# Benefit Cost Analysis of The Florida Infant & Young Child Mental Health Pilot Project

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## Introduction[1]

This study, performed by the FSU Center for Economic Forecasting and Analysis, provides an overview, quantitative evaluation and benefit cost analysis of the three-year, multi-site Florida's Infant and Young Children's Mental Health Statewide Pilot Project (CMHP). The CMHP was conducted by the Florida State University Center for Prevention & Early Intervention Policy and was initially funded in 2000 by the Florida Legislature and implemented in conjunction with Children's Mental Health in the Department of Children and Families (DCF). Three diverse sites were chosen for the project: Miami (a collaborative project between the Dependency Division of the Juvenile Court, Eleventh Judicial Circuit, and the University of Miami's Linda Ray Intervention Center), Sarasota (Child Development Center) and Pensacola (Lakeview Community Mental Health Center).

The purpose of the CMHP project was to provide a research-based model of dyadic therapy services with a sample of high-risk infants, toddlers and their families during the critical first few years of life, in order to promote bonding and attachment, positive interactions, and secure relationships between the child and mother (or primary caregivers).

Because children under the age of three are the fastest growing segment of children entering the foster care system, the population targeted for the pilot project were children under the age of three years who were at risk for out-of-home placement due to abuse or neglect, or children who had already been placed in foster care but parental rights had not yet been terminated.

The care these clients received through this pilot program proved effective and the results demonstrate important improvements in the actions of both mother-and child stemming directly from the assessment and treatment offered through the pilot activities. While these techniques proved very effective, the availability of multi-year follow-up research in the final development of the mother-child dyad as they develop is clearly not possible give the recent nature of these programs.

Researchers therefore will extract the range of potential benefits of these Florida specific young child mental health pilot projects from this significant prevention and childhood early intervention literature and scale it appropriately to a range of most likely benefits. While the programs these literature draw from are not identical to the pilot program offerings offered across the three Florida sites of care, they are sufficiently representative of the categories and direction, magnitude and causal impact to allow application of conservative inferences from the literature to offer considerable insight into the likely longer term outcomes stemming from these interventions.

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[1] **Source:** Adapted from Program Evaluation: Florida Infant & Young Child Mental Health Pilot Project Year 3 , Final Report, July 1, 2000 to June 25, 2003 Prepared by The Florida State University Center for Prevention & Early Intervention Policy, June 27, 2003

These inferences are *not* intended as substitutes for essential follow-up evaluation that should follow any meaningful intervention program of this sort. Given that these projects were identified as pilots and the outcomes are positive and considerable, follow-up expanded programs should embrace a long range research mission and conduct important post-treatment analysis. In summary, these more robust steps should be pursued in future research.

Thus, in the judgment of the team of research economists completing this analysis, these initial evaluations should provide policy makers with sufficient quantitative insights into the direction and magnitude of the effectiveness of pilot projects on which to evaluate future expansion of these programs to a broader client base in need of attention and services.

## Literature Review of Early Childhood Intervention Programs

Historically, there has been a lack of attention on the mental health of infants and young children. However, as mentioned by the recent World Health Organization report (2003), from demographic and epidemiological perspectives, infant mental health problems are serious concerns for contemporary society. A recent study finds that worldwide, up to 20% of children and adolescents have a disabling mental illness (WHR, 2000). The dismissal of mental health disorders in infants, toddlers and preschoolers might lead to lifelong mental disorders, thus increasing the cost of healthcare, decreasing the productivity and economic well-being for society. Some studies find that the conduct disorder-related behavior in infants and children could result in drug abuse, increase in adult crime, antisocial behavior, marital problems, and interpersonal problems, major depression, high rates of suicide, and failure to attend college (Patterson, DeBaryshe, & Ramsey, 1989; Weisman, Wolk, Goldstein, Moreau, Adams, Greenwald, Klier, Ryan, Dahl, & Wickramaratne, 1999; Geller, Zimerman, Williams, Bolhofner, & Craney, 2001).

Early childhood intervention programs can be beneficial both to parents' and children's mental health. Research has shown that the first stages of a child's life, from birth to three years-old, are important in terms of social and emotional development. The relationships that children experience during this critical period will later affect their ability to control their emotions and form healthy relationships with others later in life.

Campbell and Ramey (1994) found that intervention between birth and three years old is more effective than later intervention. It has been shown that children who participate in early childhood intervention have less of a need for special education in later years of their schooling (Gray, 1983). Money spent for intervention early in the child's life- between birth and three years old- will prevent higher costs later for special or remedial education. One study recently estimated that sending 1,000 children to a Head Start Program, an example of an early childhood intervention program, would prevent the need for $1,855,245 worth of special education in the future for that group (Currie, 2001).

There are increasing numbers of recent studies quantifying the private and social costs of infant and child mental disorders (Knapp, 1997). These economic evaluations utilized a few different methods to analyze the impact of infant mental health disorders (Romeo, Byford and Knapp, 2003). Many studies include the assessment of both costs and outcomes through using the cost-benefit, cost-effectiveness, or cost-utility analysis. Some studies rely on the cost-offset analysis, which only covers the comparison of costs and outcomes that easily measured in monetary terms such as the comparison of the total cost of a new intervention and the savings resulted from changes in crime committed. The economic studies measure the variety of cost related impact of infant and child mental disorders including, the productivity loss resulted from the absence from education, the rise of dependency, involvement in criminal activity, use of illicit drugs, and so on.

A recent study demonstrates that the late diagnosis of childhood conduct disorder results in increasing costs for care in later years (Scott, Henderson & Maugham, 2001). For instance, they found that, by age 28, costs for individuals with conduct disorder were 10 times higher than for those with no problems. The greatest portion of these costs was the result of the increase in crime, followed by extra educational service, foster and residential care, and state benefits.

Numerous early intervention programs (David Olds, Abecedarian Project) ,have found that early intervention gains are the greatest for the most disadvantaged children. FSU's Center for Prevention & Early Intervention Policy recently completed a report (2003), which evaluated The Florida Infant & Young Children Mental Health Pilot Project, that sheds light on the positive affects that early childhood intervention programs can have on both children and their parents.

It was found that 97% of the children who completed this pilot project had been either abused or neglected before entering the project. Abuse and neglect declined, however, from 97% to 0% by the project's end. Another benefit of this intervention program was that children and their families were reunited. In fact, all children- who were out of parental custody at the time of referral were placed back with their families or were permanently place as a result of the intervention. At the beginning of the Florida Infant & Young Children Mental Health Pilot Project, appropriate screening took place to determine the development level of the children.

From the evaluations, it was discovered that 29% of the children had some form of development delays. Appropriate treatment was provided to the children during the project, which resulted in 58% of them improving in their development functioning. A final crucial result of the pilot project was that the relationship between the children and their parents improved. In fact, 95% of parents at the end of the project answered yes when asked whether or not their relationship with their child has improved as a result of the treatment intervention.

**Program Goals and Outcomes**[2]

Five goals were addressed in the project with the following outcomes:
Goal 1: To improve parent/caregiver and child interaction and relationships, reduce occurrence or reoccurrence of abuse and neglect, and enhance the child's developmental functioning.

Outcomes. There were four major outcomes related to this goal.

First, there was reduction of child abuse and neglect. Reports of abuse/neglect were reduced from 97% of children prior to treatment to 0% of the children completing the pilot project.

Secondly, there was reunification with the family or permanent placement for all children completing the pilot who were not in parental custody at the beginning of the project.

Thirdly, developmental status of children improved. Following treatment, 58% of children improved in their developmental functioning.

Fourthly, the parent-child relationship functioning improved significantly in all domains for both parents and children. Parents showed an increase in behavioral and emotional responsiveness with their children and a decrease in intrusive behaviors. Children showed an increase in positive affect (emotions) and enthusiasm with their parents. The percentage of caregivers reporting depression reduced from 51% pretreatment to 29% following completion of treatment. Seventy percent (70%) of caregivers reported minimal to no depression after treatment.

Parent/caregiver satisfaction evaluations also demonstrate the significance of the pilot project interventions successful results. The highlights of those survey results indicate that 85% of the parent/caregivers believe that the treatment has helped with the problems she and her child were experiencing prior to treatment. Also 95% of the parent/caregivers believe that pilot program treatment have improved their relationship with their baby while 91% see positive changes in the baby as well. Meanwhile, 76% of caregivers see changes in their child's behavior.

Finally, following Treatment, 58% of children improved in their development functioning. Improvement occurred in all domains: communication, gross motor, fine motor, problem solving, and personal social. The percentage of depressed caregivers decreased from 51% Pre-treatment to 29% Post-Treatment. Most 71% indicated experiencing little or no depressive symptoms following completion of Treatment.[3]

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[2] Ibid, Program Evaluation – Final Report, June 27,2003
[3] Ibid, Program Evaluation – Final Report, June 27,2003

**Parent/Caregiver Satisfaction Survey Results**[4]

| **Question Asked** | **% Answering Yes** |
| --- | --- |
| Do you think that your relationship with your baby has improved as a result of treatment? | 95% |
| Has your child changed positively since the beginning of treatment? | 91% |
| Is your child different emotionally? | 67% |
| Has your child's behavior changed? | 76% |
| Has your parenting changed since the beginning of treatment? | 77% |
| Has your family life changed as a result of involvement with this pilot study? | 73% |
| Have you learned anything new from being in this program? | 96% |
| Has treatment helped with the problems you and your child were having? | 85% |

**Benefit Cost Evaluation of the Florida Infant & Young Child Mental Health Pilot Project**

Given the wide range of potential benefits described in the literature review and the significant results reported from the Florida Infant & Young Child Mental Health Pilot Project what are the ranges of potential benefits that can be quantified for the Florida economy from these projects?

Table 1 provides a summary of some of the pilot project outcomes reviewed earlier and quantitative estimates of the potential benefits stemming from each outcome derived from the literature reviewed earlier.

For example, the mother-child dyads treated experienced a 100% drop in childcare abuse and neglect over the period of pilot project treatment. This reduction in child abuse results in savings from no further abuse reports for 43 child abuse investigations. The cost of child abuse investigation is reported as $622/child (Florida Department of Children and Families, Healthy Families America and the Center for Florida's Children. (2003). The pilot programs include 43 mother-child dyads. Therefore the potential savings resulting from drops in abuse and neglect alone over the three years of the pilot project are estimated at $26,746.

[4] Ibid, Program Evaluation – Final Report, June 27,2003

**Table 1. Benefits Relating to Outcomes from the Florida Infant and Young Child Mental Health Pilot Project**

| Florida Infant & Young Child Mental Health Pilot Program Benefits | | | |
|---|---|---|---|
| **Description of Benefits**<br>Goals and Outcomes* | | | **Economic Value of Pilot Benefits for** |
| **Goal Number 1** | **Improve Parent / Caregiver and Child Relationship*** | | **2000 to 2003** |
| Outcome 1 | Abuse/Neglect reduced 100% ** | $ | 26,746 |
| Outcome 2 | Reunification with family or permanent placement 100%*** | $ | 580,500 |
| Outcome 3 | Development Status of children improved. 100%*** | $ | 917,362 |
| Outcome 4 | Parent-child Relationship improved in all domains.**** | $ | 23,650 |
| | Children showed increase in positive effect and enthusiasm. | | |
| | Among Parent / Caregiver 70% reported no or minimal depression | | |
| | Total Goal Achievement annual Economic value | **$** | **1,548,258** |
| *Program Evaluation Florida Infant & Young Child Mental Health Pilot Project Year 3 FINAL REPORT | | | |
| ** Cost of Abuse investigation per child/parent report | | $ | 622 |
| **Average Cost per month of Out of Home Placement of Children, Florida Division of Families Children and Families, fy 2003 | | $ | 13,500 |
| Average out-of-home placement per child in months = | | | 13.1 |
| ***Cost of special Education total costs per child from age three to secondary education = | | $ | 21,334 |
| Barnet, S. Economics of Early Childhood Intervention", | | | |
| ****Reduced counseling needs result in fewer depression counseling sessions with a Gadsden County charge per hour (2003) = | | $ | 100 |
| Reduction in treatment of clients (from 51% pretreatment to 29% post-treatment) | | | 22% |
| Number of Clients = | | | 43 |
| Average number of counseling sessions per year per client = | | | 25 |

Next, reunification of child and parent – caregiver or other permanent placement was successful with all 43 treated clients. The Florida Division of Family and Children indicate the average child is in placement for an average of 13.1 months with an average per child cost of $13,500. This translates into a three year total savings of $580,500 for those 43 children not requiring relocations thanks to this pilot program. (Lyons, 2003)[5]

Next, the 100% reported improvement in the developmental status of the 43 children in the program also represents an important accomplishment. According to a recent study regarding costs saved of early childhood intervention programs, there is an average special education cost savings of $9,530 per child (average all conditions special education) preschool (ages 3-5 years). Then, there are the associated reductions in elementary and secondary education costs estimated at $11,804, which includes the difference in education cost savings between the control and early intervention groups. The total savings in early intervention educational costs (from age three - secondary school) is estimated at a total of $21,334 per child. (Barnett, 2000). Therefore the savings for all of the 43 children treated in the pilot program over the three-year period would be expected to be a long-term educational development benefit of avoided costs of $917,362.

Lastly, given that the parent-child relationship improved in all domains the estimated savings in reduced counseling costs by $23,650 over the three-year period of the pilot project. This assumes 25 counseling sessions per year per client at a cost of $100 per session where each mother-child dyad is treated in these pilots. There was an overall

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[5] Becky Lyons, Department of Children and Families, Chief, Child Welfare/CBC Resource Management, October 13, 2003

reduction of 22% in depression (difference of 51% pretreatment to 29% following completion of treatment).[6]

As Table A in Appendix A illustrates a total of 105 clients were involved with the three pilots with 20 with treatment still in progress, 43 completing treatment successfully and an additional 42 dropping out of treatment. Average assessment cost for each of the 43 clients completing treatment was $1,176 while costs for engagement and treatment was $2,472 and $3,151 respectively. Average client cost for each of the completing clients for all services involved was $6,799. Average cost for each of the 105 clients engaged with the three pilots was $2,266.

The children treated in these pilots are children with multiple severe risks and conditions and that engagement costs often exceeded treatment costs because majority of moms were depressed, children had been removed, parents were in jail, and the clients are parents with substance abuse and history of violence. In summary these are very difficult cases to treat and expect compliance or final successes with. In many cases, the treatment was court ordered and the client still does not show up for the services.

The estimated gross benefits of this benefit/cost evaluation sum to $1,551,096. Table 2 combines the first set of pilot project three-year benefit estimates from Table 1 of $1,559,096 with the final project total three-year costs of $210,000. Final total three-year quantified pilot project benefits therefore sum to $1,551,096. Given that the three-year pilot project costs were $210,000, then net benefits (gross benefits – costs) would be $1,341,096. Final pilot project benefit to cost ratio is therefore 6.39.

**Table 2 Final Gross and Net Benefit Value of Infant & Young Child Mental Health Pilot Project Benefits and Final Benefit Cost Ratio**

| **Infant & Young Child Mental Health Pilot Gross Benefits** | **$1,548,258** |
|---|---|
| **Three year Infant & Young Child Mental Health Pilot Project Cost** | **$210,000** |
| **Infant & Young Child Mental Health Pilot Net Benefits** | **$1,338,258** |
| **Final Benefit-Cost Analysis Ratio** | **6.37** |

This final Florida Infant & Young Child Mental Health Pilot Project B/C ratio is 6.37. This final ratio indicates that for every dollar invested in the pilot project $6.37 is returned to the economy in terms of higher benefits generated by the project. This is a very favorable B/C ratio and demonstrates that further investment in these types of infant and young child mental health projects are both a good investment in improving the quality of the lives of treated individuals and that these investments also generate significant returns to the Florida economy.

[6] Ibid, Program Evaluation – Final Report, June 27,2003

**Conclusions**

Over the three-year period of the Florida Infant & Young Child Mental Health Pilot Project a total of 43 mother-child dyads were successfully treated in a Miami, Sarasota and Pensacola sites of care for depression and resulting conditions.

- The three year cost of assessment and treatment for these 43 dyads was $210,000.

- The results of these treatments include:

    1. A reduction of child abuse/neglect was reduced from 97% of children prior to treatment to 0% of the children completing the pilot project.

    2. Reunification with the family or permanent placement for all children completing the pilot who were not in parental custody at the beginning of the project was achieved.

    3. Following treatment, 58% of children improved in their developmental functioning reducing the need for costly special education services.

    4. The parent-child relationship functioning improved significantly in all domains for both parents and children. The percentage of caregivers reporting depression reduced from 51% pretreatment to 29% following completion of treatment. Seventy percent (70%) of caregivers reported minimal to no depression after treatment.

    5. Parent/Caregiver satisfaction evaluations also demonstrate the significance of the pilot project interventions successful results including 85% of the caregivers believe that the treatment has helped with the problems she and her child were experiencing prior to treatment. Also 95% of the caregivers believe that pilot program treatment have improved their relationship with their baby wile 91% see positive changes in the baby as well.

This analysis concludes that the potential benefits resulting from these pilot project will likely result in the following economic benefits:

| | |
|---|---|
| Abuse and Neglect investigation savings of | $ 26,746 |
| Child placement savings of | $ 580,500 |
| Special education savings of | $ 917,362 |
| Counseling savings of | $ 23,650 |

| | |
|---|---|
| Total pilot Project gross economic benefits | $1,548,258 |
| Total pilot project net economic benefits | $1,338,258 |
| Three year pilot project cost | $ 210,000 |
| Final Benefit-Cost Ratio | **6.37** |

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## Appendix A

An analysis was also performed by program direct service functions: assessment, outpatient therapy and engagement, by each pilot project and in aggregate for the third year of the project.

The direct service functions are outlined below:

**Assessment:** Services which involve a professional's and family's determination of an individual or family's strengths, needs and goals. Recommendations are made for treatment and related supports and services based on this information. A comprehensive assessment battery includes a family psychosocial evaluation, a psychiatric mental status, psychological testing and other assessments as needed.

**Outpatient therapy**: The provision of individual, group, or family therapy by mental health professionals, including psychiatrists, psychologies, social workers and mental health counselors. Treatment settings are diverse and may include community mental health centers, private offices or the child's home.

**Engagement:** Any service performed, including, but not limited to, professional consultation, communication with caregivers, and coordination of services with other agencies, by the provider leading to the scheduling and actual performance of a pre-assessment.

The following table depicts the average cost per service function, per pilot project site:

**Table A. Year Three Number of Completers and Billing Cost by Assessment, Engagement and Treatment**

| YEAR THREE NUMBER OF COMPLETERS AND BILLING COST BY ASSESSMENT ENGAGEMENT AND TREATMENT | | | | |
|---|---|---|---|---|
| **Sarasota Pilot Project** | | | | |
| Number of Completers | Assessment Billing | Engagement Billing | Treatment Billing | Total Billing |
| Totals for 19 Completers | $ 25,107 | $ 39,840 | $ 74,164 | $ 139,112 |
| Average/Completer | $ 1,321 | $ 2,097 | $ 3,903 | $ 7,322 |
| Average all 31 Clients | | | | $ 4,487 |
| | | | | |
| **Miami Pilot Project** | | | | |
| Number of Completers | Assessment Billing | Engagement Billing | Treatment Billing | Total Billing |
| Totals for 11 Completers | $ 15,120 | $ 39,715 | $ 30,530 | $ 85,365 |
| Average/Completer | $ 1,375 | $ 3,610 | $ 2,775 | $ 7,760 |
| Average all 49 Clients | | | | $ 1,742 |
| | | | | |
| **Pensacola Pilot Project** | | | | |
| Number of Completers | Assessment Billing | Engagement Billing | Treatment Billing | Total Billing |
| Totals for 5 Completers | $ 945 | $ 6,953 | $ 5,590 | $ 13,487 |
| Average/Completer | $ 189 | $ 1,391 | $ 1,118 | $ 2,697 |
| Average all 25 Clients | | | | $ 539 |
| | | | | |
| **Year Three Totals for All Pilot Sites** | | | | |
| | Assessment Billing | Engagement Billing | Treatment Billing | Total Billing |
| Totals for All Year Three Completers | $ 41,172 | $ 86,508 | $ 110,284 | $ 237,965 |
| Average/Completer | $ 1,176 | $ 2,472 | $ 3,151 | $ 6,799 |
| Average all 105 clients | | | | $ 2,266 |
| | | | | |
| **Client Status** | | | | |
| | Miami | Pensacola | Sarasota | |
| In Progress | 8 | 8 | 4 | |
| Dropped Out | 30 | 4 | 8 | |
| Completed | 11 | 13 | 19 | |
| Totals | 49 | 25 | 31 | |