CHILD WELFARE MENTAL HEALTH SCREENING INITIATIVE

EVALUATION PROGRESS REPORT*
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OVERVIEW

The child welfare mental health screening initiative, sponsored by the Indiana Family and Social Services Administration, was developed to identify children with mental health needs who are among those referred to the child welfare system. The goal of this program is to provide better care to children in need of mental health services and reduce the number of failed placements. Multiple state agencies have been involved in planning and implementing this initiative. During the past year, the agencies have focused on implementing the program, including training county-level field staff on the screening tool, developing formal plans to make referrals for mental health consultations, and actually beginning the screening process. On January 1, 2005, all county agencies began screening all children referred to the state.

As part of the project, Dr. Eric R. Wright, Director of the Center for Health Policy and Associate Professor, School of Public and Environmental Affairs, IUPUI, and his research staff were asked to initiate an independent evaluation of both the planning and implementation of this initiative. This report is the twelfth official evaluation report required under the continuation contract. This report provides an analysis of data for children in placement during the year preceding initiative implementation (benchmark), the six-month pilot period, and the first full two years of implementation.

I. EVALUATION DESIGN AND METHODS

MEMORANDUM OF UNDERSTANDING
This evaluation analyzes data collected by three state agencies: the Division of Mental Health and Addiction (DMHA), the Department of Child Services (DCS), and the Office of Medicaid Policy and Planning (OMPP). In compliance with the Memorandum of Understanding (MOU) signed into effect on November 22, 2004, each agency provided the evaluation team with an unidentifiable dataset, including all children who were in placement during the reporting period. The data includes an Enterprise Client Identifier (ECI) assigned by Data Transformation Services (DTS) that has the sole purpose of matching the separate datasets into a single data file. Each agency provided the evaluation team with pre-screening implementation benchmark data for the reporting period of July 1, 2003, through June 30, 2004; the pilot implementation period of July 1, 2004, through December 31, 2004; and the first two full years and 1 quarter of implementation (January 1, 2005 through March 31, 2007). These data were used for statistical modeling, as well as to provide a comparison group for post-screening implementation data.

DATA
All data received from the aforementioned state agencies is analyzed and managed using SPSS, The R Statistics Language, and Microsoft SQL Server. The analysis of benchmark data focuses on constructing measures comparable to post-screening implementation data in order to demonstrate the effectiveness and inclusiveness of the screening initiative. Each variable was checked for outliers and missing values and transformed appropriately. Post-implementation pilot data were evaluated in the same manner and compared to benchmark data. To ensure confidentiality, the data provided did not include any identifying information. All three datasets were merged together using the Enterprise Client Identifier (ECI). This

number, assigned by DTS, allows the evaluation team to recognize the same individual across the three separate data systems without providing identifying characteristics.

DCS DATA

The data provided by the Department of Child Services (DCS) includes all children who were in substitute care during the benchmark period; the year prior to pilot implementation of July 1, 2003, to June 30, 2004; and the six months of the pilot implementation period of July 1, 2004, through December 31, 2004. DCS also provided data for the first two full years and 1 quarter of implementation (January 1, 2004 through March 31, 2007). Only children who were removed from their home or declared a Child in Need of Services (CHINS) during the reporting periods were selected in order to provide a longitudinal comparison of future data.

During the course of this project, it was discovered that the evaluation team was not receiving data for all children in the DCS system. Specifically, as a result of the de-identification process, only children assigned an enterprise client identifier (ECI) were included in the dataset provided; however, not all children were assigned such a number. Assigning a child an ECI number requires that he/she is in another data system, such as the TANF database, in addition to the DCS system. This substantially reduced the number of children in the data file used to conduct the analyses. The data error has been corrected in the analysis for this report by including all children served by DSC, even those with no ECI number assigned.

The DCS data includes information regarding demographics, current and previous CHINS, removal dates, the total number of removals, and the number of placements for the current case. Both a multiple CHINS indicator and a removal indicator were computed using the data provided. If a child had an initial CHINS date that occurred before the current CHINS date, the multiple CHINS indicator was coded as a 1, indicating multiple CHINS have occurred. If the initial and current CHINS dates are the same, the variable was coded as a 0, indicating that this is the first occurrence. The multiple removal indicator was coded in the same manner, but based on the number of previous removals recorded in the data. If a child has had one or more previous removals, the removal indicator was coded as a 1; a code of 0 was used otherwise. Race was also recoded into a dichotomous measure for statistical purposes, white (0) and nonwhite (1). Additionally, the variable indicating screening results of children who were screened was recoded to collapse like categories. The resulting variable is coded as 1 for *urgent referral*; 2 for *refer for follow-up*; 3 for *re-screen*; and 4 for *no identified risk*. The results were further collapsed into a dichotomous variable indicating whether a risk was identified in the screening.

DMHA DATA

The Division of Mental Health and Addiction (DMHA) also provided data for children who had received services through their agency during the benchmark, pilot, and full implementation periods. A variable indicating whether the child had received DMHA services was computed and coded as a 1 if DMHA data existed on the child. A variable indicating if the DMHA enrollment date is before or after the initial CHINS date was also computed.

OMPP DATA

The Office of Medicaid Policy and Planning (OMPP) provided data regarding behavioral health services that a child had received during the benchmark, pilot, and full implementation periods. The nature of this

data required significant transformations before being analyzed. The data were aggregated to create a single record for each child per reporting period. The first service date variable was set to the earliest date within all records pertaining to each child. The last service date was set to the latest date for each child. The amount paid was calculated as a sum of the amount paid for all behavioral health records associated with each specific child, discounted to 2006 dollars. Finally, the category of service and procedure codes were set to counts of each episode of mental health or addiction care provided to each specific child.

II. DATA ANALYSIS

CLIENT FLOW—BENCHMARK PERIOD
Using data from DCS, client flow was analyzed with regard to changes in placement during the benchmark period (N=2,817). A descriptive analysis of recidivism shows that 17.5% of children removed or declared a CHINS during the benchmark period had one or more previous contacts. The results also show that 15.7% of children declared a CHINS or removed during the benchmark period had one or more previous removals. Table 1 provides a descriptive analysis of these characteristics.

Further analysis of client flow reveals that of the 2,817 children either declared a CHINS or removed, 319 (11.3%) received behavioral health services paid by OMPP or DMHA within 60 days of their last DCS contact. In order to isolate the potential causal relation between the DCS contact and the receipt of services, this number does not include children who received services prior to their last CHINS/removal. Table 2 shows this analysis for all periods.

MENTAL HEALTH SERVICES
Analysis of DMHA data reveals that of all children who were declared a CHINS or removed during the three periods, 3,791 (20.0%) received services through the DMHA at some point. In the benchmark period, 747 (26.5%) children received such services. Descriptive statistics regarding the level of function (LOF) of this group are provided in Table 3.

In addition to DMHA, Medicaid data shows that an additional 1,217 (43.2%) children declared a CHINS or removed in the benchmark period received mental health or addiction treatment at some point. When data from both DMHA and OMPP are merged, the data show that 1,233 (43.8%) unique children declared a CHINS during the benchmark period received mental health or addiction services, of whom 220 (17.8%) received these services prior to their contact with DCS.

RECIDIVISM AND PLACEMENT STABILITY
 Five variables were used to measure recidivism and stability. These variables include the initial CHINS date, current CHINS date, initial removal date, current removal date, and total number of removals. The presence of multiple CHINS, as defined by an initial CHINS date occurring before the current CHINS date, indicates a pattern of recidivism. The analysis shows that 493 (17.5%) children removed during the benchmark period had a previous CHINS. A logistic regression model was also utilized, using the multiple CHINS indicator as the dependent variable and age, race, gender, a variable indicating whether a child received DMHA services prior to their initial CHINS, and a variable indicating whether a child received

behavioral health services paid by OMPP prior to their CHINS. The results of the regression show that age and whether or not a child received services paid by OMPP are significantly related to recidivism. Specifically, older children are more likely to experience recidivism. Children who received behavioral health services paid by OMPP prior to DCS contact are less likely to experience recidivism than those who have not had these services. The complete results of this model are displayed in Table 4.

In addition to recidivism, a measure of placement stability was computed based on the number of removals as well as on the dates of the initial and current removals. If a child had more than a single removal or if their initial removal date occurred prior to their current removal date, a variable indicating such was coded as 0. If a child had only a single removal, the stability measure was coded as a 1. This measure indicates that the child is experiencing placement stability. The data show that 441 (15.7%) children removed during the benchmark period had a previous removal. The same logistic regression model used to analyze recidivism was used to analyze the stability measure. The results indicate that one of the significant predictors of multiple removals is age. Older children are less likely to experience placement stability than younger children. Of greater interest, however, is that the other significant variable in the model, whether or not children receive mental health/addiction treatment paid by OMPP, indicates that children receiving such services are more likely to experience stability. The full results of the regression model are presented in Table 4.

SERVICE EXPENDITURES

The third series of analyses examines the expenditures for services provided to clients. Using expenditure data provided by OMPP, the evaluation team examined the costs associated with mental health and addiction treatment during the benchmark period. The data show that of the 2,817 children removed or declared a CHINS during the benchmark period, 1,217 (43.2%) children received mental health or addiction services paid by Medicaid dollars in the benchmark period. All figures are in 2006 dollars, adjusted using the Midwest Urban Medical CPI. The total dollar amount spent for these services, for children enrolled with DCS, was $2,424,105, averaging $1,992 per child receiving services. As a comparison, the total dollars spent on behavioral health services for all children during the benchmark period was $105,688,118 for 54,392 children, an average of $1,943 per child.

CLIENT FLOW—PILOT IMPLEMENTATION PERIOD

Using data from DCS, client flow was analyzed for the pilot implementation (N=2,241) period. Our analysis shows a significant difference between the demographics of both the benchmark and pilot periods in age and race categories. The percentage of non-whites in the pilot period is lower than the percentage in the benchmark period. The difference in age is attributable to more children younger than one being removed during the pilot period than during the benchmark period. Furthermore, a descriptive analysis of recidivism shows that during the pilot implementation period, 17.8% of the children had a previous CHINS. The results also show that 337 (15.0%) children removed or declared a CHINS during the pilot period had one or more previous removals. Table 1 provides a descriptive analysis of these characteristics.

Further analysis of client flow reveals that of the 2,241 children declared a CHINS or removed, 880 (39.3%) were screened for mental health or addiction needs during the pilot period. Furthermore, of these 876 screened children, 342 (38.9%) had an identified risk. A total of 277 (12.4%) children received

behavioral health services paid by OMPP or DMHA within 60 days of their last DCS contact during the pilot period. Of the children who received services, 63 (22.7%) were screened and identified as having a risk. In order to isolate the potential causal relation between the DCS contact and the receipt of services, these numbers do not include children who received services prior to their last CHINS/removal. Table 2 shows this analysis for all periods.

MENTAL HEALTH SERVICES

Analysis of DMHA data for the pilot implementation reveals that 488 (21.8%) children received such services during the pilot period, a significantly smaller portion than during the benchmark period (t=3.934; p ≤ .001). Descriptive statistics regarding the level of function of this group are provided in Table 3.

Medicaid data show that during the pilot period, 922 (41.1%) children received behavioral health services paid by OMPP; there was no significant difference from the benchmark period (t=1.473; p ≤ 0.141). Between both DMHA and OMPP, 936 (41.8%) children received behavioral health services from either agency during the pilot period, with 213 (22.8%) receiving services prior to their contact with DCS.

SCREENING

Beginning on July 1, 2004, DCS began a pilot implementation of the screening initiative. This pilot implementation included a small subset of counties in the state. During the pilot period, a total of 2,241 children were declared a CHINS or removed. Of these children, 880 (39.3%) were screened for mental health or addiction needs. Based solely on available data, the portion of children screened in an individual pilot county cannot be determined.

The results for children screened reveal that 375 (42.6%) had no identified risk, 163 (18.5%) required re-screening, and 342 (38.9%) had an identified risk. Of those with an identified risk, 275 (80.8%) were identified as needing an urgent referral. Further analysis reveals that 63 (18.4%) of the children having an identified risk received treatment within 60 days of referral as a result of the screening.

RECIDIVISM AND PLACEMENT STABILITY

To measure recidivism and placement stability for the pilot period, the same variables were used as in the benchmark period. These variables include initial CHINS date, current CHINS date, initial removal date, current removal date, and total number of removals. The presence of multiple CHINS, as defined by an initial CHINS date occurring before the current CHINS date, indicates a pattern of recidivism. The analysis shows that 398 (17.8%) children removed or declared a CHINS during the pilot period had a previous CHINS. A logistic regression model was also utilized, using the multiple CHINS indicator as the dependent variable along with age, race, gender, a variable indicating whether a child received DMHA services prior to their initial CHINS, a dichotomous version of screening results as independent variables to determine the probability of having multiple CHINS, and a variable indicating whether the screening identified risk. The results of the regression show that age and receiving OMPP services are significant variables associated with recidivism during the pilot period. More specifically, older children are more likely to experience recidivism than younger children, and those who received OMPP services prior to their first CHINS or removal are less likely to experience recidivism. Of greater interest, the results significantly indicate that if the screening reveals an identified risk, a child is less likely to experience recidivism.

In addition to recidivism, a measure of placement stability was computed based on the number of removals. If a child had more than a single removal, a variable indicating such was coded as 0. This measure indicates whether the child is experiencing placement stability. The data show that 337 (15.0%) children who were removed or declared a CHINS during the pilot period had a previous removal. The same logistic regression model used to analyze recidivism was used to analyze the stability measure. The results indicate that one of the significant predictors of multiple removals, during the pilot period is age. Older children are more likely to have multiple removals than younger children. In addition to age, the model shows that if a child received services paid by OMPP, they are more likely to experience stability. Furthermore, the results indicate that if the screening reveals an identified risk, a child is significantly more likely to have stability in placement. This finding suggests that those with multiple removals are likely to have a need for such treatment. The full results of the regression model are presented in Table 4.

SERVICE EXPENDITURES

Medicaid data for the pilot periods allowed the evaluation team to examine the costs associated with behavioral health treatment. The data show that of the 2,241 children removed or declared a CHINS during the pilot period, 922 (41.1%) children in the DCS system received mental health or addiction services paid by Medicaid dollars totaling $1,469,014. The average dollar amount spent for these services per child receiving services was $1,593 in the pilot period. As a comparison, the total dollars spent on behavioral health services for all children during the pilot period was $84,673,747 for 44,949 children, an average of $1,884 per child.

CLIENT FLOW—FULL IMPLEMENTATION PERIOD

Using data from DCS, client flow was analyzed with regard to the full implementation period (N=13,914). Our analysis shows a significant difference between the ages and race of children having contact with DCS in the full implementation period. The difference in age is attributable to an increase in the number of children under one year of age who were removed from their home. Additionally, the percentage of non-whites increased during this period. Furthermore, a descriptive analysis of recidivism shows that of the children declared a CHINS or removed during the full implementation period, 16.2% had previous contact with the child welfare system. The results also show that 15.4% of children removed or declared a CHINS during the full implementation period had one or more previous removals. Table 1 provides a descriptive analysis of these characteristics.

Further analysis of client flow reveals that of the 13,914 children declared a CHINS or removed in the full implementation period, 9,793 (70.4%) were screened for mental health or addiction needs. Of these 9,793 screened children, 3,310 (33.8%) had an identified risk. A total of 1,550 (11.1%) children received behavioral health services paid by OMPP or DMHA within 60 days of their last DCS contact. Of the children who received services, 657 (42.4%) were screened and were identified as having a risk. In order to isolate the potential causal relationship between the DCS contact and the receipt of services, these numbers do not include children who received services prior to their last CHINS/removal. Table 2 shows this analysis for all periods.

MENTAL HEALTH SERVICES

Analysis of DMHA data for the full implementation period reveals that 2,556 (18.4%) children received such services during this reporting period, a significantly lower proportion than during the benchmark

period (t=9.111 ; p ≤ .001). Descriptive statistics regarding the level of function of this group are provided in Table 3.

Medicaid data show that during the full implementation period, 4,763 (34.2%) children received behavioral health services paid by OMPP, a significantly lower proportion than from the benchmark period (t=8.825; p <= .001). Between both DMHA and OMPP, a total of 4,886 (35.1%) children received behavioral health services from either agency during the full implementation period, with 1,653 (33.8%) receiving services prior to their contact with DCS.

SCREENING
During the first two years of the full implementation period, a total of 13,914 children were declared a CHINS or removed. Of these children, 9,793 (70.4%) were screened for mental health and addiction needs. The results of the screening show that within the screening subgroup, 4,370 (44.6%) had no identified risk; 2,113 (21.6%) required re-screening; and 3,310 (33.8%) had an identified risk. Of those with an identified risk, 2,639 (79.7%) were identified as needing an urgent referral. Further analysis reveals that 657 (19.5%) of the children having an identified risk received treatment within 60 days of referral as a result of the screening.

RECIDIVISM AND PLACEMENT STABILITY
To measure recidivism and stability for the full implementation period, the same variables were used as in the benchmark and pilot periods. These variables include initial CHINS date, current CHINS date, initial removal date, current removal date, and total number of removals. The presence of multiple CHINS, as defined by an initial CHINS date occurring before the current CHINS date, indicates a pattern of recidivism. The analysis shows that 2,182 (15.7%) children removed or declared a CHINS during the full implementation period had a previous CHINS. A logistic regression model was also utilized, using the multiple CHINS indicator as the dependent variable and age, race, gender, a variable indicating whether a child received DMHA or OMPP services prior to their initial CHINS, a dichotomous version of screening results as independent variables to determine the probability of having multiple CHINS, and a variable indicating whether the screening identified risk. The results of the regression show that age, receiving mental health services paid for by OMPP, and having a risk identified in screening are significant variables associated with recidivism during the full implementation period. More specifically, older children are more likely to experience recidivism than younger children, and those who received services paid for by DMHA or OMPP prior to their first CHINS or removal are less likely to experience recidivism. Also of interest, the results indicate that if the screening reveals an identified risk, a child is more likely to experience recidivism. This suggests that children who have behavioral health needs that have not been met are more likely to experience multiple contacts with DCS.

In addition to recidivism, a measure of stability was computed based on the number of removals. If a child had more than a single removal, a variable indicating such was coded as 0. This measure indicates whether the child is experiencing placement stability, with a 1 indicating stability. The data show that 2,045 (14.7%) children who were removed or declared a CHINS during the full implementation period had a previous removal. The same logistic regression model used to analyze recidivism was used to analyze the stability measure. The results indicate several significant predictors of multiple removals during the full implementation period, including age and whether received services are paid for by OMPP.

Specifically, older children are more likely to have multiple removals than younger children. Furthermore, children who received services paid by OMPP are more likely to experience stability. Also of interest, the results indicate that if the screening reveals an identified risk, a child is more likely to experience placement stability, suggesting that those with multiple removals are likely to have a need for such treatment. The full results of the regression model are presented in Table 4.

SERVICE EXPENDITURES
Medicaid data for the full implementation period allowed the evaluation team to examine the costs associated with behavioral health treatment. The data show that of the 13,914 children removed or declared a CHINS during the full implementation period, 4,763 (34.2%) children in the DCS system received mental health or addiction services paid by Medicaid dollars totaling $20,947,337. The average dollar amount spent for these services per child was $4,398 in this period. When compared to the dollars spent on behavioral health services per child during the benchmark ($1,992) and pilot ($1,609) periods, the average cost per child increased during the full implementation period. As a comparison, the total dollars spent on behavioral health services for all children during the full implementation period was $240,401,260 for 85,193 children, an average of $2,822 per child.

III. SERVICES PROVIDED

Table 5 shows the number of service hours, the number of recipients, and the average number of service hours provided to each child receiving services per period, by service category. The results show that the number of service hours rendered has remained relatively stable overall; however, the number of children receiving these services has grown dramatically from the benchmark period to the full implementation period. The decreasing average number of service hours rendered per child over time, however, may indicate that the capacity of the service providers is not growing sufficiently to meet the expanding need. It is not possible to determine with these data what the most appropriate level of clinical care is for these children.

Table 6 compares the benchmark and full implementation periods by identified risk. As the screening tool had not yet been implemented during the benchmark period, the numbers during this time include all children. This table indicates that while capacity has not grown with need, services are being targeted toward children with a need. This is shown by the differences between the average number of services provided to children in each risk group. In nearly all cases, children with an identified risk receive more services per child than those who do not have an identified risk. The notable exception is visits to 24-hour facilities, indicating that children with an identified risk are receiving less care in 24-hour facilities.

Cluster analysis was used to determine how children can be grouped based on the types of services they receive. Initially, hierarchical clustering was performed using Ward's method with a Euclidean distance measure. After determining the appropriate number of clusters, a k-means cluster analysis was performed based on the cluster centroids obtained from the hierarchical cluster analysis.

The data used for cluster analysis included only 11 of the service categories. Laboratory and transportation services were excluded because of low relevance. The other excluded categories had very

low utilization rates, with some as low as zero. The data were filtered to include only children who received services during the full implementation period.

Children were assigned cluster membership based on the results of the k-means clustering. Individuals can be categorized into a high-intensity service usage category or a low-intensity service usage category. The clusters are of similar size, with the high intensity service usage category containing 3,121 children and the low intensity service usage category containing 3,915.

A logistic regression was run to determine whether any demographic variables were useful in determining cluster membership. The dependent variable was cluster membership. The independent variables included age, nonwhite, sex, and several indicator variables. The three indicator variables are as follows:

1. whether the child received DMHA services prior to their initial CHINS,

2. whether the child received OMPP services prior to their initial CHINS, and

3. whether the child has an identified risk.

Significant predictors include age, nonwhite, prior DMHA services, prior OMPP services, and being identified as having a risk. Age and the three indicator variables increase the chances that a child will fall into the higher service usage category. Nonwhite, however, reduces the chance that a child will belong to the second cluster with its higher rate of service use.

IV. DISCUSSION

This analysis provides a descriptive profile of children who have contact with the child welfare system. The analyses also demonstrate that a relation exists between mental health and/or addiction needs and the number of removals that a child experiences. As a result, we can anticipate that as this initiative progresses, a significantly greater portion of children who have contact with the child welfare system will receive mental health and addiction treatment as a result of the screening. At this point in the screening initiative, however, it cannot be determined whether contact with the child welfare system is a result of untreated mental health/addiction needs or if these needs are a result of the contact. Further evaluation of this project is necessary in order to clarify this relation and determine causality. While the results of this analysis are not conclusive, they do provide a basis for comparison with regard to future longitudinal studies.

Table 1: Descriptive Statistics of Department of Child Services (DCS) Data

DEMOGRAPHICS	Benchmark Period N	%	Pilot Period N	%	Full Implementation Period N	%	Total N	%
Age (F=47.254, p ≤ .001)								
Less Than One Year	38	1.3%	297	13.3%	2,237	16.1%	2,572	13.6%
1 to 4 Years Old	984	34.9%	682	30.4%	3,899	28.0%	5565	29.3%
5 to 8 Years Old	587	20.8%	411	18.3%	2,721	19.6%	3,719	19.6%
9 to 13 Years Old	632	22.4%	425	19.0%	2,734	19.6%	3,791	20.0%
14 to 17 Years Old	576	20.4%	426	19.0%	2,323	16.7%	3,325	17.7%
Total	2,817	100.0%	2,241	100.0%	13,914	100.0%	18,972	100.0%
Gender (F=0.204, p ≤ .816)								
Male	1,429	50.7%	1,140	50.9%	6,995	50.3%	9,564	50.4%
Female	1,388	49.3%	1,101	49.1%	6,919	49.7%	9,408	49.6%
Total	2,817	100.0%	2,241	100.0%	13,914	100.0%	18,972	100.0%
Race (F=12.257, p ≤ .001)								
White	1,863	66.1%	1,556	69.4%	9,850	70.8%	13,269	69.9%
Non White	954	33.9%	685	30.6%	4,064	29.2%	5,703	30.1%
Total	2,817	100.0%	2,241	100.0%	13,914	100.0%	18,972	100.0%
CLIENT FLOW								
Previous CHINS (F=5.142, p ≤ .006)								
Yes	493	17.5%	398	17.8%	2,182	15.7%	3,073	16.2%
No	2,324	82.5%	1,843	82.2%	11,732	84.3%	15,899	83.8%
Total	2,817	100.0%	2,241	100.0%	13,914	100.0%	18,972	100.0%
Previous Removal (F=.873, p ≤ .418)								
Yes	441	15.7%	337	15.0%	2,045	14.7%	2,823	14.9%
No	2,376	84.3%	1,904	85.0%	11,869	85.3%	16,149	85.1%
Total	2,817	100.0%	2,241	100.0%	13,914	100.0%	18,972	100.0%

Table 2: Client Flow Analysis

Period	Total Number of CHINS/Removals	Number (%) of Children Screened for Mental Health and Addiction Needs[1]	Number (%) of Children with an Identified Risk[2]	Number (%) of Children receiving Mental Health and/or Addiction Treatment[3]	Number (%) of Children Receiving Assessment[4]
Benchmark Period (July 1, 2003-June 30, 2004)	2,817	N/A	N/A	319 (11.3%)	265 (9.4%)
Pilot Period (July 1, 2004-December 31, 2004)	2,241	880 (39.3%)	342 (38.9%)	277 (12.4%)	243 (10.8%)
Full Implementation Period (January 1, 2005-September 30, 2006)	13,914	9,793 (70.4%)	3,310 (33.8%)	1,550 (11.1%)	1,233 (8.9%)

[1.] Percentage was calculated as a function of the total number of CHINS/removals occurring during each research period.

[2.] Shown as a percentage of the total number of children screened.

[3.] Includes only children who received services of OMPP or DMHA within 60 days of their last CHINS/removal and did not receive services prior to their first CHINS were included. The percentage is calculated as a function of the total number of CHINS/removals within each research period.

[4.] Includes only children who received an assessment paid for by OMPP within 60 days of their last CHINS/removal.

Table 3: Descriptive Statistics of Division of Mental Health and Addiction (DMHA) Data

		Benchmark Period N=747	Pilot Period N=488	Full Period N=2,394	Overall N=3,629
A. Affective Symptoms					
(F=15.556 p ≤ .001)	Mean	16.1	16.0	15.3	15.5
	(SD)	(4.0)	(4.1)	(4.2)	(4.2)
B. Suicidal Ideation/Behaviors					
(F=0.675 p ≤ .509)	Mean	6.8	6.8	6.8	6.8
	(SD)	(0.8)	(0.8)	(0.9)	(0.9)
C. Abuse					
(F=11.501 p ≤ .001)	Mean	6.8	6.7	6.6	6.7
	(SD)	(0.8)	(1.0)	(1.2)	(1.1)
D. Neglect					
(F=24.494 p ≤ .001)	Mean	6.7	6.7	6.4	6.5
	(SD)	(1.1)	(1.0)	(1.5)	(1.4)
E. Health/Physical Status					
(F=4.386 p ≤ .013)	Mean	6.7	6.8	6.7	6.7
	(SD)	(1.0)	(0.7)	(0.8)	(0.9)
F. Thinking					
(F=1.611 p ≤ .200)	Mean	10.7	10.9	10.6	10.6
	(S.D)	(3.0)	(3.0)	(3.1)	(3.0)
G. Family					
(F=10.769 p ≤ .001)	Mean	15.6	15.9	14.9	15.2
	(S.D)	(5.0)	(5.0)	(5.0)	(5.0)
H. School					
(F=3.253 p ≤ .039)	Mean	23.5	23.8	23.2	23.4
	(S.D)	(5.2)	(5.2)	(5.4)	(5.3)
I. Disruptive Behavior					
(F=10.105 p ≤ .001)	Mean	18.1	18.2	17.6	17.8
	(SD)	(3.2)	(3.2)	(3.6)	(3.5)
J. Substance Use/Abuse					
(F=1.796 p ≤ .166)	Mean	20.7	20.7	20.6	20.6
	(SD)	(1.3)	(1.4)	(1.7)	(1.6)

*Level of function (LOF) score ranges vary based upon differing scales. Ranges are presented below. For additional questions, contact the Division of Mental Health and Addiction.

A: 3-21; B: 1-7; C: 1-7; D: 1-7; E: 1-7; F: 2-14; G: 3-21; H: 4-28; I: 3-21; J: 3-21

Table 4: Logistic Regression Analysis for Benchmark, Pilot, and Full Periods

	Recidivism			Placement Stability		
	Benchmark	Pilot	Full	Benchmark	Pilot	Full
	B	B	B	B	B	B
	(SEE)	(SEE)	(SEE)	(SEE)	(SEE)	(SEE)
Constant	-1.849***	-1.816***	-2.1.04***	2.373***	2.433***	2.352***
	(.111)	(.113)	(0.049)	(.123)	(.131)	(0.052)
Age	0.059***	0.071***	0.069***	-0.098***	-0.117***	-0.101***
	(.009)	(.010)	(0.004)	(.010)	(.011)	(0.005)
Nonwhite	-0.160	-0.190	-0.131	0.123	-0.107	-0.060
	(.108)	(.124)	(0.053)	(.113)	(.130)	(0.053)
Female	-0.168	-0.115	-0.074	0.029	0.118	0.083
	(.100)	(.113)	(0.047)	(.106)	(.124)	(0.049)
DMHA Services Provided	-0.326	0.041	-0.260	1.911	-.838	0.321
	(.414)	(.444)	(0.141)	(1.056)	(.660)	(0.162)
Received Services Paid by OMPP	-0.693*	-1.003**	-0.325***	1.773***	2.495***	0.630***
	(.280)	(.318)	(0.095)	(.441)	(.580)	(0.108)
Risk Identified in Screening	N/A	-0.415**	0.160***	N/A	0.718***	0.288***
		(.170)	(0.055)		(.197)	(0.060)
Chi-square (x^2)	52.170***	64.878***	295.350***	145.970***	157.878***	543.491***
Nagelkerke R^2	.030	.047	.036	.087	.119	.068

***$p \leq .001$ **$p \leq .01$ *$p \leq .05$

Table 5: Service Hours Provided and Number of Children Receiving Services per Quarter within each Period*

Service Category	Benchmark (N=2,817**)			Pilot (N=2,241**)			Full Implementation (N=13,914**)		
	Hours of Services	Number of Recipients	Average Hours per Child	Hours of Services	Number of Recipients	Average Hours per Child	Hours of Services	Number of Recipients	Average Hours per Child
Assessment	1,800.69	990.00	1.82	2,833.87	1,441.50	1.97	2,298.17	1,499.78	1.53
Case Management	4,413.50	197.25	22.38	5,496.88	290.50	18.92	4,438.19	335.11	13.24
Crisis Services	735.63	304.00	2.42	1,282.25	496.00	2.59	1,374.56	559.00	2.46
Day Treatment Service	11,377.50	40.75	279.20	21,021.00	56.50	372.05	19,806.39	60.11	329.50
Family Support	2,603.75	225.50	11.55	2,686.00	299.00	8.98	1,725.69	281.44	6.13
Group Therapy	856.50	57.50	14.90	1,102.00	75.00	14.69	661.33	65.22	10.14
Individual Counseling/Psychotherapy	6,274.69	563.75	11.13	7,573.88	751.00	10.09	5,434.22	772.89	7.03
Medication Service	2,508.50	1,056.75	2.37	3,121.00	1,481.00	2.11	2,418.80	1,445.00	1.67
Other Medical Service	63.63	63.25	1.01	81.00	78.50	1.03	80.56	80.22	1.00
Skills Training/Skills Maintenance	3,776.06	174.50	21.64	4,537.00	257.50	17.62	2,489.53	259.00	9.61
Visit to 24-Hour Facility	501.15	270.00	1.86	1,048.25	460.00	2.28	807.38	431.44	1.87

* Calculated by quarter (i.e., Total Benchmark ÷ 4; Total Pilot ÷ 2; Total Full Implementation ÷ 9)

** For all quarters within each period

Table 6: Service Hours Rendered and Number of Children Receiving Services by Risk Group, by Quarter*

Service Category	Benchmark (N=2,817**)			Full Implementation (N=13,914**)					
				No Risk Identified			Risk Identified		
	Hours of Services	Number of Recipients	Average Hours per Child	Hours of Services	Number of Recipients	Average Hours per Child	Hours of Services	Number of Recipients	Average Hours per Child
Assessment	1,800.69	990.00	1.82	1,488.14	1,008.22	1.48	810.03	491.56	1.65
Case Management	4,413.50	197.25	22.38	2,293.64	193.22	11.87	2,144.56	141.89	15.11
Crisis Services	735.63	304.00	2.42	914.64	376.56	2.43	459.92	182.44	2.52
Day Treatment Service	11,377.50	40.75	279.20	9,934.83	31.89	311.55	9,871.56	28.22	349.78
Family Support	2,603.75	225.50	11.55	969.25	161.67	6.00	756.44	119.78	6.32
Group Therapy	856.50	57.50	14.90	276.89	33.67	8.22	384.44	31.56	12.18
Individual Counseling/Psychotherapy	6,274.69	563.75	11.13	2,952.58	453.11	6.52	2,481.64	319.78	7.76
Medication Service	2,508.50	1,056.75	2.37	1,319.99	936.89	1.41	1,098.81	508.11	2.16
Other Medical Service	63.63	63.25	1.01	48.50	49.33	0.98	32.06	30.89	1.04
Skills Training/Skills Maintenance	3,776.06	174.50	21.64	1,462.97	153.11	9.55	1,026.56	105.89	9.69
Visit -- 24-Hour Facility	501.15	270.00	1.86	465.07	244.89	1.90	342.31	186.56	1.83

* Calculated by quarter (i.e., Total Benchmark ÷ 4; Total Full Implementation ÷ 9)

** For all quarters in each period

Table 7: Cluster Centroids

FULL IMPLEMENTATION

Service Category	Hierarchical Cluster		K-Means Cluster	
	N = 3,418	N = 3,618	N = 3,915	N = 3,121
	Low Intensity	High Intensity	Low Intensity	High Intensity
1. Assessment	0.74	1.00	0.80	0.96
2. Case Management	0.16	0.67	0.11	0.82
3. Crisis Services	0.41	0.50	0.40	0.52
4. Day Treatment Service	0.00	0.14	0.01	0.16
5. Family Support	0.04	0.52	0.03	0.61
6. Group Therapy	0.01	0.15	0.01	0.17
8. Individual Counseling/Psychotherapy	0.10	0.95	0.19	0.96
12. Medication Service	0.73	0.85	0.73	0.87
13. Other Medical Service	0.05	0.08	0.05	0.09
19. Skills Training/Skills Maintenance	0.13	0.32	0.08	0.41
25. Visit 24-Hour Facility	0.16	0.20	0.16	0.21

Table 8: Logistic Regression Analysis—Clusters: Full Implementation Period

	Membership In High-Service Intensity Cluster	
	B	
	[SEE]	
Constant	-1.62***	
	(0.059)	
Age	0.132***	
	(0.006)	
Nonwhite	-0.380***	
	(0.065)	
Female	0.004	
	(0.056)	
DMHA Services Provided	1.172***	
	(0.150)	
Received Services Paid by OMPP	1.173***	
	(0.080)	
Risk Identified in Screening	0.705***	
	(0.062)	
Chi-square (x^2)	1,950.918***	
Nagelkerke R^2	.324	

***p ≤ .001 **p ≤ .01 *p ≤ .05