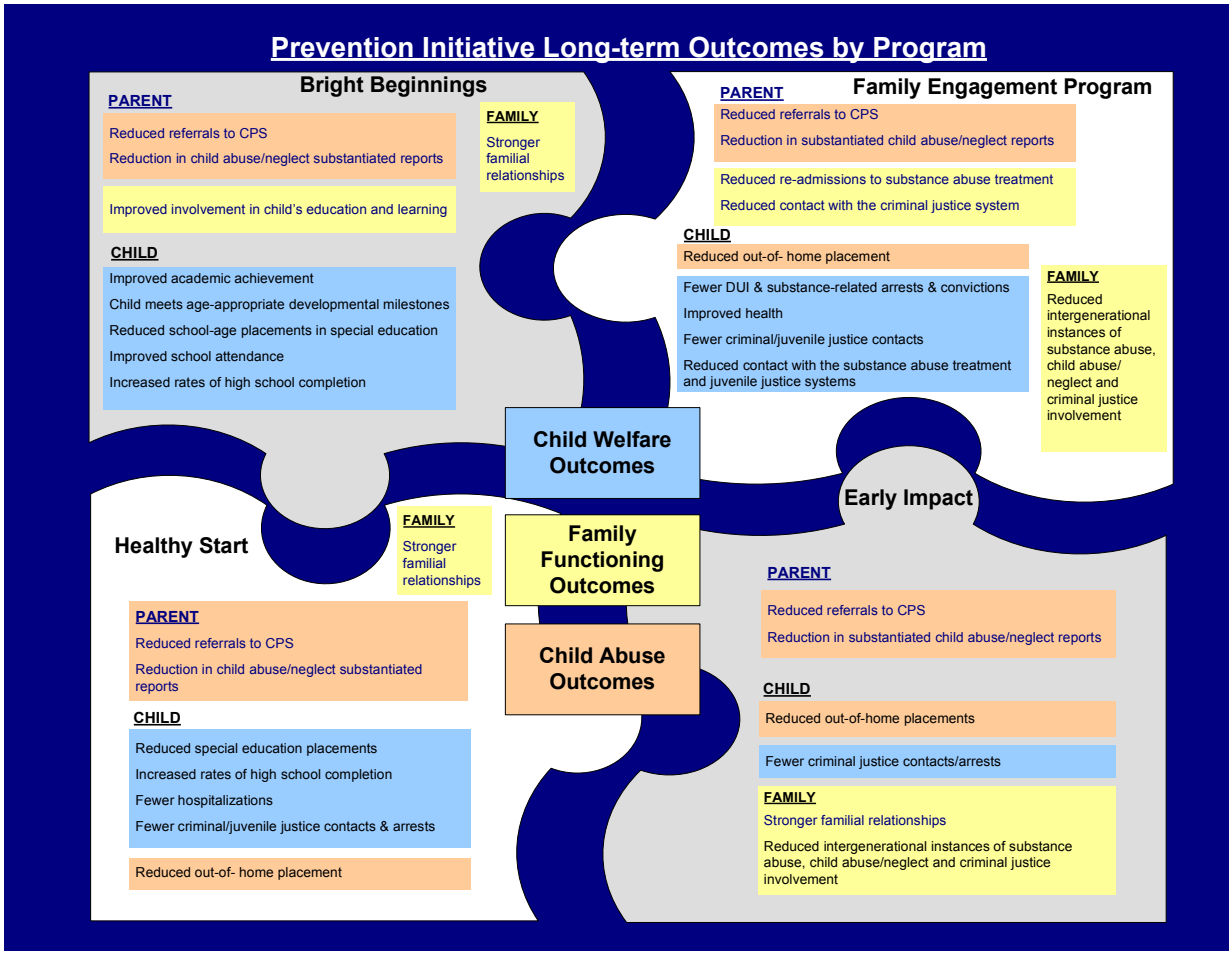

Figure 1

1.1 Summary of Evaluation Findings

1.1.1 Demographics

Overall, the Kent County Prevention Initiative served 6138 mothers and 9748 children, with 106 (1.7%) participants served by more than one PI program during our reporting period. Close to half of the participants (45%) were in their thirties, and a third in their twenties. Two-thirds of the PI population was Caucasian, with twice the number of African American than Hispanic minorities. There was no notable trend in employment, and it varied considerably between programs. About half of the PI participants reported incomes below $20,000/ year, while a quarter reported over $50,000. The distribution between the programs was noticeably varied among the lower and upper income categories. A little over half of the PI participants reported a high school diploma or below and over half of the PI population reported being married or having a live-in partner. The hetereogeneity of the populations both within and between the PI programs emphasizes the need to target resources for the more intensive services for those populations who are demographically at risk

1.1.2 Outcomes

Process evaluation found that for each PI program services are being implemented as intended. All of the programs showed at least some positive findings for their individual program goals and objectives. There remains some work to be done in unifying the data collected between programs, as well as modifying some goals and objectives based on the availability and quality of data available to evaluate (described in each program section). Notably positive findings included:

Healthy Start

- Of individuals assessed (n=325) and found to be at risk, 99% (323) accepted HS services.
- It is encouraging that that less than 10% of participants who terminate do so from the most intensive home visiting service level (weekly home visits).
- Overall, approximately 50% of HS participants exited the program achieving positive outcomes and/or graduating meeting all program goals.

Bright Beginnings

- Findings indicated parents completing services perceived themselves as having an increased understanding of their child's growth and development, increased knowledge of appropriate parenting skills and appropriate adult/child interactions.
- 100% of children receiving home visits during this evaluation year were screened using the Ages and Stages Questionnaire (ASQ) and 96% were meeting age-appropriate developmental milestones.

Early Impact

- EI reported 85% of participants engaged in more than three units of service.
- Overall, 56% of participants completed services with positive Stages of Change movement in their primary, secondary or tertiary goal.

Family Engagement Progam

- Perception of shelter/living environment, consisting of stable housing, a safe environment, and a clean and orderly home, has a statistically significant increase for both mothers and therapists across all time periods in the FEP program.
- Data shows over 50% of clients are engaged from baseline to six months and of those engaged, 85% report keeping appointments.
- Clients report satisfaction with FEP services at over 95%

1.1.3 Impact

There is an important consideration to bear in mind when interpreting EY1 impact findings related to the temporality of intervention participation and impact measurement. Specifically, the EY1 cohort is comprised of all participants who were enrolled in PI programs from July 2007 to July 2008, which theoretically spans individuals who received one day of service to potentially multiple years of service. Concurrently, the EY1 Impact variables were collected during this same time period, so there is no way to establish temporality between involvement in the PI programs and the impact findings. Taking immunizations as an example, it is possible that the 17% of HS participants that did not have their immunizations up to date were those that joined HS at the end of EY1 and thus would have had no time to show program impact. This consideration will only be an issue for EY1, as we are keeping this same cohort and following them over time, so that EY2 will provide us with a much clearer representation of the intervention impacts.

Keeping this in mind, there were several significant findings in both positive and negative directions for impact measures, including (all are in relation to their individual comparison groups):

- Reduced rate of ED usage for HS, BB & EI programs
- Lower rate of immunizations among HS, BB, and EI participants
- Higher rate of Special Education among BB participants
- Increase rate of adult arrests for FEP

2 METHODS

In 2006, prior to determining the County's long-term return on investment for these programs, SRA conducted a community assessment of rates of child abuse and neglect over the past 20 years in Kent County; individual program assessments of PI program data[1] between 2000 and 2005; a child-safety assessment to determine the prevalence of substantiated child abuse and neglect among participants in the PI programs; and a review of the literature on evidence-based practices among analogous programs. Results from these assessments are detailed in SRA's Executive Summary from the 2006 Short-term Evaluation Report.

[1] IPAs conducted on all PI programs except FEP, conducted by Calvin College

The design of the KCPI evaluation includes an annual evaluation of each program's demographic and services data, production of cross-program demographics, annual querying and analysis of primary and secondary outcome indicators (i.e. child welfare, child abuse, and family functioning), and an economic evaluation study to determine the impact of the KCPI programs on public budgets in Kent County and, more generally, on society at large. Given the nature of these programs and the impact variables chosen, we do not expect to report substantial findings within this first year, and have concentrated more on selection of the comparison group and successful receipt and matching of the external data sources.

2.1 Data

It should be noted this is the first full year of KCPI evaluation and program data was collected from July 1, 2007 through June 30, 2008. Each program provided their data to the Kent County Health Department (KCHD) for participant records for the Evaluation Year 1 (EY1) timeframe. Participant data records were assigned a unique identifier code (UIC), de-identified and formatted in Access and Excel tables by the KCHD for use in SRA's analyses. To maintain program participant confidentiality, all data provided by programs was de-identified prior to receipt by SRA. Data analyses were conducted using SAS 9.1 and Microsoft Excel 2003. Analytical methods included descriptive statistics, such as means, ranges, frequencies, percentages, and standard deviations. All data was analyzed by year and provider and examined for trends and/or differences, and then aggregated for reporting purposes where none were found.

The long-term impact evaluation employs a quasi-experimental longitudinal study design using four separate naturalistic comparison groups. The use of comparison groups, rather than just measuring change among PI participants over time, will enhance the probability that the outcomes can be attributed to program effects versus other outside factors. Given the nature of these programs and the impact variables chosen, we do not expect to report substantial findings within this first year, and have concentrated more on selection of the comparison group and successful receipt and matching of the external data sources.

2.2 Comparison Groups

For Healthy Start (serving children 0-3) and Bright Beginnings (serving children 0-5), a matched population-level comparison was created using the Kent County Birth Certificate Records database. This comparison group is optimal because participants in these two programs have no defining eligibility or risk factors that would differentiate them from the population at large.

For Early Impact, eligible participants who had unconfirmed cases of abuse and neglect, but refused EI services were used. The general population is not suitable for this program due to the likely confounding characteristics of families that have come to the attention of CPS. This group gives us the greatest likelihood of controlling for as many possible factors other than EI program participation that are likely to influence our outcomes of interest.

For the Family Engagement Program, the methodology used in EY1 was to identify comparison group individuals from a tertiary family substance abuse prevention program at Network180 for women with children receiving an alternate or "standard" treatment, compared with the intensive case management intervention (ICM) approach of the FEP. Participants in this program had very specific characteristics (i.e., women with children who have DSM-IV diagnosis for SA). Though in theory this was a suitable comparison group, Network180 does not consistently, if at all,

collect child-level data for the standard treatment clients and creating a child-level comparison group was not possible. Thus, child-level impact measures could not be assessed for FEP comparison group. Where possible, SRA has included adult-level comparisons for the FEP program participants and will create a viable methodology for FEP's comparison group creation during 2009.

For the long-term impact analysis, the Kent County Health Department (KCHD) coordinated the collection, de-identification, and matching of data from the following external sources:

Child Outcomes

- Kent Intermediate School District (KISD) (Education)
- Juvenile Justice Database (Juvenile Justice)
- Department of Human Services data warehouse (Child Welfare)
- Juvenile Justice database (Youth Substance Abuse)
- Michigan Care Improvement Registry (MCIR), Hospital records (Child Health)

Adult (Participant) Outcome Domains

- DHS Bridges database, Sheriff Correctional facility (Adult Welfare)
- Court records (Parental Substance Abuse)

2.3 Programs

Healthy Start (HS) began in 1995 with the goal of providing support and resources to serve parents in Kent County. All HS services are free and voluntary, and families can either self-refer or are referred from the major hospitals, clinics, and health care providers in Kent County. The eligibility criteria for participation in the HS program include:

- Parent resides in Kent County
- 1st time parent or 1st time parenting biological child for mother
- Mother at least in 2nd trimester of pregnancy or baby less than 3[2] months old
- Parent has baby in their care
- Parents do not have open CPS case or Category 1 or 2 substantiation
- Parents do not have duplicative services in their home

HS services include assessment, phone support, and/or home visitations with the goal of providing information and resources related to issues such as infant care, immunizations, child development and basic and support services. The intensity of service is dependent upon the service levels which range from weekly (Level 1) to quarterly (Level 4) for the home visit (HV) component or bi-monthly phone calls for the phone support (PC) component. Phone support services are available through the child's first year of life, and home visitation can be provided through the child's third birthday.

The HS contract is held by the Child & Family Resource Council (CFRC), the services are provided by four entities: 1) the Kent County Health Department (assessment only); 2) CFRC (phone support services); 3) Catholic Social Services (home visitation services) and 4) Arbor Circle (home visitation services).

Bright Beginnings (BB) is a county-wide Early Childhood (birth to five) program with the goal of ensuring children enter kindergarten with the skills necessary for success. BB utilizes the

[2] Healthy Start amended their service population to include babies less than 6 months old in 2006.

international *Parents as Teachers* curriculum to provide home-visiting services, complete developmental screenings, and host play groups and parent meetings. The program works collaboratively with families to enhance parenting and early literacy skills, with its primary purpose being school readiness upon kindergarten entry.

BB provides universal services to any family within the Kent Intermediate School District (KISD) with children aged prenatal until kindergarten entry. All services are free and voluntary and most families are self-referred through word of mouth, with some referrals from local county agencies. At the time a child is enrolled in the program, Parent Educators contact families to discuss program components and match the services to the families' needs. Families choose the service level that will best meet their needs as follows:

- Level 1: Weekly home visits; Developmental screenings, playgroups/parent meetings, monthly newsletter
- Level 2: Bi-weekly home visits; Developmental screenings, playgroups/parent meetings, monthly newsletter
- Level 3: Monthly home visits; Developmental screenings, playgroups/parent meetings, monthly newsletter
- Level 4: Playgroups/parent meetings, monthly newsletter
- Level 5: Monthly newsletter

Early Impact (EI) was launched in 1996 to provide assessment and services for families who are referred to CPS and either do not warrant an investigation, or are investigated and found to be CPS ineligible. The target population for this program is all families who are referred to CPS but do not receive Category 1 or 2 dispositions. The program serves families with children between the ages of zero to eighteen.

The Kent County Department of Human Services (DHS) / Family Independence Agency (FIA) is the contract holder for EI, and subcontracts with four provider agencies: Arbor Circle (AC), Family Outreach Center (FOC), Catholic Social Services (CSS), and Lutheran Child and Family Services (LCFS).

The services provided include a face to face contact and risk assessment for all cases that do not warrant a CPS investigation (Cat P21), and a P21 risk assessment for the ineligible cases that were investigated by CPS (Cats III and IV). Once risk is established and services are accepted, therapists from one of the four contracting agencies works with the families to develop goals as part of their individual service plans. Services provided include direct counseling, case management, and basic and support services.

Family Engagement Program

The Family Engagement Program (FEP) began in 2004 with the goal of providing long-term, intensive case management services to mothers with a substance use disorder (SUD) history and their children in Kent County. Services provided include assessments, family and individual treatment planning, collateral care coordination and follow-up services.

A logic model was created to map program resources and activities to the desired outputs and outcomes (see Appendix B). The logic model was developed collaboratively with and approved by FEP management, and was used to guide the development and interpretation of the individual program assessment (IPA) evaluation. The key elements utilized in the IPA evaluation (e.g., target population, activities, and goals and objectives) are expanded upon below.

The FEP program is evaluated by both SRA and Dr. Fred De Jong (Grand Valley State University). Dr. De Jong's evaluation is designed to closely monitor participant and household change among program participants using a Mother's Checklist, Family Status Report, and a Children's Checklist. The instruments, designed by Dr. De Jong, record the mother's self-report on markers of success, rated on a five point scale from zero to four (ranging from *never* to *regularly*). The findings from Dr. De Jong's Family Engagement Program 2008 Annual Evaluation Report are cited in this section and represent findings for the program from its inception in 2004. SRA is using these summative findings in Year 1, as findings from the EY1 timeframe would be too limiting for this initial year. Going forward, SRA will coordinate with Dr. DeJong to limit the findings to the prevention initiative cohort's findings only.

The eligibility criteria for participation in the FEP program include women identified as having a DSM-IV diagnosis of substance abuse or dependence (must have at least one child living in the home age six-17). While the contract is held by Network180 (N180), the services are provided by two entities: Arbor Circle and Family Outreach Center. FEP is designed to deliver clinical services to the family and to the individual family members. The Family Engagement Therapist (FET) conducts an assessment of the family system and facilitates the design of a treatment plan to address the identified needs of the family. In the course of the family assessment, the individual family members are screened for mental health and substance use disorders. If the mother is referred to another provider, the FET will serve as the clinical coordinator. If a family member, other than the mother, has an identified need for assessment/treatment, the FET refers the family member to another provider, and functions as the clinical coordinator. FEP develops a family-focused treatment plan, provides in-home family therapy, case management services, discretionary funds used to assist with the basic needs identified by the FET or the case managers and referrals to community services.

FEP's two main goals seek to sustain a mother's recovery and parenting skills, while also supporting the development and education of her children into productive adult roles in society. To support these goals, the program identified the following short-term outcomes:

- Client remains engaged, keeping appointments with FEP workers
- Client working toward treatment plan goals
- Client enrolled in substance abuse treatment, keeping appointments and participating in treatment activities
- Client has satisfaction with FEP and substance abuse treatment program
- Client completes treatment, maintains abstinence, and shows improved family and psychosocial functioning and other treatment plan goals achieved at case closure
- Client's children risk is reduced
- Client's children show improved child psychosocial functioning

3 CROSS-PROGRAM DEMOGRAPHICS

3.1 Cross-Program Involvement

A total of 102 (1.7%) participants were served by more than one PI program during our reporting period (there were 100 participants in 2 programs and 2 participants in 3 programs). The most prevalent overlap was EI and BB, followed by HS & BB. FEP had the lowest overlap with any of the other three programs, although the small sample size in FEP means that the proportion of participants involved in EI (9%) may be worth noting for future follow-up. A detailed list of cross-program involvement is provided below:

- **HS and BB 34**
- **HS and EI 12**
- **BB and EI 42**
- **BB and FEP 2**
- **EI and FEP 10**
- **HS, BB and EI 2**

3.2 Cross-Program Demographics

The following tables represent the demographic data across the four programs. It is important to note that these programs serve different populations with different service models by design, so the data should not be used to compare between the programs but to better understand the full spectrum of participants reached across the entire PI.

Overall, the PI served 6138 mothers and 9748 children. Close to half of the participants (45%) were in their thirties, and a third in their twenties. Two-thirds of the PI population was Caucasian, with twice the number of African American than Hispanic minorities. Overall, the PI served a greater proportion of minorities than is found in the general Kent County population (31% v. 20%) with about three times the number of minorities in HS home visits, EI, and FEP compared to the general population. There was no notable trend in employment, and it varied considerably between programs. About half of the PI participants reported incomes below $20,000/ year, while a quarter reported over $50,000 over. The distribution between the programs was noticeably varied among the lower and upper income categories. A little over half of the PI participants reported a high school diploma or below, and the distribution was similar between HS and BB as well as between EI and FEP. Lastly, over half of the PI population reported being married or having a live-in partner.

3.2.1 Population served

Table 3.2.1: Number Served

	HS (mothers)	BB (families)	EI (participants)	FEP (mothers)	PI Overall
Participants	1440	3019	1567	112	**6138**
Children	1464	4042	4016	226	**9748**

It should be noted that participants are defined differently for each program. HS and FEP participants are mothers, while BB participants are the children, and EI participants can be a parent, relative, or guardian associated with a CPS referral.

3.2.2 Participant & Children Age

Table 3.2.2A: PI Participants Age

Age	HS HV (mother)	HS PC (mother)	BB HV (mother)	BB PG (mother)	EI (participants)	FEP (mother)	PI Overall
<=19	31%	1%	1%	4%	1%	0%	**6%**
20-29	59%	63%	21%	18%	33%	17%	**35%**
30-39	9%	34%	67%	68%	39%	52%	**45%**
40-49	0%	2%	11%	10%	21%	25%	**12%**
>= 50	0%	0%	0%	1%	6%	6%	**2%**

Table 3.2.2B: PI Children's Age

Child Age	HS HV	HS PC	BB HV	BB PG	EI (participants)	FEP (mother)	PI Overall
0-3 years	100%	100%	92%	86%	19%	8%	**68%**
4-7 years	0%	0%	8%	14%	23%	20%	**11%**
8-12 years	0%	0%	0%	0%	26%	36%	**10%**
13-18 years	0%	0%	0%	0%	27%	31%	**10%**
18+	0%	0%	0%	0%	5%	5%	**2%**

3.2.3 Participant Race

Table 3.2.3: PI Participant Race

Race	HS HV (mother)	HS PC (mother)	BB HV (child)	BB PG (child)	EI (participants)	FEP (mother)	PI Overall	Kent County[3]
Caucasian	47%	89%	80%	85%	60%	50%	**69%**	**80%**
African American	19%	3%	2%	0%	22%	37%	**14%**	**9%**
Hispanic/Latino	27%	3%	11%	7%	15%	0%	**11%**	**7%**
American Indian, Eskimo, or Aleut	0%	0%	0%	1%	1%	6%	**1%**	**0%**
Asian/Pacific Islander	2%	4%	5%	3%	1%	1%	**3%**	**2%**
Multiracial	5%	1%	2%	1%	1%	6%	**3%**	**2%**

[3] Community Research Institute data from U.S. Census Bureau, Census 2000 Summary http://www.cridata.org/tmm_counties_MI_pop.aspx?ID=26081

3.2.4 Participant Employment

Table 3.2.4: PI Participant Employment

Employment	HS HV (mother)	HS PC (mother)	BB HV (child)	BB PG (child)	EI (participants)	FEP (mother)	PI Overall
At home w/child	0%	0%	62%	52%	0%	2%	**19%**
Full-time	2%	44%	11%	12%	34%	7%	**21%**
Medical Leave/Disability	25%	10%	0%	0%	0%	0%	**4%**
Part-time	14%	23%	27%	33%	17%	7%	**19%**
Unemployed-Looking	10%	2%	0%	3%	0%	56%	**16%**
Unemployed	47%	11%	0%	0%	49%	22%	**19%**
Unknown	2%	10%	0%	0%	0%	6%	**3%**

3.2.5 Participant Household Income

Table 3.2.5: PI Household Income

Income	HS HV	HS PC	BB HV	BB PG	EI	FEP	PI Overall
Under $10,000	43%	1%	2%	2%	28%	49%	**21%**
$10,000-19,999	34%	2%	13%	4%	32%	42%	**21%**
$20,000-29,999	12%	5%	4%	4%	16%	5%	**8%**
$30,000-39,999	6%	10%	20%	8%	10%	1%	**9%**
$40,000-49,999	2%	10%	9%	11%	6%	0%	**6%**
$50,000 and over	3%	70%	51%	71%	9%	3%	**35%**

3.2.6 Participant Education

Table 3.2.6: PI Participant Education

Education	HS HV (mother)	HS PC (mother)	BB HV (mother)	BB PG (mother)	EI (participants)	FEP (mother)	PI Overall
No high school	6%	0%	6%	1%	5%	2%	**3%**
Some high school	26%	0%	3%	5%	24%	34%	**15%**
High school diploma/GED	42%	13%	17%	10%	36%	47%	**28%**
Some college	17%	19%	25%	22%	27%	12%	**20%**
Associates degree	2%	11%	4%	6%	0%	1%	**4%**
Bachelors degree	5%	39%	30%	37%	9%	5%	**21%**
Some graduate school	0%	2%	0%	0%	0%	0%	**0%**
Masters degree	0%	16%	14%	17%	0%	0%	**8%**
Doctorate degree	0%	0%	0%	1%	0%	0%	**0%**
Unknown	2%	0%	0%	0%	0%	0%	**0%**

3.2.7 Participant Marital Status

Table 3.2.7: PI Participant Marital Status

Marital Status	HS HV (mother)	HS PC (mother)	BB HV (mother)	BB PG (mother)	EI (participants)	FEP (mother)	PI Overall
Single	48%	3%	9%	8%	15%	48%	**22%**
Married	17%	90%	90%	91%	13%	17%	**53%**
Divorced	1%	0%	1%	1%	28%	19%	**8%**
Live-In Partner	34%	7%	0%	0%	9%	5%	**9%**
Separated	1%	0%	0%	0%	34%	4%	**7%**
Widowed	0%	0%	0%	0%	2%	2%	**1%**
Unknown	0%	0%	0%	0%	0%	6%	**1%**

3.2.8 Participant Primary Language

Table 3.2.7: PI Participant Primary Language

Language	HS HV (mother)	HS PC (mother)	BB HV (child)	BB PG (child)	EI (participants)	FEP (mother)	PI Overall
English	78%	96%	85%	93%	91%	98%	**90%**
Spanish	14%	2%	15%	4%	8%	2%	**8%**
Bilingual	0%	0%	0%	2%	0%	0%	**0%**
Other	8%	2%	0%	1%	1%	0%	**2%**

4 FINDINGS FROM PROGRAM EVALUATIONS

It is important to note that while program did not meet all of their self-defined program goals objectives, this is to be expected when working with high needs populations that often have competing priorities that may mask program effectiveness. For example, if a family is struggling to keep their electricity on or buy groceries then attending a well-baby check-up is not likely to be a priority. The value of this type of data is to allow the program to develop methods to better understand the barriers to meeting certain objectives, which can then be used to improve and tailor program offerings as needed. As with all public service programs there is always room for improvement and growth, which can be guided and shaped as this evaluation continues over time.

4.1 Healthy Start

During this reporting period, HS served 1440 mothers (1464 children). Demographics of mother's participating in the HS program varied between the home visiting (HV) and phone call (PC) components, with the HV participants emerging as a higher need population than PC participants. Specifically:

- **Age:** The mean age of the HV participants was younger at 22 years, compared to 29 for PC and only 1% of PC participants were teen mothers, compared to 31% of HV participants.
- **Race:** PC population was 90% Caucasian; with 52% and 43% Caucasian for CCWM and AC respectively
- **Employment:** The proportion of full-time and part-time workers comprising about two-thirds of the PC compared with between 10-16% for HV. Over 30% of the HV

participants described as unemployed and not looking compared with only 10% of the HSPC

- **Income:** 43% of HV participants reported an income of under $10K, while PC reported only 1% of participants under $10K and over 60% of PC participants reported incomes of over $50K compared with 4% or less of the HV participants.

The distribution of education levels mirrored those seen in the income trends, with 87% of the PC participants reporting some college or higher, and over 70% of the HV participants reporting less than a high school degree. Close to half of HV participants reported being single parents compared with only 3% of PC participants. In addition, a third of HV participants reported they were living together with a partner but not married, compared to only 7% of PC participant.

Process evaluation found that HS services are being implemented as intended. Notably:

- Of individuals assessed (n=325) and found to be at risk, 99% (323) accepted HS services.
- The average length of service for the overall HS program was 8 months, and ranged from 1 to 46 months.
- It is encouraging that that less than 10% of participants who terminate do so from the most intensive home visiting service level (weekly home visits).
- Overall, approximately 50% of HS participants exited the program achieving positive outcomes and/or graduating meeting all program goals.

Evaluation of the HS's goals and objectives yielded some positive outcome findings, as well as areas for further programmatic investigation and data quality enhancements. On the positive:

- 92% of HS children receiving an Ages and Stages Questionnaire (ASQ) in Year 1 were meeting age-appropriate developmental milestones
- The majority of children with suspected delays were referred to appropriate services and parents were following through on these referrals
- Participants expressed a high level of satisfaction with HS services (96% of survey respondents indicated HS was a useful program)

Areas in which further programmatic investigation is warranted included:

- Approximately 25% of children receiving HV services had no record of any immunizations received[4]
- Approximately 25% of active participants reported their children did not have a primary health care provider
- Parents reported a substantial percentage of children not receiving any well-baby visits (HV providers 27% and 58%; PC 31%)

One point to consider is that if over 95% of the HS service population were meeting all of the program goals and objectives then the need for the program would likely come in to question. There are some very encouraging statistics to keep in mind such as the fact that this program is

[4] HS relies on parent self-report to measure this objective

able to engage families for an average of one year's time and be in their homes affecting the lives of their children. The parents also report high satisfaction with the program and a perceived change in their parenting behavior. HS has real opportunities to increase their reach and effectiveness if the reasons are better understood as to why families are lost in the initial assessment process and are terminated before reaching all program goals. Interesting analysis could also be conducted to look at dose effects, such as what length of service best correlates to meeting the program's objectives of interest. Overall the take home message is that HS is serving many families considered to be of high risk for an extended period of time and is providing them with information and tools to support the physical, mental, and emotional development of their children.

4.2 Bright Beginnings

During this reporting period, BB served 4042 children (3019 families); 637 unique children received home visiting (HV) and/or playgroups (PGs), 672 unique children attended playgroups only, and 2733 unique children were newsletter only recipients. There was little differentiation between HV and PGs groups. Findings for BB demographics included:

- **Age:** Mean age of participating mothers for home visiting services was 34 years old, with the majority of mothers (64%) within the 30-39 age group, followed by 20% between ages 20 to 29. Mean age of children served was 2 ½, while in home visiting services the mean age was 1 and children in playgroups was 1½ years of age
- **Race:** Overall, 83% of BB participants (children) were White, with 8% Hispanic and 3% Black.
- **Education:** Overall, 42% of program participants reported having a Bachelor's degree or higher and 27% reporting a high school diploma/GED or less.
- **Employment:** Overall, about half of participants reported being stay at home mothers, with 30% employed part time. There was a higher proportion of stay at home moms for home visiting services. In addition, SRA analyzed both mother and father work employment status data to determine if at least one parent was employed full-time, which was reported as 95% overall.
- **Income:** Overall, 60% of families reported incomes of more than $50,000, 21% between 30-50K, 6% 20-30K and 13% less than 20K.

Overall, the majority of participating mothers reported English as their primary language (93%), with 5% reporting Spanish as a primary language and 85% of BB families reported being married.

Process evaluation found that BB services are being implemented as intended. Notably a total of 4,560 home visits were conducted for 650 children during EY1; the mean of visits was 7 with an average length of service of approximately 3.2 years (1,154 days); and a majority of children exited the program due to kindergarten entry.

Evaluation of the BB's goals and objectives yielded some positive outcome findings, as well as areas for further data quality and objective enhancements. On the positive:

- Findings indicated parents completing services perceived themselves as having an increased understanding of their child's growth and development, increased knowledge of appropriate parenting skills and appropriate adult/child interactions.
- 100% of children receiving home visits during this evaluation year were screened using the Ages and Stages Questionnaire (ASQ) and 96% were meeting age-appropriate developmental milestones.
- Approximately 85% of parents involved in playgroups reported they had received useful ideas for activities that would help their child learn and had increased their confidence and competence in their parenting practices

Areas for further data quality enhancements included:

- Data collection of delays identified by ASQ (switch from text to categorical responses)
- Data collection identifying if a referral is made for a hearing or vision screening result
- Participant and parent survey administration

4.3 Early Impact

Overall, a total of 1567 unique participants received services from the Early Impact program during EY1. There were 280 unique individuals that dropped out of EI services, meaning they had less than 3 units of service and a closed case status. There were 857 total refusers, (683 refusing EI services for the first time; 174 repeat refusers). Findings for EI demographics included:

- **Gender:** Close to 91% of the primary adults eligible to receive services were female.
- **Age:** The largest age group was adults aged 30-39 (approximately 39%), with about 33% between ages 20-29, and 21% between ages 40-49.
- **Race:** There was approximately three times the number of Caucasian participants compared with African American participants. Of note is that there was a substantial amount of Hispanic participants as well, supporting the need for culturally competent services and for this subgroup as well.
- **Employment:** A little under half of each of the services received population reported being unemployed, with a third employed full-time.
- **Income:** Overall, 60% of the population reported an income of less than $20,000/year and 15% over $40,000.
- **Education:** Over half the participants reported having some high school or a high school degree, and overall a quarter reported some college.

Over 60% of participants report being divorced or separated, in addition to 15% as single. Close to a quarter reported a dual parent household of being married or with a live-in partner. While the majority of participants reported English as their primary language, close to 10% reported Spanish.

Process evaluation found that EI services are being implemented as intended. Notably, the mean length of service was 149 days for all services delivered to participants (excludes dropouts); the

mean number of service units was 14.83; and 86% were noted as completing services with a positive outcome[5].

Evaluation of the EI's goals and objectives was different from the other programs in this reporting period. EI is in the process of establishing their program outcome goals to incorporate the recently implemented North Carolina Family Assessment Scale-General (NCFAS-G) assessment and transitioning to a contextual analysis of Stages of Change findings, as well as client level of engagement. To that end, SRA created general goal categories for each and provided the EY1 evaluation results as baseline data, with recommendations for setting goals for future program operations. These are provided below:

Goal 1: Engage participants in services (more than three units)

EI reported 85% of participants engaged in more than three units of service.

Recommended benchmark: 90% of participants engage in at least three units of service

Goal 2: Create positive movement in SOC goals area

Overall, 56% of participants completed services with positive SOC movement in their primary, secondary or tertiary goal. Consideration should be given to the 40% that had no movement.

Recommended benchmark: 75% of participants will show positive movement for the primary goal from Intake to Closing Summary

Goal 3: Create positive movement in NCFAS-G goals area

The distribution of the NCFAS-G movement for the primary goal area was concentrated around +1 (37%), 0 (31%) and +2 (19%). There was a very small proportion who reported negative movement in their primary goal. This pattern was similar for Goal 2, while Goal 3 had a higher proportion of no movement than positive movement. Overall (irrespective of goals) the majority of domains overall showed no movement, but there was a substantially greater proportion of a positive movement compared with any negative movement. These findings were consistent with those found with a similar program administering the NCFAS-G in California.

Recommended benchmark: 75% of participants will show positive movement for the primary goal

4.4 Family Engagement Program

Overall, FEP served 112 mothers during EY1. There was little differentiation between service providers. Findings for FEP demographics included:

- **Age:** The mean age of mothers participating in the FEP program was 36, with approximately 52% of the mothers served were between 30 and 39 years old.

[5] Positive outcome equates to either positive or mixed movement in either a participant's NCFAS-G goal area or their Stage of Change

- **Race:** Overall, 50% of FEP program participants were White and 37% were African American.
- **Employment:** 56% of FEP participants were unemployed and looking for work, 22% were not in the competitive labor force and 14% reported employment at either full or part-time status.
- **Income:** Over 90% of FEP participants report the household income is under $20,000 per year, with 49% reporting under $10,000 per year.
- **Education:** About half of FEP participants reported having a high school diploma or GED, followed by a third reporting some high school, comprising over 80% of participants with a high school degree or less.

Overall, 48% of FEP program participants reported being single, while 19% were divorced and the majority of FEP participants reported English as their primary language (98%).

Process evaluation found that FEP services are being implemented as intended. Notably, the mean number of encounters per participant was six, with a range of one to 29 encounters per participant. The highest type of service encounter was individual therapy. The average length of service was 11 months and FEP had a mean of four referrals per participant (the majority of referrals (26%) were to community food resources).

Evaluation of FEP's goals was conducted by Dr. Fred De Jong of Grand Valley State University. His outcome report[6] findings have been incorporated with SRA's for this reporting cycle. Evaluation of the FEP's goals and objectives yielded some positive outcome findings, as well as areas that warrant further program examination. On the positive:

- Perception of shelter/living environment, consisting of stable housing, a safe environment, and a clean and orderly home, has a statistically significant increase for both mothers and therapists across all time periods in the FEP program.
- Data shows over 50% of clients are engaged from baseline to six months and of those engaged, 85% report keeping appointments.
- Clients report satisfaction with FEP services at over 95%

The following goal outcomes warrant further examination by the FEP program:

- **Client works toward treatment plan goals.} Outcome:** Client report indicates a high proportion making progress toward goals (85% and over), while FEP staff report indicates no improvement in this area.
  Recommendations: Add objective regarding the percent of clients making progress toward goal (i.e. 90% self reported and 75% staff reported)

- **Client maintains abstinence.} Outcome:** Abstinence increased 6% from baseline to follow-up, but 46% still reported substance use at follow-up.
  Recommendations: Clearly define abstinence for this metric in the context of a substance abuse treatment program and add stabilization (effective life functioning) measure.

[6] Family Engagement Program 2008 Annual Evaluation Report

- **Client shows improved family functioning at case closure.} Outcome:** Mothers report a consistent positive change in overall perception of family functioning at follow-up compared to intake. No data on other treatment plan goals achieved at case closure. **Recommendations**: Add metrics for this goal: a) X% will complete treatment; b) X% will report abstinence; c) X% show improved family functioning (as measured by…); and d) X% of other treatment plan goals achieved at case closure.

- **Client's children show improved child psychosocial functioning.} Outcome:** There were two statistically significant findings for children ages 5 to 18. Of the families in the FET program at 6 months, the number of children between ages 5 and 18 involved with the juvenile justice system significantly increased from 2 to 8 children, which is change in an undesired direction. Of that same group significantly more children between the ages of 5 and 18 were reported as receiving treatment/ counseling (increased from 16 to 23 children). There were eight additional items of child psychosocial functioning that did not show significant change over six months.
  Recommendations: Consider narrowing the goal to reflect one or two measures of psychosocial functioning, or specify the desired number of items that should show improvement (out of the 10 reported by Dr. De Jong).

5 IMPACT EVALUATION

The long-term impact evaluation employs a quasi-experimental longitudinal study design using four separate naturalistic comparison groups. The use of comparison groups, rather than just measuring change among PI participants over time, will enhance the probability that the outcomes can be attributed to program effects versus other outside factors. Given the nature of these programs and the impact variables chosen, we do not expect to report substantial findings within this first year, and have concentrated more on selection of the comparison group and successful receipt and matching of the external data sources.

5.1 Creating PI comparison groups

For Healthy Start (serving children 0-3) and Bright Beginnings (serving children 0-5), a matched population-level comparison was created using the Kent County Birth Certificate Records database. This comparison group is optimal because participants in these two programs have no defining eligibility or risk factors that would differentiate them from the population at large.

For Early Impact, eligible participants who had unconfirmed cases of abuse and neglect, but refused EI services were used. The general population is not suitable for this program due to the likely confounding characteristics of families that have come to the attention of CPS. This group gives us the greatest likelihood of controlling for as many possible factors other than EI program participation that are likely to influence our outcomes of interest.

For the Family Engagement Program, the methodology used in EY1 was to identify comparison group individuals from a tertiary family substance abuse prevention program at Network180 for women with children receiving an alternate or "standard" treatment, compared with the intensive case management intervention (ICM) approach of the FEP. Participants in this program had very specific characteristics (i.e., women with children who have DSM-IV diagnosis for SA). Though in theory this was a suitable comparison group, Network180 does not consistently, if at all, collect child-level data for the standard treatment clients and creating a child-level comparison

group was not possible. Thus, child-level impact measures could not be assessed for FEP comparison group. Where possible, SRA has included adult-level comparisons for the FEP program participants and will create a viable methodology for FEP's comparison group creation during 2009.

5.2 Long-term Outcomes Year 1

Long-term evaluation of both PI program participants and the comparison group was conducted in education, juvenile justice, child welfare, and child health, as well as adult welfare and substance abuse. Data matching was coordinated through the Kent County Health Department. The following data sources were used to analyze EY1 outcomes:

- CPS records with referral dates from 07/1/06 to 06/30/07
- Kent County Sheriff arrests data from 07/01/07 to 04/30/08
- MICR (immunization) records for participant and comparison group children from 2002 to 2008
- KISD provided children's MEAP scores, special education placement, and grade retention data for kindergarten for the 07-08 school year
- Spectrum Hospital ER (aggregated data)
- Kent County Juvenile Justice database records from 07/01/2007 through 4/30/2008

One important consideration to the context of interpreting EY1 impact findings is the temporality of intervention participation and impact measurement. Specifically, the EY1 cohort is comprised of all participants who were enrolled in PI programs from July 2007 to July 2008, which theoretically spans individuals who received one day of service to potentially multiple years of service. Concurrently, the EY1 Impact variables were collected during this same time period, so there is no way to establish temporality between involvement in the PI programs and the impact findings.

Using immunizations as an example, it is possible that the 17% of HS participants that did not have their immunizations up to date were those that joined HS at the end of EY1 and thus would have had no time to show program impact. This consideration will only be an issue for EY1, as we are keeping this same cohort and following them over time, so that EY2 will provide us with a much clearer representation of the intervention impacts.

5.2.1 Significance Testing

The external outcome variables were analyzed using a Chi-Square exact analysis to determine the probability that certain population subgroups obtain significantly different outcomes. The levels of significant are indicated with p-values within the various tables. For example, a p-level of <0.0001 indicates there is a 1 in 10,000 likelihood that the findings are due to chance.

CHILD-LEVEL OUTCOMES YEAR 1

5.2.1.1 Child Welfare

Child Welfare is considered a primary outcome for EI and a secondary outcome for HS, BB and FEP. The Kent County CPS data has undergone transfer recently to a new database system. The conversion of data from the old system to the new system has been validated through July 2007.

Current efforts are underway to validate the data from the end of 2007 through early 2008. As a result, CPS outcomes for 07-08 were not available for this reporting period. SRA conducted an analysis looking at the date of participant (linked to child) program involvement and CPS referral date. By excluding any referral date that fell prior to program involvement and including only Category 1 or 2 (substantiated) referrals, there appears to be a low baseline of abuse among both the participant and comparison groups.

Table 7.2.1.1A: Children Starting PI Program Prior to CPS Referral (Category 1&2)

CPS Referral (Category 1 or 2)	Healthy Start** (part N=1123; comp N=3210)		Bright Beginnings* (part N=3882; comp N= 9727)		Early Impact* (part N=3346;comp N=1388)		Family Engagement Program (part N=130)	
	n	% of N	n	% of N	n	% of N	n	% of N
Participants	0	0%	12	0%	23	1%	-	-
Comparison	45	1%	82	1%	40	3%	-	-

*= p<0.0001
**= p<0.0005

5.2.1.2 Education

Education metrics are a primary outcome for the BB and HS programs and a secondary outcome for EI and FEP. Prior to evaluating educational outcomes for EY1, a reminder of the populations served is warranted. BB and HS serve younger children, ages 0-5, whereas EI and FEP serve participants whose children can span the ages of zero through 18. Given that KISD data is not available until a child reaches Kindergarten (age 5) educational outcome data is expected to be more prevalent (for matches) in EI and FEP where the child population is older, even though these programs are not designed to impact education directly. Over time we will be able to capture the educational outcomes for those children within Healthy Start and Bright Beginnings whose intervention model is predicted to directly effect these variables.

Grade Retention: Though grade retention is certainly an outcome of interest, matching results in the educational database was less than 1% (38 matches out of 23619 records). Of the 38 matches, 24% (9) were EI-comparison group children, 74% (28) were EI-participant related children and 3% (1) was an FEP-participant related child. With such a low number of matches, significance testing was not conducted. It is expected that future queries will result in higher matches as children in all programs age into the educational system.

Special Education Placement: Bright Beginnings demonstrated a significantly higher rate of Special Education placement than its comparison group, while Healthy Start had a small but statistically significant lower rate of special education placement than its comparison group. There were no significant differences found for the Early Impact group.

Table 5.2.1.2A: Children's Special Education Placement

Special Education Placement	Healthy Start* (part N=1123; comp N=3058)		Bright Beginnings** (part N=3884; comp N= 9501)		Early Impact (part N=3352;comp N=1372)		Family Engagement Program	
	Yes (%)	No (%)	Yes(%)	No(%)	Yes(%)	No(%)	Yes(%)	No(%)
Participants	18 (2%)	1105 (98%)	387 (10%)	3497 (90%)	450 (13%)	2902 (87%)	-	-
Comparison	81 (3%)	2997 (97%)	415 (4%)	9086 (96%)	170 (12%)	1202 (88%)	-	-

*= p<0.0487
**= p<0.0001

MEAP Scores: School year 07-08 MEAP scores were queried in the KISD database for matches to participant and comparison group children. MEAP tests are administered to third- through eighth-graders, thus we would not expect to see any data during EY1 for the BB & HS populations. The only program with matches was EI, and the differences were not significant.

Table 5.2.1.2B: Children's MEAP Scores

MEAP Scores	Healthy Start* (part N=1123; comp N=3058)		Bright Beginnings** (part N=3884; comp N= 9501)		Early Impact (part N=3352;comp N=1372)		Family Engagement Program	
	Pass (%)	Fail (%)	Pass (%)	Fail (%)	Pass (%)	Fail (%)	Pass	Fail
Math								
Participants	-	-	-	-	418 (65%)	225(35%)	-	-
Comparison	-	-	-	-	178 (66%)	90 (34%)	-	-
English Language Arts								
Participants	-	-	-	-	430 (67%)	212 (33%)	-	-
Comparison	-	-	-	-	178 (66%)	90 (34%)	-	-

In future evaluation years, KISD will be queried for highest grade completed and high school graduation rates once the intervention populations age into these outcomes.

5.2.1.3 Juvenile Justice

Juvenile Justice (JJ) is a primary outcome for HS and BB, and a secondary outcome for EI and FEP. Data received from the Kent County Juvenile Justice database was linked by the KCHD to children participant and comparison groups. The data from year one show almost all Juvenile Justice cases among the Early Impact program and their comparison group, which at this time is skewed toward more cases within the intervention group. This finding could suggest that people that participate in EI are actually at higher risk than those that refuse, and/or that more time is needed to see an intervention effect.

Table 5.2.1.3: Juvenile Justice Involvement

JJ involvement	Healthy Start (part N=1123; comp N=3210)		Bright Beginnings (part N=3882; comp N= 9727)		Early Impact (part N=3346;comp N=1388)		Family Engagement Program (part N=130)	
	n	% of N	n	% of N	n	% of N	n	% of N
Participants	0	0.00%	0	0.00%	46	1.37%	1	0.77%
Comparison	0	0.00%	0	0.00%	13	0.94%	-	-

5.2.1.4 Child Health

Child health is a secondary outcome for each program. In order to evaluate immunizations, SRA reviewed data received from the MICR database. This data contained over 200,000 shot records for participant and comparison children. SRA received a matched file from the KCHD that indicated if a child had a record of immunization in the MICR database. Though this is lacking in the validity needed to match a child to a completed immunization schedule, SRA will define a child with records in the MICR database as one "receiving immunizations" for Year 1, with the goal of working with the KCHD to develop a more thorough analysis technique that will delineate children completing immunizations, children on schedule, children delayed and not receiving any immunizations, as possible.

The data in table 5.2.1.4A show a lower rate of immunizations for the PI population than the Kent County average shown in table 5.2.1.4B below. Of note is that the Kent County population data is for ages 19-36 months, while the MICR data could be for children of all ages. The lower immunization rate for PI participants may possibly reflect characteristics of the types of families that would enroll in PI programs, namely those that are in need of support for well-child activities such as immunizations.

Table 5.2.1.4A: Child Immunizations

Children Receiving Immunizations	Healthy Start* (part N=1123; comp N=3210)				Bright Beginnings* (part N=3882; comp N= 9727)				Early Impact** (part N=3346;comp N=1388)		Family Engagement Program (part N=130)	
	Home Visits		Phone Calls		Home Visits		Playgroups					
	n	%	n	%	n	%	n	%	n	%	n	%
Participants	379	**83%**	554	**84%**	896	**83%**	1215	**75%**	2600	**78%**	94	**72%**
Comparison	3081	**96%**	3081	**96%**	9110	**94%**	9110	**94%**	1117	**81%**	-	

*= p<0.001
**=p<.0346

Table 5.2.1.4B: Child Immunizations in Kent County

(December 06 – December 07) 19-36 MONTHS OF AGE - 2007 Immunization Profiles for 4-3-1-3-3-1													
	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Kent County	0%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%

Spectrum Emergency Department Visits: Spectrum Health records from 07/01/07 through 06/30/08 were queried to assess the number of visits to the Emergency Department by participant and comparison children. The data provided in table 5.2.1.4C reflects the aggregate number of ED visits for children participant and comparison groups by program. These findings are very encouraging with significantly lower rates of ED use by the children exposed to the three PI programs that had child level comparison groups.

Table 5.2.1.4C: Number of Spectrum ED Visits by PI Group

	HS Part	HS Comp	BB Part	BB Comp	EI Part	EI Comp	FEP Part	FEP Comp
Number of ED Visits	282	1189	507	1753	1203	538	31	-

Table 5.2.1.4D: Spectrum ED by Unique Person

ED Used	Healthy Start* (part N=1123; comp N=3210)		Bright Beginnings* (part N=3882; comp N= 9727)		Early Impact** (part N=3346;comp N=1388)		Family Engagement Program (part N=130)	
	n	% of N	n	% of N	n	% of N	n	% of N
Participants	189	17%	369	10%	738	22%	28	22%
Comparison	694	22%	1299	13%	328	24%	-	

*= p<0.0006 **= p<0.0001

5.2.2 Adult-level outcomes Year 1

Adult-level outcomes are secondary for each of the programs. The HS and BB populations do not have adult comparison groups, as the evaluation design derives the comparison group from birth certificate records to create a child level comparison group only. We ran analysis on the prevalence of these outcomes within the HS & BB participant populations and found it to be very low (less than 3%), supporting that they are not useful outcomes of interest for these programs as well.

5.2.2.1 Adult Participant Arrests

There was no significant difference in arrest data between Early Impact participant and comparison individuals, while FEP did show a significantly higher rate of arrests compared to its comparison group. This is likely contributed by the small sample size of the FEP population, but should be monitored as an outcome of interest.

Table 5.2.2.1: Adult Arrests

Adult Arrests	Healthy Start (part N=1239; comp N=3326)		Bright Beginnings (part N=1620; comp N= 10258)		Early Impact (part N=2341;comp N=1081)		Family Engagement Program* (part N=129; comp=435)	
	n	% of N	N	% of N	N	% of N	n	% of N
Participants	23	2.05%	42	1.08%	241	7.20%	23	17.69%
Comparison	0	-	0	-	125	9.01%	146	10.52%

*= p<0.0006

5.2.2.2 Parental Substance Abuse

The prevalence of court data indicating referral to a substance abuse treatment program was practically null, although the difference in FEP was statistically significant. However, given the zero findings for FEP program participants, the quality of this data source for valid outcomes warrants further investigation.

Table 5.2.2.2: Kent County Court Records of Referral to SA Programs

Adult Referral to Substance Abuse Treatment Program	Healthy Start (part N=1239; comp N=3326)		Bright Beginnings (part N=1620; comp N= 10258)		Early Impact (part N=2341;comp N=1081)		Family Engagement Program* (part N=129; comp=435)	
	n	% of N	n	% of N	n	% of N	n	% of N
Participants	0	-	1	0.03%	5	0.15%	0	0.00%
Comparison	0	-	0	-	2	14.00%	13	0.94%

*= p<0.047

5.3 Cost-Benefit

5.3.1 Introduction

The costs for Kent County Prevention Initiative (KCPI) programs are reported below. These costs are estimated based on budgetary and administrative information reported by personnel for

each of the programs.[7] Each program reports annual budgets directly and with some modifications these are used as total costs. Separately, costs were estimated based on the reported staffing complement at each agency. Unit or average costs were then calculated as total costs divided by the numbers of families or children served annually. The details for each program are reported in Section 2. Importantly, because each program delivers different services for different purposes, their costs are in no way comparable.

These cost estimates include all the government resources used to provide the programs. In principle, these are the costs to the government or taxpayer, regardless of which government agency funded them. These programs use resources funded from the KCPI and other government, private, and not-for profit agencies. Three of the programs do not charge fees for service; the Family Engagement Partnership charges some fees to families without insurance based on an ability to pay. Where information is available, the resources allocated by individual agencies are separated. But a cost analysis strictly based on the funds committed through the KCPI would yield lower numbers than reported here.

However, we do not have information on any economic burden if the family is referred to another agency; nor is information available if they save resources to other agencies. No costing of volunteers' time or participants' time is made, although we do report the extent of unpaid labor for each program. Also, some of the providers of services may be drawing on in-kind resources (such as volunteer labor or facilities rented at below market rates); this is particularly salient for providers with religious affiliations. From a fiscal perspective, such costs should be excluded: the taxpayer did not fund them. But if the program is to be expanded it is unlikely that there will be sufficient in-kind resources available and the programs may have to pay market prices.

These cost estimates are one component of the cost–benefit analysis. When available, the impacts from each of the programs will be translated into benefits (i.e., dollar values). These benefits will then be compared to the costs, to calculate the difference and a benefit/cost ratio. A very preliminary example of how this might work is set out in Section 7.3.2 below. Until these impacts are available, this costs analysis serves a limited function. However, we note several issues. First, the unit cost is likely to vary significantly across families. For example, some families receive six months of intensive services; others might receive only a phone call (as necessary). However, because the program impacts are measured for all children who enroll, regardless of how intensively they utilize the services offered, the average cost is the appropriate metric.[8] Second, the programs are often subcontracted to multiple providers; this may help to keep costs down if the program is expanded. Third, if providers rely extensively on donated or in-kind resources, the costs reported here are unlikely to apply to a large-scale program where donated resources are not available.

[7] The information was collected using a semi-structured questionnaire, modified for each program (details available from the author). In compiling the responses, we appreciate the help of the following: for Early Impact, Michaelene J. White at Kent County DHS; for Healthy Start, Candace Cowling and Karroll McKay; and for Bright Beginnings, Erin McGovern. Sole responsibility for the report is the author's.

[8] Where impacts are available across different levels of intensity or distinct components of the programs, sensitivity tests on these costs estimates will be run.

5.3.2 Program Costs

5.3.2.1 Costs of Early Impact

The 2007-08 budget for Early Impact (EI) is $2,154,150 (2007 dollars). This amount includes funding at five sites and includes all sources.[9] The direct KCPI funding amount is $430,000. The EI program is composed of 48.25 full-time-equivalent staff (5.85 directors, 4.85 program officers, 7 administrative staff, and 30.55 other staff). EI utilizes some unpaid staff, but these total only 1.4 full-time equivalents. All space used for EI is paid for and other materials and computing costs are not significant when we apply them across the entire caseload and take account of amortization. Applying a standard overhead rate and regionally-weighted gross salary, this staffing size approximately equates to the stated budget of $2.15 million.[10]

EI services are designed around the well-being and safety needs of the family. Contracted services are for 4 months of service, but some families receive limited contact and others a maximum of (typically) 6 months. Annually, approximately 1,600 families receive services across the 4-5 provider sites.[11]

Based on numbers of families receiving services and the total cost, the unit cost is $1,300 ($2.15m/1600 families). However, the allocations vary across each site; one site receives $1,650 per family. As some of the sites may be using in-kind resources, this latter figure may more accurately reflect the true cost of the services. At a general level, these costs might be compared to those of the Child Protective Services, which are estimated at approximately $600 per case.[12]

5.3.2.2 Costs of Healthy Start

The 2007 budget for Healthy Start (HS) was $1,207,470 (2007 dollars). This amount includes funding across all sites, but not data from the Kent County Health Department.[13] Directly, the Kent County Program initiative provides $600,000 of this total (49%). This budget amount approximately corresponds to separate estimates calculated from the staff report for HS. The program is composed of 26.8 full-time-equivalent staff (0.14 directors, 1.58 program officers, 3.78 administrative/support staff, and 1.7 other staff; 15.6 family support workers (FSW); and 4 FSW supervisors. Also, there are 74 volunteers who contribute 2,400 hours annually but these persons are unpaid. Similarly, with a 10% overhead cost rate and a regionally-weighted gross salary, this staffing complement approximates closely to the actual budget of $1.2 million.

However, this budget figure is probably an understatement since it does not count space utilized at the offices of each of the agencies. Based on educational cost allocation models, these

[9] Services were offered at five sites during the reporting period: Arbor Circle; Catholic Charities of West Michigan; Family Outreach; Lutheran Child and Family; and Bethany Christian Services. This amount includes funding from all sources (KCPI, CSPP, DSS. SFSC, CP/CP). The overall budget for the DHS significantly exceeds this amount; but only a fraction (~15%) of this budget is allocated for EI.

[10] Assuming 10% of overheads costs, the budget of $2.15 million translates into an average gross salary per full-time equivalent of $40,500.

[11] Specifically, the number of families served was: 121 in 2002-03; 1443 in 2003-04; 1421 in 2004-05; 1505 in 2005-06; and 1639 in 2006-07. It may be preferable to use the average caseload over a number of years to account for amortization.

[12] Lee, S, Aos, S and M Miller. 2008. Evidence-based programs to prevent children from entering and remaining in the child welfare system: Benefits and costs for Washington. www.wsipp.wa.gov/rptfiles/08-07-3901.pdf

[13] The amounts per site are: Arbor Circle ($431,000); Catholic Charities of Western Michigan ($422,520); and the Child and Family Resource Council ($353,950). The overall budget for the Child and Family Resource Council is $3,178,460; but only a fraction of this budget is allocated for HS.

facilities costs are typically 6-8% of staffing costs.[14] Therefore, the total cost of HS from the perspective of local government in 2007 is estimated at $1,304,070. Other materials and computing costs are not significant when we apply them across the entire caseload and take account of amortization.

In 2006-07, HS delivered home visit services to 515 first-time families.[15] Each family received an average of 8.3 home visits per year; which corresponds to an estimated 4,296 total home visits. Separately, 894 families received phone call services, with an average of 1.5 calls per family. For costing purposes, the unit cost of HS is the total annual program cost divided by the families served. This is $2,530 per child annually ($1.3m/515). As a point of comparison, this figure may be compared to the costs for the Nurse-Family Partnership, which is an intensive, high-quality home visiting program: it costs approximately $4,500 per child per year.[16]

5.3.2.3 Costs of Bright Beginnings

The 2006-07 budget for Bright Beginnings (BB) was $868,565 (2006 dollars). This amount includes funding from all major sources.[17] Directly, the Prevention Grant initiative funding was almost one quarter of the total (23%, or $199,770). This budget amount corresponds to separate estimates calculated from the staff report for BB. The program is composed of 14.75 full-time-equivalent staff (one director, 12 program officers, and 1.75 other staff). BB has no unpaid staff, such as parent-educators, volunteers, or officers from other government departments.[18]

However, this budget figure is probably an understatement since it does not count space utilized at the KISD main campus or space at local district offices. Based on educational cost allocation models cited above, these facilities costs are typically 6-8% of staffing costs. Therefore, the total cost of BB from the perspective of local government in 2006-07 is $938,050. In 2006-07, BB delivered services to 3039 children. These services were: monthly newsletters; playgroups; and home visits (once or twice per month, or weekly). Families decide which services they wish to participate in. For costing purposes, the unit cost of BB is simply the total annual program cost divided by the children enrolled. This is $310 per child annually ($938,050/3039). Given the range of services provided by BB, many children will receive significantly more resources than $310, but the average includes some low-intensity cases too. It is important to factor in the duration of participation in BB. Families are enrolled for just under two years.[19] Therefore, the total cost to local government for one child who fully participates in BB is $600.

[14] Rothstein, R. 1995. *Where's the Money Gone?* Washington, DC: Economic Policy Institute.
Speakman, S, Cooper, B, Sampieri, R, May, J, Holsomback, H, and B Glass. 1995. Bringing money to the classroom. In L Picus and R Watternbarger (Eds) *Where Does The Money Go?* Thousand Oaks, CA: Corwin Press.

[15] Each year since 2000 the program has expanded to include more first-time families. The respective figures for home visits for earlier years are: 267 (2002); 325 (2003); 372 (2004); 407 (2005); 414 (2006).

[16] Lee, S, Aos, S and M Miller. 2008. Evidence-based programs to prevent children from entering and remaining in the child welfare system: Benefits and costs for Washington. www.wsipp.wa.gov/rptfiles/08-07-3901.pdf

[17] These sources are: the Kent County Prevention Grant, the Kent Independent School District, and the Baldwin Foundation.

[18] Assuming 10% of overheads costs, the budget of $868,565 translates into an average gross salary per full-time equivalent of $53,530.

[19] By service level, the durations of participation in months are: only the monthly newsletter, 24.3; the newsletter plus playgroups, 23.9; the newsletter, playgroups, and monthly home visits, 27.2; the newsletter, playgroups, and twice-monthly home visits, 14.7; and the newsletter, playgroups, and weekly home visits, 26.4 months.

5.3.2.4 Family Engagement Partnership

The 2007-08 budget for the Family Engagement Program (FEP) is $450,000 (2008 dollars). This amount includes funding from all major sources.[20] Directly, the KCPI funding was almost one quarter of the total (78%, or $355,100); the second largest component was from Medicaid.

This budget amount corresponds to separate estimates calculated from the staff report for FEP. The program is composed of two full-time clinicians and two full-time case managers, as well as an administrative overhead of 10%.[21] FEP has no unpaid staff, such as parent-educators, volunteers, or officers from other government departments.

However, this budget figure is probably an understatement of resource use since it does not count local public spaces used for the program services. However, these resources are not costs from the perspective of the provider and so may be discounted in this analysis. Also, offsetting this is the under spending of the budget when set against the reported caseload.

In 2007-08, FEP delivered services to 118 families. FEP is a community-based program which offers a range of services, including: individual therapy; family therapy; group therapy; alcohol/drug assessment; screening; alcohol/drug counseling and case management. Families may use these services as deemed appropriate.

For costing purposes, the unit cost of FEP is simply the total annual program cost divided by the families served. This is $3,810 per family annually ($450,000/118). Given the range of services offered and the resource required for individual therapy, these unit costs are not high when expressed as an annual amount.

5.3.3 Benefit–Cost Evaluation

At this stage it is possible only to speculate on the economic consequences of the programs. Below, table 5.3.3A shows the unit costs of each program expressed in 2008 dollars. To repeat, these costs cannot be compared because the programs serve different purposes.

Table 5.3.3A: Program Costs (2008 dollars)

	Unit cost	*Total annual expenditures ($ millions)*
Early Impact (EI)	$1,340	$2.21
Healthy Start (HS)	$2,710	$1.39
Bright Beginnings (BB)	$620	$0.90
Family Engagement Partnership (FEP)	$3,810	$0.45

Note: These are 2008 dollars for programs delivered in years 2006-07.

Table 5.3.3B shows the possible monetary benefits from outcomes which might be anticipated if these programs are effective. These ***simulated*** benefits are in present values so that they can be compared directly to the costs. These benefits are illustrative of how the programs will be

[20] These sources are: the Kent County Prevention Grant; community grants; Medicaid; county funds; and state disability grants.

[21] Assuming 10% of administrative costs and an additional 10% in facilities costs, the budget of $450,000 would translate into an average gross salary including benefits per full-time equivalent of approximately $90,000. Given the tasks performed by the clinicians and the experience levels required, these gross salaries are not unreasonable.

evaluated. For example, if Bright Beginnings raises academic achievement by 0.25 standard deviations, the monetary benefit is at least $6,000; the cost of the program is only $620, so the benefit–cost ratio is 10 to 1. Similarly, if Healthy Start reduces the average length of stay in hospital within the next five years by 5 days, then the economic benefit will be approximately $2,500; in itself, this impact almost exactly offsets the cost of the program (at $2,710). As a final example, if the FEP program reduces property crime by 1 incident per person, this will more than offset the cost of the program even if there are no other benefits. Of course, ***these are just examples*** and the actual benefits must be determined empirically.

Table 5.3.3B Examples of possible benefits

Possible Benefit	*Source of monetary benefit*	*Estimated present value monetary benefit*
Improved academic achievement of 0.25 standard deviations of test scores	Earnings gain annually (1)	$6,000-$13,000 in lifetime income
Reduced placement in special education	Lower spending by federal and state/local governments (2)	$12,000 per student placed in mainstream education
Increased high school graduation rates	Higher tax payments, lower crime, lower welfare receipt, lower Medicaid/Medicare spending (3)	$140,000 per new high school graduate
Improved health status	Value of quality-adjusted life years [QALYs] (4)	$8,000 per 0.1 QALY
Reduced rates of hospitalization	Lower spending by state/local governments; reduced burden on private health insurance systems (5)	$500 per day for hospital stay
Lower rates of criminal activity	Lower spending by federal and state/local governments (6)	$850 per property crime

Notes: Present values, 2007 dollars.

Sources: (1) Rose, H and JR Betts. 2004. The effect of high school courses on earnings. *Review of Economics and Statistics*, **86**, 497-513; (2) Chambers, JG, Shkolnik, J and M Perez. 2003. *Total Expenditures for Students with Disabilities: Variation by Disability, 1999-2000.* Palo Alto, CA: American Institutes for Research; (3) Belfield, CR and H Levin. 2007. *The Price We Pay*. Brookings Institution Press: Washington, DC; (4) Cutler, D, and A Lleras-Muney. 2006. Education and health: evaluating theories and evidence. NBER Working Paper; (5) Medical Expenditure Panel Survey (MEPS 2004); and (6) Miller, TR, Cohen, MA, and B Wiersema. 1996. Victim Costs and Consequences: A New Look. National Institute of Justice Research Report, NCJ-155282.