# National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities

## *Interim Evaluation Report*

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# *Table of Contents*

## *Table of Exhibits*

# EXECUTIVE SUMMARY

*Achieving the Promise: Transforming Mental HealthCare in America*, a report released in July 2003 by the New Freedom Commission on Mental Health, outlined significant barriers to providing community-based services for children and youth with serious emotional disturbances as an alternative to placing them in psychiatric residential treatment facilities (PRTFs). Children, youth, and families typically have little influence over decisions affecting service delivery, planning, and the use of financing to deliver care. When comprehensive community-based options are unavailable, some children and youth may end up incarcerated in the juvenile justice system, institutionalized for long periods, or in the care of child welfare system. To address this problem, the Commission recommended that the Centers for Medicare & Medicaid Services (CMS) conduct a Medicaid waiver Demonstration project.

The Home- and Community-Based Alternatives to PRTFs Medicaid Demonstration waiver program was created by section 6063 of the Deficit Reduction Act of 2005 (P.L. 109-171). The Demonstration waiver program allowed up to 10 state grantees to compare effective ways of providing care for children enrolled in the state's Medicaid grant program in the form of home- and community-based services (HCBS) vs. care in PRTFs. For purposes of the waiver, PRTFs are deemed facilities specified in section 1915(c) of the Social Security Act. The program targets children and youth who might not otherwise be eligible for Medicaid-funded, intensive community-based services and supports. CMS awarded ten states grants between $15 million and $50 million each over the grant period, for a total funding of $217 million. One of the ten, Florida, did not continue in the Demonstration after the first year. The nine fully participating state grantees are *Alaska, Georgia, Indiana, Kansas, Maryland, Mississippi, Montana, South Carolina,* and *Virginia*. Participating states are required to provide state matching funds.

**The Demonstration Program and Evaluation Approach**

This Demonstration grant waiver program is designed to enable CMS to develop reliable cost and utilization data to evaluate the effectiveness of community-based service-delivery models, such as wraparound, whose goal is to reduce placement in institutional settings when implemented with fidelity to the model and within systems of care that include the necessary array of HCBS. As part of the Demonstration, Congress included an evaluation component to answer two specific questions:

> *Question One*: Did the Demonstration services result in the maintenance of, or improvement in, a child's or youth's functional status?

*Question Two*: Did the waiver treatment costs, on average, total no more than anticipated aggregate PRTF expenditures in the absence of the Demonstration?

This interim evaluation report addresses these two questions, as well as additional ones introduced by CMS to help identify successful Demonstration strategies and the subpopulations for which those strategies are most effective. The primary evaluation strategy is a pre-post evaluation, in which outcomes before program implementation are compared with outcomes for the same group after implementation. Since each state has a unique program and may serve different populations, we are limited in answering the main research questions to the six (6) outcomes we identified as common across all, or a specified subset of, state grantees. It is important to note that, since this is not a classic experimental evaluation, there is no control group similar to the treatment group in all respects except receipt of waiver services. This prevents us from establishing a direct and robust causal link.

To counteract this limitation, in addition to using similar quantifiable elements across grantees, we use qualitative (descriptive) characteristics of each state's programmatic structure, as well as relevant events during the implementation period, to put into context or expand on the findings, as appropriate. Thus, we are enabled to take into account population and contextual differences that might otherwise distort the findings. Our relatively large sample sizes and the subpopulation analyses we developed enable us, further, to identify and examine possible correlations between subpopulations and outcomes and patterns across different state grantees. Taken together, these strategies substantially increase the confidence we can place in our findings. (Further information on the status of program implementation is presented in the 2009 and 2010 Demonstration Implementation Status Reports available on the CMS website.)

**Summary Interim Findings**

The evidence available to date yields the following answers to the two questions set by Congress.

> *Question One:* Overall, across all state grantees over the first three waiver years, the Demonstration has successfully enabled children and/or youth to either maintain or improve their functional status while in the waiver program.
>
> *Question Two:* Over the first two waiver years, Demonstration treatment costs are totaling no more on average than anticipated aggregate PRTF expenditures in the absence of the Demonstration. Indeed, the evidence so far is strong that the Demonstration costs substantially less than the institutional alternatives. In most cases, waiver costs were around 20 percent of the average per capita total Medicaid costs for

services in institutions, an average per capita saving of $20,000 to $40,000, excluding high and low outliers.

The fact that the Demonstration has easily met cost neutrality tests and has consistently maintained or improved functional status for all enrolled children and youth on average is a success story. Just as encouraging, enrollees and their families like the waiver program. This indicates that the program's success is likely to continue, as adherence and word of mouth about its positive outcomes reinforce involvement in it.

**State Profiles and Enrollment**

The Demonstration for the first time enabled states to use Medicaid reimbursement to serve a population of children and youth with serious emotional disturbances in their homes and communities. Understandably, given the complexity of the population and the requirements associated with receiving Medicaid reimbursement--Medicaid Management Information System (MMIS) programming, regulatory changes, and so on--the grantees have not been able to meet the enrollment projections they submitted in 2007-2008. They also vary considerably in the relative distance they are from those targets. There are multiple reasons for the variability*:* Alaska was slowed down, for example, by the specialization of the population the state chose to serve (children with Fetal Alcohol Spectrum Disorders or FASD), for which there were initially few qualified service providers. K*ansas* was helped by the fact that it had an existing 1915(c) waiver infrastructure available to ease the transition. Although waivers for *Georgia* and *Maryland* were approved in 2008, it was close to a year after approval before they enrolled their first participants. These delays were the result of the policy, regulatory, workforce, and other implementation activities that had to be completed after award but before the states would permit any youth to be served under the Demonstration. *Kansas*, in contrast, enrolled its first participant the same month in which the program became effective. The other six Demonstration states enrolled their first participant within 6 months of waiver approval.

The initial slow enrollment patterns have changed, and actual enrollment has grown over the three waiver years, from 253 in year 1, to 978 in year 2, to more than 1,300 in year 3. Overall, there were close to 2,400 children enrolled from inception through the end of waiver year 3. *Mississippi* (807) and *Indiana* (934) have the largest number of children enrolled in the program since its inception, together accounting for 61 percent of the total children/youth enrolled in the Demonstration. About 1,600 children/youth were enrolled in waiver year 3 alone and about 1,300 were active at the end of year 3. *Mississippi*, as the first state to enroll a participant in the Demonstration program, remains a frontrunner in enrolling participants, with more than 800 enrollees as of February 2011. Part of

*Mississippi's* early success lies in its education and outreach initiatives. In year 2 the state was granted an amendment that allowed enrollment to increase to 350. At the end of year 3, *Mississippi* had 269 children actively enrolled. Another amendment has since been approved to increase unduplicated enrollment for year 3 to 500. The number of children who continue with the Demonstration from one waiver year to the next is growing steadily, stressing the need to increase enrollment capacity.

States were given the option to serve children/youth either who were diverted from a PRTF placement or who were being transitioned from a PRTF placement (while still maintaining the PRTF level of care). However, there is no uniform definition of either "transition" or "diversion". In *Maryland*, for example, an enrollee is identified as a "transition" if (s)he was still in the PRTF at the time of a completed Demonstration application; a "diversion" enrollee is one who was in the community when the application was finished, even if (s)he had been in the PRTF only days prior. In many cases, the projected shares of diversion and transition cases were also very different than actual diversion and transition figures, however defined. For example, *Indiana* experienced lower while *Kansas* experienced higher than projected rates of transition children/youth. *Montana* had fewer diversions than expected at first but that number is increasing. Virginia is a transition-only program. Overall, there are nearly twice as many diversions as transitions; but, again, this distribution varies by state. In terms of demographics, the Demonstration serves almost twice as many males as females; children ages 13-18 constitute the majority (61 percent) of enrollees.

States have faced several challenges in collecting state-level data for the evaluation, which has limited the type of analyses and the robustness of our interim results. All but two states are missing less than 20 percent of children's records, but the remaining two have 33-55 percent of missing records. There are also numerous incomplete records for particular children. Discussions between IMPAQ, the National Evaluator, and state grantees are ongoing to increase response rates on data collection and submission, as well as to improve protocols on data quality. Over the course of the Demonstration, there have been multiple "lessons learned" about data that were incompletely defined at the national level, including the intervals between data collections. As revisions have been made, data completeness has improved.

**Measuring Functional Outcomes**

One goal of this Demonstration of particular importance to the states is to help determine *which* children/youth do better in *which* setting: community or institutional. Rather than an overall assessment of PRTFs vs. HCBS, the intention is to enable states and the federal government to better understand the contextual elements that enable individual children to be successful. Here again, the evaluation is

complicated by the fact that the states had different protocols and PRTF level of care criteria, resulting in every state having populations with different needs and different baseline functional scores.

**Common functional outcomes:** To address this issue, we assess changes in the level of functioning of the children/youth in the Demonstration by focusing on several outcomes that are common across grantees. All the common outcome measures reflect changes in the last six months in selected domains: school functioning (i.e., number of absences from school, and school absence severity), substance abuse (i.e., severity of substance abuse), juvenile justice (i.e., number of arrests and any involvement with law enforcement), and others (including involvement with child protective services). Using these common outcomes has the extra benefit of yielding a sample of more than 2,000 records, making the statistical significance of the findings very robust. It is still the case, however, that these data elements are defined by the states and collected primarily through self-report, both of which can result in measure variability. Even making allowances for such variability, the changes on the functional outcomes over time are clear: The enrollees' common functional outcomes are either maintained or improved in the domains of juvenile justice, school functioning, substance abuse, and involvement with child protective services, even though the children/youth still meet the PRTF level of care criteria. For the subset of children that disenrolled from the program, functional outcomes have been, for the most part, maintained at their enrollment levels. In the analysis of common outcome changes, we find a difference between transitioned and diverted children. Transition children show a stable functional status while diverted children show improvements in all domains except alcohol and other drug use. There is substantial improvement across all children in two outcomes: involvement with the juvenile justice system and involvement with child protective services. Note that for eligibility purposes, even when there is improvement in the functional outcomes, children are still meeting the PRTF level of care criteria.

**Functional assessment instruments:** Demonstration states are using one of three functional assessment instruments to gather data from children/youth enrolled in the Demonstration at baseline, 6-month intervals, and disenrollment. These instruments are well known, and in most cases, the instrument developers provided guidance on their use to the grantee states. The *Child and Adolescent Needs and Strengths* (CANS) is used in *Indiana, Maryland, Mississippi* and *Virginia*, which together cover the largest number of children in the Demonstration. *Alaska, Georgia*, and *Kansas* use the *Child & Adolescent Functional Assessment Scale (CAFAS, Hodge). Kansas, Montana*, and *South Carolina* use the *Child Behavioral Checklist* (CBCL, Achenbach). The key research questions and methodological approaches are common to all our analyses, although we did not use all items from each instrument in

our analysis, due to instrument (versions, state-specific elements) and data collection variations across states.

**In response to the first question set by Congress, overall, the Demonstration is successful. Children and/or youth have either maintained or improved their functional status while in the Demonstration.** Our findings on functional status vary by functioning *domains* (Exhibit ES.1). Children show statistically significant improvements in most subsets of states and across time in the domains of mental health and juvenile justice. Note that even when there is improvement in the outcomes, children are still meeting the PRTF level of care criteria. We observe maintenance of functioning for school and family functioning. We observe maintenance and/or deterioration in only one domain: alcohol and other drug use. There is some evidence that an improvement in substance abuse behavior may require different strategies and that these may not be implemented in the Demonstration. But it is also plausible that there is a measurement issue here—that is, as children and youth become more comfortable with their care coordinators and establish better rapport, they will disclose more information, particularly about substance abuse. Further tests will be conducted to disentangle any technical/methodological issues. Interestingly, the most positive results are for children in the subset of Demonstration states using CANS as the functional assessment instrument.

**Exhibit ES.1: Functional Status by Domain – All Children**

| Domain | CANS (IN, MD, MS, VA) | | CAFAS (AK ,GA, KS) | | CBCL (KS, MT, SC) | |
|---|---|---|---|---|---|---|
| | 6 m (N=844) | 12 m (N= 309) | 6 m (N= 190) | 12 m (N= 73) | 6 m (N= 177 ) | 12 m (N= 62) |
| School Functioning | + | • | • | • | • | • |
| Juvenile Justice | + | + | | | + | • |
| Alcohol & Other Drug Use | • | — | • | • | | |
| Mental Health[1] | + | + | + / • | + / • | + / • | • |
| Social Support | + | + | • | • | • | • |
| Family Functioning Outcomes[1] | • | • | + / • | + / • | | |

• indicates that there was no statistically significant improvement or worsening in functional status.
+ indicates a statistically significant improvement in functional status for the domain.
— indicates a statistically significant worsening in functional status for the domain.
[1] Domain is measured by multiple factors for certain instruments. In these cases, we show the outcome changes for each factor.
Black cells indicate that domain is not measured by the instrument.

Based on preliminary analyses, it is clear that average effects are obscuring Demonstration effects for different subpopulations. In this report, we developed subpopulations as a function of the baseline functional assessment status. Our findings in terms of the subpopulations that most benefited during the Demonstration are confirmed in the subpopulation analysis. Children with the most severe functional impairments based on their baseline scores show statistically significant improvement across almost all domains and over time (Exhibit ES.2). This finding is consistent across all instruments and, given the large number of children assessed by each instrument, is quite robust. One plausible explanation for this extraordinary result is that children with the highest impairment are unlikely to deteriorate further and, thus, have the greatest room for improvement. There are similar, although not as consistent, results for children with intermediate/moderate impairments. However, children with the lowest level of impairment at baseline show a consistent decline in functioning. Further analysis will help identify any methodological or data issues associated with this finding. Subsequent rounds of data collection will also clarify this finding as well as findings on other subpopulations.

**Exhibit ES.2: Functional Status for Children with High Level of Impairment**

| Domain | CANS (IN, MD, MS, VA) | | | CAFAS (AK, GA, KS) | | | CBCL (KS, MT, SC) | | |
|---|---|---|---|---|---|---|---|---|---|
| | N (at 6m) | 6m | 12m | N (at 6m) | 6m | 12m | N (at 6m) | 6m | 12m |
| **School Functioning** | 655 | + | + | 20 | + | + | 73 | + | + |
| **Juvenile Justice** | 257 | + | + | | | | 82 | + | • |
| **Alcohol & Other Drug Use** | 54 | + | + | 7 | NS | NS | | | |
| **Mental Health**[1] | 131 | + | + | 268 | 3 (+) / NS | 3 (+) / NS | 292 | + | + |
| **Social Support** | 397 | + | + | 36 | + | NS | 66 | + | • |
| **Family Functioning Outcomes**[1] | 83 | + | + | 59 | + / NS | + / NS | | | |

• indicates that there was no statistically significant improvement or worsening in functional status.
+ indicates a statistically significant improvement in functional status for the domain.
— indicates a statistically significant worsening in functional status for the domain.
NS indicates that the sample size was small for a robust test
Black cells indicate that domain is not measured by the instrument.
[1] Domain is measured by multiple factors for certain instruments. In these cases, we show the outcome changes for each factor. Thus, 3 (+) indicates that three factors had a positive effect

**Findings on Satisfaction**

Satisfaction of enrollees and their families with the Demonstration is another issue of interest in the evaluation. Measures on which enrollees and their families are equally satisfied with the services and the Demonstration include access to care (services available at times convenient to me, among other items), cultural sensitivity (staff treated me with respect, among other items), and appropriateness of care (overall, I am satisfied with the services I received and I felt I had someone to talk to when I was troubled, among other items). Families are less satisfied than their children/youth with respect to overall functioning (I am better at handling my life; I get along better with family members; and similar items).

**Cost Neutrality**

**In response to the second question posed by Congress, based on available information on waiver years 1 and 2, there is strong evidence that the Demonstration cost substantially less than the institutional alternatives**. In most cases, waiver costs were around 20 percent of the average per capita total Medicaid costs for services in institutions, an average per capita saving of $20,000 to $40,000, excluding high and low outliers.

**Preliminary Conclusions and Next Steps**

The fact that the Demonstration has easily met cost neutrality tests and on average has consistently maintained or improved functional status for all children and youth is a success story. In addition, families and children like the waiver program, which indicates that the success of the program will continue as adherence and word of mouth about the positive outcomes are likely to reinforce involvement in the program.

Our descriptive findings highlight the importance of children's demographic characteristics, baseline functioning impairments, source of enrollment (diversion vs. transition), and diagnostic conditions in refining the findings in the next round of analysis. These factors, as well as larger sample sizes and methodological techniques to address issues associated with confounding factors, will define the next round. The final findings will assist CMS and state grantees in better targeting services to children with particular profiles, optimizing the benefits of the Demonstration program as a whole.

# CHAPTER 1. INTRODUCTION

There has been an active Federal strategy to enable adults with serious mental illnesses and children and youth with serious emotional disturbances to live, work, learn, and participate fully in their communities. *Achieving the Promise: Transforming Mental Health Care in America,* a report released in 2003 by the New Freedom Commission on Mental Health, was developed to outline barriers associated with providing community-based services for children and youth with serious emotional disturbances as an alternative to placing them in psychiatric residential treatment facilities (PRTFs). *Achieving the Promise* noted that when comprehensive community-based options are unavailable to children and youth, they are often incarcerated in the juvenile justice system, institutionalized for long periods of time, or in the care of the child welfare system. The report was instrumental in developing alternatives to service delivery, planning, and financing to deliver care, as well as providing children and their families with a role in these processes.

PRTFs have become a primary Medicaid-supported treatment setting for children and youth with serious emotional disturbances requiring an institutional level of care. However, PRTFs were not included as one of the types of institutional settings eligible for the Medicaid 1915(c) waiver authority. Many states and advocates have long hoped to extend the home- and community-based services (HCBS) waiver authority to children and youth eligible for PRTF level of care, so that children and youth could stay with their families and receive services in their home communities. Section 6063 of the Deficit Reduction Act of 2005 (P.L. 109-171) authorized up to $217 million for a demonstration program that allows grantee states to use Medicaid funding for home- and community-based services (HCBS) as an alternative to PRTFs for children and youth with serious emotional disturbances.

On June 22, 2009, to mark the 10th anniversary of the U.S. Supreme Court's decision in *Olmstead v. L.C.*, President Obama announced the "Year of Community Living" initiative, reinforcing his vigorous commitment to enforcement of civil rights for Americans with disabilities and to ensuring the fullest inclusion of all people in the life of our nation. This action underscored the importance of the *Olmstead* decision and affirmed the Administration's commitment to addressing the isolation of and discrimination against people with disabilities that still exists today. The *Olmstead* decision, issued in July 1999, requires states to administer services, programs, and activities "in the most integrated setting appropriate to the needs of qualified individuals with disabilities."

Through the Home- and Community-Based Alternatives to PRTFs Medicaid Demonstration waiver program, the Centers for Medicare & Medicaid Services (CMS) is developing cost and utilization data to evaluate community-based models such as systems of care and wraparound services that can reduce placement in institutional settings. As part of the Demonstration, an evaluation was required by Congress to assess two outcomes:

1) Whether the Demonstration treatment services resulted in the maintenance of or improvement in children/youths' functional status; and
2) Whether treatment costs, on average, totaled no more than anticipated aggregate PRTF expenditures in the absence of the Demonstration.

An evaluation design was finalized in late 2007. There have been several minor revisions to the evaluation design since then, but overall, the 2007 evaluation strategies (state-specific, subset analysis, and comparison analyses) are still valid and applicable. The approach followed in this interim report provides answers to the primary research questions set by Congress. Other approaches outlined in 2007 will be implemented in future evaluation reports, and their execution will be a function of sample size at the state level and for the comparison groups. In addition, the evaluation will provide useful information for the current grantees and for states interested in developing similar programs in the future.

This report presents the interim results of the national evaluation of the Demonstration. The interim evaluation is based on a pre-post comparison, in which outcomes for the treatment group (enrollees) before implementation of the Demonstration are compared with outcomes for the same group after implementation. Our first evaluation step is to estimate aggregate effects for the states that (1) opted to use similar measurement tools (i.e., a functional assessment instrument), data collection strategies, and programmatic approaches, and (2) have data available for at least 30 children/youth, depending on state's sample size. These two conditions are needed for developing measures of the Demonstration's effect that can be generalized to some degree. As will be discussed later, there are some states with very small sample sizes, which preclude us from conducting state-specific analyses. The Demonstration's minimum data set (MDS) specifies the data elements (outcome and control variables) that are crucial to the evaluation of all domains associated with the Demonstration; these data are collected from all Demonstration grantee states.

The structure of the report is as follows: Chapters 1 through 3 provide background information on the Demonstration grant waiver program, state grantee profiles, and the evaluation

design. Chapter 4 details the characteristics of the children enrolled. Chapters 5 through 8 present the results with aggregate findings across all research domains. Note that the results are presented in three subsets, depending on the main functional assessment instrument used by the state grantees. Chapter 9 provides information on participant satisfaction with the Demonstration. Chapter 10 provides an analysis of cost neutrality.

# CHAPTER 2. EVALUATION DESIGN

The strategy for the evaluation is designed for a multi-state Demonstration where states have unique programs and may serve different populations. We identify outcomes that are common across all, or subsets of, state grantees and use these data elements to answer the main research questions for the corresponding subset of grantees and, where feasible, for all grantees. We identified six common outcomes collected across all grantees.

The two basic questions set by Congress were further developed in the evaluation design, as briefly described below and summarized in Exhibit 2.1.

**Exhibit 2.1: Research Areas**

| Children/Youth Profile | Functional Outcomes |
|---|---|
| ▪ PRTF level of care assessment<br>▪ Demographic and family data<br>▪ Health and health care history<br>▪ Environmental variables | ▪ Mental health<br>▪ Community living, school, juvenile justice<br>▪ Alcohol and other drug use<br>▪ Family functioning |
| **Satisfaction Measures** | **Wraparound Fidelity** |
| ▪ Youth satisfaction<br>▪ Parent satisfaction | ▪ Caregiver<br>▪ Facilitator |
| **Services Diversity and Intensity** | **Cost Neutrality** |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities. Evaluation Design, September 2007.

**Children/Youth and Services Characteristics**: A foundation for the evaluation of the Demonstration program is the characteristics of the children/youth served under it and, where available, comparable data for their counterparts in PRTFs, as well as the key services and resources allocated to each type of service. Our descriptive analyses characterize the population by demographics (age, gender, and race/ethnicity); health (problem type and severity); and history of PRTF admissions. We also describe certain environmental characteristics of the state programs.

**Functional Outcomes**: The main evaluation question for both the national and individual state evaluations is whether provision of HCBS to youth under this Demonstration results in the maintenance of or improvement in an enrollee's functional status. Several domains are of interest,

such as mental health and social functioning, among others, as well as measures of children's overall functioning.

Besides the general functional assessment question, we address other important questions of interest to CMS and policymakers, answers to which depend on the size of the samples and the similarity in data elements collected by state grantees. Fortunately, these measures are included in the core and common functional status variables; thus, there is a certain level of consistency across states. For example, we ask who are the various subgroups served and how they differ on functional assessment and other outcomes.

**Program Satisfaction:** An important aspect of the evaluation is children/youth and family satisfaction and experience with the HCBS waiver services as well as consistency of perceptions between children/youth and their families. We examine levels of satisfaction with the program to the extent data are available.

We will elaborate further on our research on program fidelity and services provided (diversity and intensity) in the final report. This will include addressing such questions as (1) to what degree states' Demonstration programs are implemented with fidelity to the wraparound service model (*when* the wraparound approach is used, *what* version is used, and the fidelity index instrument), and (2) what services are received and to what extent do they relate to outcomes.

**Program Fidelity:** Assessing fidelity will enable us to better understand what has been implemented in the different states and the extent to which each program has adhered to the key tenets of the wraparound model (Bruns, Suter & Leverentz-Brady, 2008) specified in the RFP for the Demonstration (i.e., services are strength-based, involve child/family teams, involve cross-agency community teams, and have flexible funding). Evidence from other evaluations and outcomes-based research support the effects of the wraparound practice model (Suter & Bruns, 2009). Between 1986 and 2008, seven studies used comparison groups to determine the effects of wraparound. These studies found medium effects for youth living domain and small effects for mental health outcomes, overall youth functioning, school functioning and juvenile justice. The important role of adherence to wraparound principles was underscored by Cox, Baker, & Wong's 2010 retrospective study of factors that predict positive outcomes. Based on this research, we will examine how program fidelity varies within and across the states, and use this information in interpreting the outcome data.

**Services Received:** To explore the impact of the Demonstration waiver program on observed client outcomes, we examine the grant services received by each enrollee. Information on

intensity and type of services will allow us to examine whether there are "dosage" effects on the observed functioning outcomes. If service type and intensity data are only available in the aggregate or from qualitative interview reports, we will use the information only to enrich our understanding of the differences in outcomes across states.

Exhibit 2.2 shows the evaluation analyses (core outcome and comparison outcome analyses and cost neutrality) proposed in the 2007 Evaluation Design Report. In this report we concentrate on two type analyses, indicated in *italics* in Exhibit 2.2. In the final report (expected in late 2012), we will use the state-level findings (core outcomes analysis Tier 1) to further interpret the Tier 2 (cross-state analyses) findings and, where feasible, conduct comparison outcome analyses (Tiers 3 and 4). Limited data (quality and availability) across all states has prevented us from conducting substantial analyses in several research areas, particularly satisfaction and wraparound fidelity, as well as service intensity. Conversations are ongoing with state grantees to increase response rates on data collection as well as implement protocols for improved data quality.

In addition, our qualitative knowledge of each state's programmatic structure and relevant events/activities during the course of implementation will be considered in developing the final structure of the analytic models. Taken together, these strategies will increase our confidence in the estimates of whether the Demonstration services maintained or changed the functioning of the enrollees.

## Exhibit 2.2: Evaluation Analyses

| Research Questions | Description |
|---|---|
| **CORE OUTCOME ANALYSES** | |
| **Tier 1: State-Level Individual Change Outcome Analyses** | |
| For each state, have youth participating in the HCBS demonstration maintained or improved their functional outcomes? | Separate analyses for each state on the amount of change from pre- to follow-up(s) measures of the outcome domains. |
| **Tier 2: Cross-Site Individual Change Outcome Analyses** | |
| *Across multiple/all states, have youth participating in the HCBS demonstration maintained or improved their functional outcomes?* | *Analyses on pooled data from subsets of states using the same outcome measures.* |
| **COMPARATIVE OUTCOME ANALYSES (OPTIONAL)** | |
| **Tier 3: State Comparative Models** | |
| For each state with a PRTF comparison group, how do changes in the functional status of HCBS waiver demonstration participants compare to children/youth in PRTFs? | Analyses comparing functional outcomes for youth in the demonstration group to youth in PRTFs. |
| For each state with a community treatment as usual comparison group, how do changes in the functional status of HCBS waiver demonstration participants compare to children/youth receiving "usual" services in the community? | Analyses comparing functional outcomes for youth in the demonstration group to youth receiving other services in the community. |
| **Tier 4: Cross-site Comparative Models** | |
| Across multiple/all states that used comparison groups, how do changes in the functioning of Demonstration participants compare to youth in comparison groups? | Analyses on pooled data from subsets of states using the same outcome measures. |
| Across multiple states that used comparison groups, is there a difference in level of change in outcomes between youth served in Demonstration compared to youth receiving services as usual? | Prospective meta-analyses that statistically integrate the effect sizes across the quasi-experiments. |
| **COST NEUTRALITY OUTCOME** | |
| *For each state, has the HCBS demonstration cost no more, on average, than anticipated aggregate PRTF expenditures in the absence of the demonstration?* | *Analyses comparing the aggregate cost of the HCBS demonstration program to anticipated PRTF expenditures in the absence of the demonstration.* |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities. Evaluation Design. September 2007.

Our first step in the evaluation is an exploratory analysis of the children and youth served under the Demonstration. Since the Demonstration program is a new model for CMS and the states, our analysis will help provide a context for the Demonstration and inform future programs in this area. This, in turn, will provide greater understanding of the varying extent of change that occurs among groups that are likely to be *differentially affected by the intervention and/or are expected to change at different rates*, such as outcome changes by different age cohorts, or children who are transitioned vs. children who are diverted.

## A. Tier 2: Cross-State Analyses

Pooling the data across states provides greater statistical power and the ability to examine changes for specific subgroups. For this interim evaluation, however, we rely on analyses of outcome changes for Demonstration participants across states primarily by pooling data from *subsets* of states. The decision to restrict most pooled analyses to subsets rather than one aggregate analysis was dictated by the diversity in program design, populations served, and measures of functioning across states. We have chosen, in particular, to pool the data from states that have a common functional assessment instrument. For example, all states that use the Child & Adolescent Functional Assessment Scale (CAFAS) for their functional assessment are included in one subset.

To the extent that sample sizes are sufficient, we examine differences in functional outcomes across subgroups that may differentially respond to the waiver program or start out at very different baseline levels of functional status. The subgroups described below were selected to be consistent with moderators (such as age and diagnosis) that previous studies on children's mental health services have indicated are likely to differentially affect outcomes. The subgroups we examine include:

- Children/youth diverted from PRTFs vs. those transitioned out of PRTFs
- Children/youth with serious emotional disorders vs. those with "co-occurring" substance use problems vs. those with "other" co-morbid issues
- Children/youth from different age groups and particular diagnostic groups
- LOS – Length of program stay or program exposure

For a selected number of common functional variables, data for all states are available and can be pooled for analysis. For example, measures of substance use or juvenile justice involvement in the last 6 months are common elements across all states (although definitions/data sources, such

as whether they are from self-assessment or agency reported, may vary slightly across states). Variations across data elements may limit the rigor of the analysis of the common functioning measures.

## B. Cost Neutrality

The second main outcome question is whether the Demonstration, on average, costs no more than the anticipated aggregate PRTF expenditures in its absence. We evaluate cost neutrality by comparing each state's aggregate expenditures on HCBS services provided under this waiver to typical PRTF expenditures on the basis of data states submit annually on the CMS MOD-PRTF DEMO 372 Report form. Each state evaluation will review data for all the waiver program years.

The CMS MOD-PRTF DEMO 372 Report form provides information on expenditures by service for the entire waiver year. The sum of these services is used to present the average per capita cost of all services provided to individuals in the waiver program and the average per capita cost of services provided to individuals not in the waiver program. Average per capita costs for waiver participants include HCBS services as well as other services provided to participants. To calculate the average per capita cost, the 372 Report form also records the number of users per service and the total number of unduplicated waiver participants for which claims were paid. The Cost Neutrality formula is **D+D′ ≤ G+G′**, where:

**D** = estimated annual average per capita Medicaid cost of HCBS for individuals in the waiver program.

**D′**= estimated annual average per capita Medicaid cost for all other services provided to individuals in the waiver program.

**G** = estimated annual average per capita Medicaid cost for hospital, NF, or ICF/MR care that would be incurred for individuals served in the waiver, were the waiver not granted.

**G′** = estimated annual average per capita Medicaid costs for all services other than those included in factor G for individuals served in the waiver, were the waiver not granted.

If the sum of D and D' is less than the sum of G plus G', then the waiver is considered cost neutral.

States are also required to provide average length of stay (ALOS) in the waiver (Form 372). This measure describes the number of days on average during a waiver year that a child/youth participates in the waiver. ALOS is calculated by dividing the total number of enrolled days of all participants by the unduplicated number of participants.

## C. Evaluation Design Caveats

It is important to note that this is not a classic experimental evaluation because there is no control group that is like the enrollees in all respects except for the treatment, which would enable direct comparison with the treatment group. For this reason, it is important to collect and analyze as much data as possible to help measure and *take into account non-treatment differences (across analysis groups and subgroups and across time) that might otherwise distort the findings*. These additional steps improve the ability of the analysis to accurately reflect causation (i.e., they improve the internal validity of the data).

# CHAPTER 3. STATE GRANTEE PROFILES AND METHODS

This chapter presents characteristics of each PRTF Demonstration grantee, including effective date, date of first enrolled participant, assessment instruments, and total enrollment since program inception. The approved effective date and date of first enrolled participant for each program present important historical information. Exhibit 3.1 includes program-specific characteristics to explain differences among the programs, especially in total enrollment.

Although waivers for *Georgia* and *Maryland* were approved in September 2008 and January 2008, respectively, it was almost a year before *Georgia* enrolled its first participant (August 2009) and well over a year for *Maryland* (October 2009). This delay was the result of the necessary policy, regulatory, workforce, and other implementation activities that had to be completed after the award but before the states would permit any youth to be served under the Demonstration. *Kansas* enrolled its first participant in April 2008, the same month in which the program became effective. The six other Demonstration states enrolled their first participant within 6 months of approval.

All Demonstration states used one of three functional assessment instruments to gather data from clients at baseline, 6-month intervals, and disenrollment from Demonstration services: *Child and Adolescent Needs and Strengths - Mental Health (CANS);* the *Child & Adolescent Functional Assessment Scale (CAFAS)* and the *Child Behavioral Checklist (CBCL)*.

Another defining characteristic of each Demonstration state is whether or not it has a comparison group (see Exhibit 3.1). Data for the comparison group will be critical for the comparison outcome analysis – Tiers 3 and 4, to be conducted in the next analysis stage. *Alaska, Georgia, Kansas, Montana*, and *South Carolina* have no comparison group. For states that do have a comparison group, its structure and implementation varies by state. For example, some states match demonstration clients with PRTF residents; others use an aggregate of PRTF residents; and Virginia uses a random sample of PRTF children/youth. More detail about the state grantees' comparison groups is as follows:

- *Alaska's* enrollment was never anticipated to be very large, and the state population is small. Alaska determined that a comparison group would not contribute much to the overall program evaluation and could prevent otherwise eligible recipients from receiving needed services.
- *Indiana* has been identifying matches for the control group from children who were approved for the waiver but did not follow through, as well as those receiving public

mental health services. As of January 2011, over 100 such youth had been identified from CANS and Medicaid claims data.

- *Maryland* opened up the comparison group to all PRTFs, including both public and private facilities. Only the two public PRTFs consented to participate in the comparison group. As of June 9, 2011, 87 youth were enrolled in the public PRTFs who were identified as eligible for the comparison group.
- *Mississippi* has one comparison group with 50 youth per year selected at random.
- *Virginia*'s goal was to have a one-to-one match to the 50 youth enrolled. The comparison group is smaller than originally envisioned because CAFAS was completed for only certain youth, parental placement where there was no CAFAS or CANS, and lack of response from PRTFs.

## Exhibit 3.1: PRTF Grantee Key Characteristics

| PRTF Grantee | Approved Effective Date | First Enrolled Participants | Level of Care Instrument | Functional Assessment | Comparison Group | Total Enrollment Since Program Inception *(as of Jan/Feb 2011)** |
|---|---|---|---|---|---|---|
| **Alaska** | October 2007 | March 2009 | Criteria Established in State Regulations | CAFAS | No comparison group | 35[1] |
| **Georgia** | September 2008 | August 2009 | Calocus | CAFAS | No comparison group | 287 |
| **Indiana** | October 2007 | February 2008 | CANS | CANS | PRTF residents in aggregate | 934 |
| **Kansas** | April 2008 | April 2008 | Kansas Community Mental Health Center Screening Form and CAFAS | CAFAS ( also collecting CBCL for state requirements) | No comparison group | 421 |
| **Maryland** | January 2008 | September 2009 | Psychiatric evaluation, psychosocial assessment, and physical health assessment are compiled and reviewed by an independent team. At the 12-month redetermination point in the Demonstration, participants go through a similar process and the CASII is administered. | CANS | All eligible youth in 2 public PRTFs | 146 |
| **Mississippi** | October 2007 | November 2007 | CANS | CANS | Residents of PRTF | 807 |

[1] Alaska noted certain initial challenges in recruiting and enrolling participants. Reasons noted include lack of psychiatrists to perform evaluations, lack of providers to perform waiver services, and providers were offered rates for PRTF services that were significantly lower than regular Medicaid reimbursement rates and services were restricted to youth 14-21 years of age.

| PRTF | Approved | First Enrolled | Level of Care Instrument | Functional | Comparison | Total Enrollment |
|---|---|---|---|---|---|---|
| **Montana** | October 2007 | April 2008 | LOC determination by UR contractor, Magellan, per CMHB Clinical Management Guidelines | CBCL | No comparison group | 58<br>If 2/2011 data is included, the number is 64 |
| **South Carolina** | January 2008 | June 2008 | Calocus | CBCL | No comparison group | 76 |
| **Virginia** | December 2007 | March 2008 | CAFAS /CANS | CANS as of July 1, 2009 | Random Sample of children in PRTF | 51 |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities. Evaluation Design, Minimum Data Set Development and Implementation Status Reports. September 2007–January 2011.
* Point in time approximation reported by state grantee project directors.

Exhibit 3.2 highlights additional differences in program characteristics, including type of wraparound model, Wraparound Fidelity Index (WFI) instrument, whether it is a diversion or transition program, and specific program exceptions. The WFI instrument surveys participants about their experience with Wraparound Facilitators, who work to form a collaborative environment between participants, families, providers, and the community. The majority of Demonstration states have waived comparability, with several also waiving statewideness. Only *Kansas* has waived income and resource rules. All except *Virginia* enroll youth either diverted from PRTFs or transitioned out of PRTFs; *Virginia* enrolls only transitions.

Since there is wide variation across state grantees in program characteristics, local evaluation approaches, client populations, and measurement, we make use of the variations across the states to help explain differences in the findings. Knowledge of the results by state is also informative as we conduct cross-site and comparison models.

**Exhibit 3.2: Wraparound, Diversion Program, and Waiver Exceptions**

| State | Wraparound | WFI | Diversions/ Transitions | Exceptions |
|---|---|---|---|---|
| **Alaska** | High Fidelity | 4.0 | Both | Comparability* |
| **Georgia** | High Fidelity | 4.0 | Both | Comparability*<br>Statewideness |
| **Indiana** | High Fidelity | 4.0 | Both | Comparability* |
| **Kansas** | Based on John VanDenBerg's model | 4.0 | Both | Comparability*<br>Income and resource rules |
| **Maryland** | High Fidelity | 4.0 | Both | Comparability*<br>State wideness |
| **Mississippi** | High Fidelity | 4.0 | Both | Comparability* |
| **Montana** | High Fidelity | Other (F4OTH) | Both | Comparability*<br>Statewideness |
| **South Carolina** | High Fidelity | Other (Developed by National Evaluator) | Both | Comparability* |
| **Virginia** | High Fidelity | 4.0 | Transition only | Comparability* |

Source. Year 3 Implementation and Status Report. Also reported during monthly calls with state grantees.
* Comparability of services: Another attribute of the waiver was that it allowed states to specifically serve children and youth at risk of institutionalization without being required to make waiver services available to the Medicaid population at large. All states have waived comparability of services.

## A. Enrollment Statistics

Exhibits 3.3 and 3.4 provide enrollment statistics by waiver year and descriptive statistics by state. The following sections provide detail on enrollment figures by state and highlight significant changes as the Demonstration enters waiver year 4.

**Projected and Actual Enrollment**

The variations in projected populations served and actual populations served are due to several factors, including differences in state and program policies, program history, and state demographics. A common challenge affecting enrollment faced by all Demonstration states has been continued state budget cuts. However, waiver year 3 marked significant progress in program enrollment for most state grantees. This progress has continued into waiver year 4 as most states continue to increase the number of children enrolled. Almost half-way through waiver year 4, an unduplicated count of 2,819 children and youth have been served by the nine grantee states (Exhibit 3.4).

Exhibit 3.3 presents projected and actual enrollment figures for each state by waiver year, as well as the approved effective date for each program. Actual enrollment is defined as active participants or those enrolled during the specified time. The number of children and youth enrolled in the Demonstration varies by state. Actual enrollment has grown over the three waiver years from 253 in year 1, to 978 in year 2, to over 1,300 in year 3.

**Enrollment by State**

*Alaska* has seen a significant increase in enrollment from 3 participants in year 2 to 30 as the Demonstration enters year 4. The program experienced initial challenges in recruiting and enrolling participants. Although many children who would benefit from enrollment in the program were identified, many factors prevented their enrollment. For example, psychiatrists were initially hesitant to prescribe a PRTF-level diagnosis to children they knew would be served in the Demonstration. As a result, program staff report assessed children in such a way that those children could be served in the community and did not meet PRTF level of treatment. This meant that the children did not qualify for the Demonstration waiver. At the end of year 3, however, psychiatrists' evaluations were no longer a substantial problem in enrollment, since psychiatrists had become persuaded to enroll children in the Demonstration.

A unique aspect of *Alaska's* youth is the focus on fetal alcohol spectrum disorder (FASD). Since this diagnosis affects only a small part of the overall population, the expectation was that *Alaska* would serve a smaller group than the rest of the participating states. However, this state focus has led to greater understanding of FASD by families and providers, as well as how FASD affects behaviors, thus

increasing the number seeking treatment. Many communities are not able to accommodate children because of a lack of providers. Although progress has been made, *Alaska* is struggling with enrolling youth and identifying and training providers at the same time.

*Georgia* made significant strides in enrollment in year 3. At the start of that waiver year (October 2009), only 15 children were enrolled. By the end of that year, *Georgia* served more than 180, for a total of 163 active participants (Exhibit 3.3). The fact that *Georgia* did not begin enrolling participants until August 2009 highlights the fast pace of the program once started; by March 2011 *Georgia* had served more than 300 children. In March 2011 there were 248 active participants (Exhibit 3.4).

*Indiana* is leading in state enrollments. Building on existing, but very limited local and regional systems of care, the state managed program provides services through many community mental health centers, residential, and other child service providers statewide. An amendment was approved increasing the number of slots from 550 in year 2 to 750 in years 3 through 5. By early 2011, there were 485 active participants, and more than 900 youth had been served. *Indiana* hopes to fill the 750 unduplicated slots by April 2011.

*Kansas* is also a frontrunner in enrolling participants. Although the state has faced challenges such as financial constraints, competition from the SED (Serious Emotional Disturbance) waiver, which provides similar HCBS to youth with mental health diagnoses,[2] and a perception that the program is more targeted to older youths, there were 210 youth enrolled at the end of year 3. *Kansas* has been overcoming these challenges with additional training and technical assistance through avenues such as in-person, phone, email and fax, and through an interactive database. These efforts have resulted in continual increases in enrollment. As of March 2011, there were 227 active participants.

*Maryland*'s enrollment in year 3 was very strong and surpassed projected enrollment numbers with 105 active participants, up from only 3 enrollees in year 2. *Maryland* is now dealing with a growing waitlist and has submitted an amendment to its waiver to increase the number of participants. The surge in enrollment from year 2 to year 3 is explained by the fact that enrollment did not begin until July 2009. It should be noted that many of the youth enrolled were already receiving community-based services through a pilot wraparound program, which aided in recruitment efforts as children were already identified.

[2] Kansas's HCBS-SED Waiver. National Health Policy Forum. October, 2005. http://www.nhpf.org/library/handouts/Denney.slides_10-07-05.pdf

*Mississippi*, as the first state to enroll a participant in the Demonstration program, remains a frontrunner in enrolling participants, with more than 800 enrollees as of February 2011. Part of *Mississippi's* early success lies in its education and outreach initiatives. In year 2 the state was granted an amendment that allowed enrollment to increase to 350. At the end of year 3, *Mississippi* had 269 children actively enrolled. Another amendment has been approved to increase unduplicated enrollment for year 3 to 500. The number of children who continue with the Demonstration from one waiver year to the next continues to grow, stressing the need to increase enrollment capacity.

*Montana*'s enrollment at the end of year 3 was 21; as of March 2011, there were 27 active participants. Some families opt for an acute care facility rather than the waiver because they find it difficult to manage the child at home even with waiver and natural supports. Some families choose traditional youth case management rather than the waiver, because they do not want to engage in the wraparound process, which is a requirement for enrollment.

*South Carolina*'s enrollment is affected by a 50-participant cap. In early 2009, the state's waiver was in danger of ending due to state agency budget cuts. Fortunately, the waiver was revived and the cap was implemented to limit program burden. This cap is now under periodic review since the quota has been met and a waitlist has been established. By early 2011, *South Carolina* served 47 active participants.

*Virginia*'s enrollment is lower than projected, but the number of participants is being maintained since the number of active participants grew in year 2. Enrollment throughout year 3 remained well under the projected amount of 300 due to several factors. Parental income, for example, caused many youth to become ineligible. As of July 1, 2010, however, financial eligibility changed so that it is based solely on the child/youth's income. Another constraint is that, since *Virginia* is not a diversion program, participants must reside in a PRTF for 90 days prior to enrolling. *Virginia* consistently serves about 20 youth (16 active youth as of March 2011).

## Exhibit 3.3: Projected and Actual Enrollment by Waiver Year

| State | Approved Effective Date | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Projected[6*] |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Projected[1*] | Actual[2*] | Projected[1*] | Actual[3*] | Projected[1*] | Actual[4*] | Projected[*] | Actual[5*] | Year 5 |
| **Alaska** | 10/1/2007 | 7 | 1 | 25 | 3 | 53 | 29 | 83 | 58 | 88 |
| **Georgia** | 9/1/2008 | 30 | 0 | 87 | 9 | 171 | 163 | 291 | 240 | 341 |
| **Indiana** | 10/1/2007 | 200 | 118 | 550 | 406 | 750 | 456 | 750 | 485 | 750 |
| **Kansas** | 4/1/2008 | 189 | 21 | 523 | 150 | 662 | 210 | 840 | 227 | 1067 |
| **Maryland** | 1/1/2008 | 1 | 0 | 70 | 3 | 80 | 105 | 188 | 124 | 210 |
| **Mississippi** | 12/20/2007 | 118 | 99 | 350 | 349 | 500 | 269 | 550 | 363 | 600 |
| **Montana** | 10/2/2007 | 20 | 3 | 50 | 13 | 100 | 21 | 80 | 32 | 100 |
| **South Carolina** | 1/1/2008 | 50 | 7 | 125 | 15 | 140 | 46 | 150 | 47 | 200 |
| **Virginia** | 12/1/2007 | 100 | 4 | 300 | 30 | 300 | 20 | 300 | 18 | 300 |
| **Total** | | **715** | **253** | **2080** | **978** | **2756** | **1050** | **3232** | **1594** | **3656** |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.

[1] Source: *Year 2 Implementation Status Report*
[2] Source: *Implementation Status Report as of October 1, 2008* (Year 1)
[3] Reflects unduplicated counts as of September 30, 2009 (from the *Year 2 Implementation Status Report*)
[4] Active total as of October 2010 as reported by state grantees
[5] Active total as of January/February 2011 as reported by state grantees
[6] As of September 2010
* Projected numbers reflect the total number of children and/or youth enrolled over the entire waiver year while the actual number reflects only those actively enrolled at the end of the waiver year. Therefore, the actual number under-reports the total number of children served during the waiver year.

## Exhibit 3.4: Descriptive Enrollment Statistics

| State | Date of Most Recent Enrollment Numbers | Cumulative | | Waiver Year 4 | Active Participants | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Enrollment | Disenrollment | Enrollment | Active Total | Males | Females | 12 & under | 13-18 | 19-21 | Transitions | Diversions |
| **AK** | March 2011 | 41 | 8 | 58 | 51 | 39 | 19 | 16 | 36 | 6 | 14 | 44 |
| **GA** | March 2011 | 328 | 92 | 252 | 248 | 140 | 108 | 94 | 151 | 3 | 205 | 43 |
| **IN** | February 2011 | 934 | 481 | 115 | 485 | 352 | 133 | 231 | 251 | 3 | 8 | 488 |
| **KS** | March 2011 | 421 | 218 | 107 | 227 | 143 | 82 | 56 | 150 | 21 | 203 | 23 |
| **MD** | March 2011 | 157 | 33 | 124 | 124 | 78 | 46 | 37 | 85 | 2 | 2 | 122 |
| **MS** | February 2011 | 807 | 511 | 315 | 296 | 181 | 115 | 111 | 182 | 3 | 60 | 236 |
| **MT** | March 2011 | 70 | 43 | 29 | 27 | 14 | 13 | 10 | 17 | 0 | 14 | 13 |
| **SC** | January 2011 | 76 | 28 | 53 | 47 | 36 | 11 | 14 | 33 | 0 | 7 | 47 |
| **VA** | March 2011 | 53 | 38 | 16 | 16 | 8 | 8 | 3 | 12 | 1 | 16 | N/A |
| **Total** | | **2887** | **1452** | **1069** | **1521** | **991** | **535** | **572** | **917** | **39** | **529** | **1016** |

Source. As reported by state project directors in the monthly Qualitative Monitoring Guide.
Notes: Enrollment for waiver year 4 is total enrolled in the Demonstration beginning October 1, 2010. The above statistics are taken at a specific point in time and are therefore close approximations.

**Descriptive Enrollment Statistics**

In addition to reporting overall enrollment figures, state grantees submit demographic information (age and gender) for the children/youth enrolled. Exhibit 3.4 presents these descriptive figures for each state as of 2011. Among the actively enrolled participants (1,494) in all Demonstration states, there were 517 females and 975 males. Most Demonstration participants (65 percent) were diverted from PRTFs; the remaining 35 percent (507 participants) were transferred out of PRTFs.[3] Transition children/youth are defined as those previously enrolled in a PRTF who move to a community-based setting and receive services under the Demonstration. A majority (60 percent) of the enrollees were ages 13-18. Only 35 participants (less than 3 percent) were ages 19-21. Overall, there were 964 new enrollees in the Demonstration at the beginning of 2011. Further comparisons and in-depth analyses are presented in chapter 4.

Enrollment characteristics among states differ for a variety of reasons. For most states, the expected demographic distribution matches the actual demographic presented. Deviations from the expected demographics are due to state-specific variables or program features. The following highlights significant differences across states that affected enrollment.

*Alaska*'s state regulations did not correspond with the population targeted for services. The Demonstration grant waiver was written to serve youth ages 14-21. After implementing the Demonstration, the state identified a number of youth under 14 who met the level of care criteria but could not be served through the Demonstration grant waiver. New regulations were adopted that broadened the age range of the population served from ages 14-21 to ages 0-21. The youngest youth now served is 4 years old, and about one-third of participants are under age 14. *Montana* also found the need to increase the age of enrollment from 17 to 18 years old.

Many states found that projected numbers of diversions and transitions did not match actual diversion and transition figures. *Indiana* experienced lower than projected rates of transition youths while *Kansas* experienced higher than projected rates. *Montana* found that the number of diversions was fewer than expected, but anticipated changes in wraparound facilitators' experience and confidence are likely to change this.

Many states reported difficulty retaining participants in the program once enrolled in year 2. They attribute their retention challenges to several factors, including poor adherence to waiver services, lack of respite services, losing Medicaid eligibility, child welfare or DCS placement in

[3] Note that the numbers of diverted and transferred children/youth do not sum to the total enrolled in a Demonstration waiver. Kansas notes, for example, that some of their enrollees have been both diverted from PRTFs and transferred out of them, resulting in a total count that exceeds the sum of the two category totals.

residential care, and the wraparound principle. In year 3 only a few states reported challenges. *Mississippi* identified lack of provider engagement as the source of early disenrollment. Program staff suggests that missing components at the point of intake are the cause, and training is being provided to resolve this issue. In *Kansas*, many older youth are choosing to discontinue services due to a requirement, which applies to all Kansas waivers, that employed participants pay a fee, depending on their income. Income as low as $720 a month is enough to trigger the fee requirement, which affects their ability to pay for basic living expenses. In *South Carolina*, disenrollment began occurring more quickly due to noncompliance with the requirement that participants receive at least one service a month to continue to be enrolled.

## B. Data Requirements and Submissions

The evaluation design specified that information for all children/youth in the program be submitted every 6 months and at disenrollment. Grantees have met these requirements to varying degrees, which has complicated how the data can be used for analytical purposes. Exhibit 3.5 describes the state grantees' data collection approaches as well as their compliance with the MDS requirements.

In addition to Exhibit 3.5, the following further clarifies submission requirements:

- If disenrollment date is within 30 days of 6-month followup, either before or after, one of the two data collections efforts can be waived. All data points are considered.
- Data after disenrollment is not required, although these data will be accepted for further analysis.
- All data elements are required for comparison groups (if funded).
- Participants who do not wish to complete the fidelity and/or satisfaction items may do so without affecting their status in the waiver.

## Exhibit 3.5: CBA Minimum Data Set (MDS) Submission Requirements

| MDS Summary of Information | | | | |
|---|---|---|---|---|
| **Instrument** | | **Frequency** | **References** | **Notes/Recommendations** |
| **Functional Assessment** | **CANS** | Baseline, Every 6 Months, Disenrollment | 1) MDS Development and Mode of Transmission (p. 4)<br>2) Evaluation Design Report (p. 25) | 1) Acceptable any time within 2 months before or after the 6-month followup (i.e., between 4 and 8 months)<br>2) Data collection at 3-month intervals is recommended to minimize loss of data due to sudden disenrollment |
| | **CAFAS** | | | |
| | **CBCL** | | | |
| **Satisfaction** | **YSS* Family** | Every 12 Months, Disenrollment | 1) MDS Development and Mode of Transmission (p. 4, p. 9)<br>2) PRTF Bulletin #6<br>3) Evaluation Design Report (p. 27) | 1) Optional for participant and family<br>2) Required for grantee<br>3) May use similar instrument (i.e., KFSS)<br>4) More frequent data collection is recommended (i.e., every 6 months) |
| | **YSS* Child** | | | |
| **Fidelity** | **WFI* Facilitator** | Every 6 Months, Disenrollment | MDS Development and Mode of Transmission (p. 3, p. 4, p. 8) | 1) Must submit for facilitator and caregiver<br>2) Recommend grantees choose version 4.0<br>3) May use other measure (i.e., 3.0) |
| | **WFI* Caregiver** | | | |
| **Service File** | | Baseline, Every 6 Months, Disenrollment | MDS Development and Mode of Transmission (p. 4) | 1) F3SERV_01 (duration (in days) of program participation for each child) has been moved to the Core file<br>2) F3SERV_02 (reason for disenrollment) move to Core file |
| **Core and Common Files** | | Baseline, Every 6 Months, Disenrollment | MDS Development and Mode of Transmission (p. 4) | 1) Acceptable any time within 2 months before or after the 6-month followup (i.e., between 4 and 8 months)<br>2) Data collection at 3-month intervals is recommended to minimize loss of data due to sudden disenrollment. |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, July 2010 and January 2011.
Notes: Additional information obtained from communication with state grantee project directors and data experts.
*WFI= Wraparound Facilitator Index (surveys participants about experience with Wraparound Facilitators)
*YSS= Youth Satisfaction Survey (measures participant satisfaction with Demonstration)

The following tables describe the level of data completeness reported by states for the January 2011 data submission, based on the data expected to be available given the MDS requirements for all data sets (core, common functional indicators, functional assessment instruments, satisfaction and Wraparound Fidelity Index, services). Exhibit 3.6 presents the total number of enrolled participants as of January 1, 2011[4] compared to the actual unduplicated count of children in the January 2011 data submission. As shown, the analytical file will be inherently limited for analysis purposes since some states have not been able to include enrolled children's data in the MDS. *Georgia* and *Montana* represent states with the highest percentage of children with missing data, with 32.9 percent and 55.2 percent of children with missing data, respectively, relative to what is reported in monthly reports to IMPAQ, the national evaluator. All other states are missing less than 20 percent of children's records. Note that after the January 2011 data submission, several states improved their data completeness rate but the improved data were not available for this report.

**Exhibit 3.6: Enrollment and Actual MDS Count**

| State | Total Enrolled Participants *(January 2011 approximation)* | Actual MDS count *(For January 2011 data submission)* | % Children with Missing Data |
|---|---|---|---|
| **Alaska** | 38 | 34 | 10.5% |
| **Georgia** | 316 | 212 | 32.9% |
| **Indiana** | 934 | 902 | 3.4% |
| **Kansas** | 421 | 369 | 12.4% |
| **Maryland** | 152 | 124 | 18.4% |
| **Mississippi** | 807 | 727 | 9.9% |
| **Montana** | 58 | 26 | 55.2% |
| **South Carolina** | 76 | 71 | 6.6% |
| **Virginia** | 53 | 52 | 1.9% |
| **Total** | **2,855** | **2,517** | **11.8%** |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.

[4] Enrollment numbers for January 2011 reflect numbers reported by state grantees as of January/February 2011 and are close approximations.

A similar issue relates to the number of records reported for children based on their length of stay and disenrollment date. States are missing a large proportion of their records when we compare Comparing the expected (required) followups at 6, 12, and 18 months to the disenrollment-reported data reveals a large proportion of missing records at the state level. Also, reported data that fell outside the admissible time frames was discarded for analysis purposes, adding to "missing data" problem.

The number of missing variables for a record varies by state. Exhibit 3.7 presents the number of variables expected per data set, the percentage of missing variables for a record, and the average number of missing variables in a record for core and common files, and youth functional assessment (CANS, CAFAS, or CBCL). The number of variables provided for a record range from 33 to 36 for core and common files, 21 for CANS, 31 for CBCL, and 23 for CAFAS.

The states with the greatest number of missing variables for core and common files are *Maryland* (34.7 percent) and *South Carolina* (41.4 percent). This averages 12.5 missing variables per record for *Maryland* and 14.5 for *South Carolina*. All other states have just under 8 missing variables (or less that 25 percent) per record. There are multiple reasons for the missing variables, including confusion in source databases regarding case transfers or different data collection intervals between contract requirements and requirements for the national evaluation.

The number of missing variables improves for functional assessment. CANS has the least number of missing variables. All four states using CANS (*Indiana, Maryland, Mississippi*, and *Virginia*) have less than 1 percent of variables missing. Missing variables for CBCL and CAFAS varies by state, from 12.6 percent for *Alaska* (CAFAS) to none for *Montana* (CBCL).

## Exhibit 3.7: Missing Variables for a Record

| State | CORE_COMN | | | CANS | | | CBCL | | | CAFAS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Expected Variables | % of Missing Variables on a Record | Avg # of Missing Variables on a Record | Provided Variables | % of Missing Variables on a Record | Avg # of Missing Variables | Provided Variables | % of Missing Variables on a Record | Avg # of Missing Variables | Provided Variables | % of Missing Variables on a Record | Avg # of Missing Variables |
| **Alaska** | 35 | 17.1% | 6.0 | | | | | | | 23 | 12.6% | 2.9 |
| **Georgia** | 36 | 21.1% | 7.6 | | | | | | | 23 | 1.4% | 0.3 |
| **Indiana** | 34 | 13.8% | 4.7 | 21 | 0.05% | 0.01 | | | | | | |
| **Kansas** | 36 | 16.7% | 6.0 | | | | 31 | 8.4% | 2.6 | 23 | 0.2% | 0.04 |
| **Maryland** | 36 | 34.7% | 12.5 | 21 | 0.48% | 0 | | | | | | |
| **Mississippi** | 34 | 24.4% | 8.3 | 21 | 0.48% | 0.01 | | | | | | |
| **Montana** | 33 | 5.5% | 1.8 | | | | 31 | 0.0% | 0 | | | |
| **South Carolina** | 35 | 41.4% | 14.5 | | | | 31 | 5.2% | 1.6 | | | |
| **Virginia** | 34 | 18.2% | 6.2 | 21 | 0.00% | 9 | | | | | | |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.

Exhibit 3.8 presents the percentage of records with at least 75 percent of the critical analytical variables (approximately 15 variables) on a record. Overall, 79.1 percent of records for all states have 75 percent of the critical variables for core and common files. The percentage of records with at least 75 percent of the critical variables is closer to 100 percent for CANS, CBCL, and CAFAS. The state with the fewest records meeting this threshold for core and common files is *South Carolina* (15.65 percent).

**Exhibit 3.8: Records with 75 Percent Critical Variables Availability**

| State | CORE_COMN | CANS | CBCL | CAFAS |
|---|---|---|---|---|
| **Number of Critical Variables** | **13** | **15** | **15** | **9** |
| **Alaska** | 87.3% | | | 98.8% |
| **Georgia** | 78.6% | | | 99.0% |
| **Indiana** | 99.8% | 100.0% | | |
| **Kansas** | 100.0% | | 92.1% | 100.0% |
| **Maryland** | 64.4% | 100.0% | | |
| **Mississippi** | 69.5% | 100.0% | | |
| **Montana** | 100.0% | | 100.0% | |
| **South Carolina** | 15.6% | | 98.1% | |
| **Virginia** | 96.5% | 100.0% | | |
| **All States** | **79.1%** | **100.0%** | **96.7%** | **99.3%** |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.

Exhibit 3.9 displays the total number of disenrollments in the core file; the number of records present for services, WFI and YSS; and the percentage of missing disenrollment records for services, WFI, and YSS. *Maryland* did not submit any services records (which are based on MMIS2) as the result of an error in the MMIS2 programming that has subsequently been corrected *Alaska* and *Georgia* are missing about 40 percent of records. All other states are missing less than 15 percent. The number of missing records for WFI and YSS greatly increases across all states. With the exception of *Indiana* and *Virginia*, all states are missing more than 65 percent of records for WFI. For YSS, only *Alaska* has submitted more than 50 percent of records.

**Exhibit 3.9: Missing Disenrollment Records**

| State | Total Disen-rollment Children (Core file) | SERVICES | | WFI | | YSS | |
|---|---|---|---|---|---|---|---|
| | | Records of Disen-rollment Children | % of Missing Disen-rollment Records (matches core file) | Records of Disen-rollment Children | % of Missing Disen-rollment Records (matches core file) | Records of Disen-rollment Children | % of Missing Disen-rollment Records (matches core file) |
| **Alaska** | 5 | 3 | 40% | 0 | 100% | 3 | 40% |
| **Georgia** | 12 | 7 | 42% | 3 | 75% | 1 | 92% |
| **Indiana** | 459 | 443 | 3% | 419 | 9% | 231 | 50% |
| **Kansas** | 190 | 190 | 0% | 53 | 72% | 49 | 74% |
| **Maryland** | 17 | | 100% | 2 | 88% | 1 | 94% |
| **Mississippi** | 428 | 427 | 0% | 278 | 35% | 281 | 34% |
| **Montana** | 16 | 7 | 56% | 1 | 94% | 0 | 100% |
| **South Carolina** | 25 | 22 | 13% | 2 | 91% | 4 | 83% |
| **Virginia** | 32 | 32 | 0% | 30 | 6% | 0 | 100% |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.

After review of the July 2010 data submission, states were provided guidance in how to improve data submissions, and some of them took the opportunity to provide feedback to the National Evaluation Team and to request additional clarification. The January 2011 MDS submission showed significant improvement in quality; however, due to inconsistencies across analytical files, substantial limitations remain in the amount of data available for analysis.

## C. Analytical Samples

For analytical and reporting purposes, we divide enrolled children from all states into two samples. The first and largest sample includes *all children* who ever participated in the program (with a few restrictions, noted immediately below). This sample includes children/youth who are still in the Demonstration and children with a disenrollment assessment. The second sample includes all children who have been disenrolled from the waiver program (as of January 2011). Children participating in the Demonstration after January 2011 are excluded from this group. Each sample has its own

inclusion/exclusion conditions and provides a different perspective on the extent to which the Demonstration has maintained or improved enrollees' functional status. [5]

Given the data constraints described earlier, we exclude certain children from all analyses. First, we exclude children who participated for less than 2-3 months. The rationale is that these children are less likely to have benefited from the waiver program's services over such a brief period. Second, the small number of children who stayed in the program for 12 months or longer are also excluded, since we will not be able to conduct statistical tests on the improvement or worsening of their functional status given the small sample sizes in all but two of the states. As our analysis sample of children in the 12-month and up LOS becomes larger, we will include them in our analysis.

For both samples, we conduct a pre-post comparison of mean difference of functional outcomes—between enrollment and disenrollment for the disenrolled children sample, and between baseline and a particular measurement point for the all children sample. We perform statistical tests (t-test, chi-square, and McNemar test) to assess whether the difference is statistically significant between the outcomes at enrollment and the outcomes at other points in time. We report numbers of observations, means, and standard deviations of each item score, as well as test statistics from paired tests. For all the statistical tests, we only include children with both baseline data and records for the corresponding followup measurement point. The reported numbers of observations in the tables are based on all observations available at the respective measurement point. Thus, although some states may have larger number of children with complete followup records, if a child's baseline data are incomplete we cannot test their change over time; thus the sample is defined by the lowest common denominator across time points.

We suppressed results for table cells with sample size (N) less than 30 for the CANS states and less than 15 for CBCL and CAFAS states, for both the measurement point analysis and the LOS analysis. The different sample sizes are driven by the total sample sizes per state. The rule of thumb for a dependent t-test is 30. An exception to the conditions on small cells was the baseline scores by children's characteristics. The exact student t-distribution and central F-distribution were used for t-test and F-tests, respectively.

Below, we provide further detail on the sample definitions and what analyses were conducted for each type of sample.

[5] Maryland did not receive IRB approval to interview participants at disenrollment (if prior to 6 months of services received) until 6/8/11.

**All children**: We investigate how child/youth functional outcome changes with elapsed time in the Demonstration, regardless of whether they have been disenrolled. In this sample, we examine the mean functional outcome of enrolled children at admission and at 6- and/or 12-month followups. That is, only children with 6-month assessment data are included in the 6-month analysis; children who do not have 6-month data may be included in the 12-month analysis if there are data for these children in the 12-month followup. The purpose of this analysis is to observe children's progress through time. It is expected that as data collection improves, we will observe a more consistent distribution of records along the 6- and 12-month followups.

**Disenrolled children sample**: Any change in functional outcome is likely to be related to the LOS, although the direction of that relationship needs to be tested. A longer LOS may provide more benefits to children; but conversely, children may exit the program early because parents and/or children/youth themselves have judged that it is not appropriate, not perceived it as helpful, or that enough improvement has taken place to merit disenrollment (even if this decision has been made outside the Child Family Team construct). Therefore, we present findings by LOS: 3 to 6 months, 7 to 12 months, and longer than 12 months. This approach will help explore the "dosage effect" of program services.

It is important to note that findings on outcome changes by LOS should not be interpreted as a direct effect of LOS on functional outcome because, as noted, LOS is a function of many factors exogenous to the treatment. Other techniques beyond the pre-post comparison analysis presented here are needed to further test for any LOS effect on functional status.

**Subpopulations**. We conduct subgroup analysis by the level of functional impairment at enrollment for the children sample and the disenrolled children sample. In most cases, we divide the population into three groups, ranging from lower functioning status/high impairment to higher functioning status/lower impairment. Note that children with higher functioning status/lower impairment still meet the PRTF level of care criteria. These children's characteristics may have an important role in shaping performance while in the Demonstration.

As mentioned earlier, these analyses cannot establish any strictly causal connection between the Demonstration services and outcomes, due to lack of a control group. However, the larger sample size provides substantial ability to identify and examine, for example, possible correlations between subgroups and outcomes.

Evidence on the importance of children's demographic characteristics, source of enrollment (diversion vs. transition), and DSM-IV Text Revision (TR) diagnostic conditions will define the next level of analysis for understanding the program effect and which children benefit the most from similar

programs. This subgroup analysis can help target services to children with particular profiles, optimizing the benefits of the program as a whole.

For the subset of states that implemented comparison groups (either children who are PRTF residents or some subset of children receiving "services as usual" in the community), we will use comparison groups to further refine our estimation of Demonstration impacts.

# CHAPTER 4. CHARACTERISTICS OF CHILDREN AND YOUTH PARTICIPATING IN THE DEMONSTRATION

## A. Participant Characteristics

An important foundation for the evaluation of the multisite, multifunctional assessment instrument is description of the demographic and family characteristics, health and health care history of the children/youth served under the Demonstration, and, where available, comparable data for their counterparts in PRTFs or in other HCBS programs. Descriptive analyses characterize the population by age, gender, race, ethnicity, source of enrollment (i.e., diversion vs. transition), caregiver and living arrangements at admission, mental health history (as measured by DSM-IV codes[6]), and history of PRTF admissions. Our analysis examines children's characteristics in the aggregate and across states. We also compare children and family characteristics by sources of enrollment (transition/diversion).

For simplicity and because of sample size issues, we only include children's information at their first enrollment (see exhibit 4.1). (Very few had two or more enrollments.)

More boys than girls (65 vs. 35 percent) are enrolled in the waiver program. About one-third of the children are ages 6-11, and about half are ages 15-18. Fewer than 50 are younger than age 6 (pre-school-age) or over age 18 (transition youth). Sixty-three percent are white, and close to 30 percent are black. More children are enrolled in the program by diversion than transition (60 vs. 40 percent). About three-quarters of the children live with at least one biological parent. The other main caregivers include step or adoptive parent, relative, or foster parent. Only 7 percent of children receive care from non-relatives.

Nearly half of the children enrolled in the program had the types of primary disorders usually first diagnosed in infancy, childhood, or adolescence (i.e., oppositional defiant disorder and attention deficit/hyperactivity disorder). Mood, depressive, and bipolar disorders are another major type, accounting for 38 percent of the children's conditions at program admission. Although children in the waiver program have varying degrees of emotional disturbance, nearly half of them had no prior PRTF stays before they enrolled in the program. This will be an important consideration if the program is

[6] Selected DSM-IV conditions are for illustrative purposes and other DSM-IV conditions may also occur. The conditions included in the text and exhibits have the highest frequencies.

**States were given the option to serve youth who were diverted from a PRTF placement or who were being transitioned from a PRTF placement (while still maintaining the PRTF level of care)

expanded to other sites or nationally. Thirty-six percent had one to two admissions.[7] Our exploratory analysis (Exhibit 4.2) suggests that the number of PRTF admissions has a statistically significant relationship with source of admission (i.e., diversion vs. transition): Children diverted to the waiver program had fewer PRTF stays before the waiver program admission, on average. For example, 63 percent of diversion children had no PRTF stay prior to admission vs. only 5 percent of transition children. Thirty-one percent of diversion children had 1-4 PRTF stays vs. 60 percent of transition children.

We found children have similar characteristics in age, gender, ethnicity, and race across states. Almost all children in *Indiana* were diverted to the program, whereas in *Virginia* all children were transitioned by design. The majority of children (85 percent) in *Kansas* were transitioned to the program. The distribution of children by diversion and transition varies less among the other states. Biological parents have always been the predominant caregivers among all states.

[7] This does not account for age. For example, the older the child, the greater the likelihood that the child may have been admitted to a PRTF. This variable is also based on self-report, which accounts for some variability.

## Exhibit 4.1: Baseline Descriptive Statistics

| Key Individual Characteristics | All States | | Alaska | | Georgia | | Indiana | | Kansas | | Maryland | | Mississippi | | Montana | | South Carolina | | Virginia | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| **Gender** | | | | | | | | | | | | | | | | | | | | |
| Male | 1590 | 64.5% | 24 | 70.6% | 46 | 61.3% | 686 | 72.2% | 243 | 59.6% | 59 | 54.6% | 440 | 59.1% | 15 | 51.7% | 48 | 69.6% | 29 | 59.2% |
| Female | 876 | 35.5% | 10 | 29.4% | 29 | 38.7% | 264 | 27.8% | 165 | 40.4% | 49 | 45.4% | 304 | 40.9% | 14 | 48.3% | 21 | 30.4% | 20 | 40.8% |
| ***Total*** | **2466** | **100.0 %** | **34** | **100.0 %** | **75** | **1.00** | **950** | **100.0 %** | **408** | **100.0 %** | **108** | **100.0 %** | **744** | **100.0 %** | **29** | **100.0 %** | **69** | **100.0 %** | **49** | **100.0 %** |
| **Age** | | | | | | | | | | | | | | | | | | | | |
| <6 years | 48 | 1.9% | 3 | 8.8% | 17 | 22.7% | 1 | 0.1% | | | | | 22 | 3.0% | | | 4 | 5.8% | 1 | 2.0% |
| 6-11 years | 706 | 28.6% | 7 | 20.6% | 17 | 22.7% | 353 | 37.2% | 71 | 17.4% | 19 | 17.6% | 202 | 27.2% | 11 | 37.9% | 17 | 24.6% | 9 | 18.4% |
| 12-14 years | 447 | 18.1% | 2 | 5.9% | 11 | 14.7% | 216 | 22.7% | 62 | 15.2% | 14 | 13.0% | 119 | 16.0% | 4 | 13.8% | 12 | 17.4% | 7 | 14.39 % |
| 15-18 years | 1249 | 50.6% | 22 | 64.7% | 28 | 37.3% | 379 | 39.9% | 264 | 64.7% | 75 | 69.4% | 384 | 53.6% | 14 | 48.3% | 36 | 52.2% | 32 | 65.3% |
| >18 years | 16 | 0.6% | | | 2 | 2.7% | 1 | 0.1% | 11 | 2.7% | | | 2 | 0.3% | | | | | | |
| ***Total*** | **2466** | **100.0 %** | **34** | **100.0 %** | **75** | **1.00** | **950** | **100.0 %** | **408** | **100.0 %** | **108** | **100.0 %** | **744** | **100.0 %** | **29** | **100.0 %** | **69** | **100.0 %** | **49** | **100.0 %** |
| **Race** | | | | | | | | | | | | | | | | | | | | |
| White | 1563 | 63.4% | 7 | 20.6% | 34 | 45.3% | 736 | 77.5% | 338 | 82.8% | 21 | 19.4% | 364 | 48.9% | 20 | 69.0% | 25 | 36.2% | 18 | 36.7% |
| Black | 695 | 28.2% | 2 | 5.9% | 32 | 42.7% | 149 | 15.7% | 31 | 7.6% | 50 | 46.3% | 372 | 50.0% | 2 | 6.9% | 30 | 43.5% | 27 | 55.1% |
| Other | 208 | 8.4% | 25 | 73.5% | 9 | 12.0% | 65 | 6.8% | 39 | 9.6% | 37 | 34.3% | 8 | 1.1% | 7 | 24.1% | 14 | 20.3% | 4 | 8.2% |
| **Total** | **2466** | **100.0 %** | **34** | **100.0 %** | **75** | **100.0 %** | **950** | **100.0 %** | **408** | **100.0 %** | **108** | **100.0 %** | **744** | **100.0 %** | **29** | **100.0 %** | **69** | **100.0 %** | **49** | **100.0 %** |
| **Ethnicity** | | | | | | | | | | | | | | | | | | | | |
| Hispanic | 89 | 3.6% | 1 | 2.9% | 8 | 10.7% | 33 | 3.5% | 12 | 2.9% | 26 | 24.1% | 4 | 0.5% | 2 | 6.9% | | | 3 | 6.1% |
| Non-Hispanic | 2377 | 96.4% | 33 | 97.1% | 67 | 89.3% | 917 | 96.5% | 396 | 97.1% | 82 | 75.9% | 740 | 99.5% | 27 | 93.1% | 69 | 100.0 % | 46 | 93.9% |
| ***Total*** | **2466** | **100.0 %** | **34** | **100.0 %** | **75** | **100.0 %** | **950** | **100.0 %** | **408** | **100.0 %** | **108** | **100.0 %** | **744** | **100.0 %** | **29** | **100.0 %** | **69** | **100.0 %** | **49** | **100.0 %** |
| **Transition/Diversion** | | | | | | | | | | | | | | | | | | | | |

| Key Individual Characteristics | All States | | Alaska | | Georgia | | Indiana | | Kansas | | Maryland | | Mississippi | | Montana | | South Carolina | | Virginia | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Transition | 991 | 40.2% | 5 | 14.7% | 46 | 61.3% | 26 | 2.7% | 345 | 84.6% | 20 | 18.5% | 472 | 63.4% | 18 | 62.1% | 10 | 14.5% | 49 | 100.0 % |
| Diversion | 1475 | 59.8% | 29 | 85.3% | 29 | 38.7% | 924 | 97.3% | 63 | 15.4% | 88 | 81.5% | 272 | 36.6% | 11 | 37.9% | 59 | 85.5% | | |
| ***Total*** | **2466** | **100.0 %** | **34** | **100.0 %** | **75** | **100.0 %** | **950** | **100.0 %** | **408** | **100.0 %** | **108** | **100.0 %** | **744** | **100.0 %** | **29** | **100.0 %** | **69** | **100.0 %** | **49** | **100.0 %** |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: The results are based on the processed core file based on a number of data cleaning rules. Therefore, not all children enrolled so far are captured in this table. Only the data for the first enrollment are reported.
Blank cells indicate a small sample size (N < 15).

| Key Individual Characteristics | All States | | Alaska | | Georgia | | Indiana | | Kansas | | Maryland | | Mississippi | | Montana | | South Carolina | | Virginia | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| **Current Caregiver** | | | | | | | | | | | | | | | | | | | | |
| Biological Parent | 1544 | 66.0% | 1 | 2.9% | 35 | 46.7% | 687 | 72.3% | 247 | 66.2% | 64 | 59.8% | 439 | 66.4% | 18 | 62.1% | 25 | 40.3% | 28 | 57.1% |
| Step or Adoptive Parent | 230 | 9.8% | 14 | 41.2% | 12 | 16.0% | 82 | 8.6% | 35 | 9.4% | 9 | 8.4% | 70 | 10.6% | . | 0.0% | 5 | 8.1% | 3 | 6.1% |
| Relative | 262 | 11.2% | 1 | 2.9% | 9 | 12.0% | 86 | 9.1% | 30 | 8.0% | 9 | 8.4% | 97 | 14.7% | 3 | 10.3% | 20 | 32.3% | 7 | 14.3% |
| Foster Parent | 144 | 6.2% | 11 | 32.4% | 6 | 8.0% | 47 | 4.9% | 25 | 6.7% | 9 | 8.4% | 28 | 4.2% | . | 0.0% | 8 | 12.9% | 10 | 20.4% |
| Other | 160 | 6.8% | 7 | 20.6% | 13 | 17.3% | 48 | 5.1% | 36 | 9.7% | 16 | 15.0% | 27 | 4.1% | 8 | 27.6% | 4 | 6.5% | 1 | 2.0% |
| ***Total*** | **2340** | **100.0 %** | **34** | **100.0%** | **75** | **100%** | **950** | **100.0 %** | **373** | **100.0 %** | **107** | **100.0 %** | **661** | **100%** | **29** | **100.0%** | **62** | **100%** | **49** | **100%** |
| **Current Living Arrangement** | | | | | | | | | | | | | | | | | | | | |
| Family or Relative's Home | 1859 | 85.4% | 13 | 39.4% | 18 | 24.0% | 845 | 88.9% | 251 | 78.0% | N/A | N/A | 620 | 93.9% | 28 | 96.6% | 46 | 79.3% | 38 | 77.6% |
| Foster Care Home | 89 | 4.1% | 2 | 6.1% | 3 | 4.0% | 38 | 4.0% | 16 | 5.0% | N/A | N/A | 25 | 3.8% | 1 | 3.4% | 3 | 5.2% | 1 | 2.0% |
| Therapeutic Foster Care | 43 | 2.0% | 12 | 36.4% | | | 16 | 1.7% | 2 | 0.6% | N/A | N/A | | | | | 3 | 5.2% | 10 | 20.4% |
| Detention/Jail | 14 | 0.6% | | | | | 8 | 0.8% | 2 | 0.6% | N/A | N/A | 4 | 0.6% | | | | | . | 0.0% |

| Key Individual Characteristics | All States | | Alaska | | Georgia | | Indiana | | Kansas | | Maryland | | Mississippi | | Montana | | South Carolina | | Virginia | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Other Setting | 171 | 7.9% | 6 | 18.2% | 54 | 72.0% | 43 | 4.5% | 51 | 15.8% | N/A | N/A | 11 | 1.7% | | | 6 | 10.3% | . | 0.0% |
| ***Total*** | **2176** | **100.0 %** | **33** | **100.0%** | **75** | **100%** | **950** | **100.0 %** | **322** | **100.0 %** | **N/A** | **N/A** | **660** | **100%** | **29** | **100.0%** | **58** | **100%** | **49** | **100%** |
| **DSM-IV** | | | | | | | | | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 1038 | 47.1% | 9 | 29.0% | 19 | 57.6% | 510 | 56.6% | 128 | 37.9% | 17 | 16.0% | 312 | 45.5% | 6 | 20.7% | 31 | 55.4% | 6 | 23.1% |
| Mood, Depressive, Bipolar Disorders | 843 | 38.2% | 8 | 25.8% | 13 | 39.4% | 285 | 31.6% | 168 | 49.7% | 77 | 72.6% | 243 | 35.4% | 17 | 58.6% | 14 | 25.0% | 18 | 69.2% |
| PTSD, Anxiety Disorders | 151 | 6.8% | 9 | 29.0% | 1 | 3.0% | 72 | 8.0% | 18 | 5.3% | 8 | 7.5% | 33 | 4.8% | 2 | 6.9% | 7 | 12.5% | 1 | 3.8% |
| Other Disorders | 174 | 7.9% | 5 | 16.1% | | | 34 | 3.8% | 24 | 7.1% | 4 | 3.8% | 98 | 14.3% | 4 | 13.8% | 4 | 7.1% | 1 | 3.8% |
| ***Total*** | **2206** | **100.0 %** | **31** | **100.0%** | **33** | **100%** | **901** | **100.0 %** | **338** | **100.0 %** | **106** | **100.0 %** | **686** | **100%** | **29** | **100.0%** | **56** | **100%** | **26** | **100%** |
| **Number of PRTF Admissions Until Program Enrollment** | | | | | | | | | | | | | | | | | | | | |
| 0 time | 908 | 52.9% | 15 | 44.1% | 11 | 16.9% | 762 | 80.2% | 38 | 23.2% | 43 | 40.2% | | | 6 | 20.7% | 33 | 62.3% | | 0.0% |
| 1-2 times | 614 | 35.7% | 9 | 26.5% | 44 | 67.7% | 176 | 18.5% | 49 | 29.9% | 46 | 43.0% | 220 | 82.4% | 19 | 65.5% | 13 | 24.5% | 38 | 77.6% |
| 3-4 times | 126 | 7.3% | 7 | 20.6% | 6 | 9.2% | 11 | 1.2% | 46 | 28.0% | 10 | 9.3% | 32 | 12.0% | 3 | 10.3% | 5 | 9.4% | 6 | 12.2% |
| >4 times | 70 | 4.1% | 3 | 8.8% | 4 | 6.2% | 1 | 0.1% | 31 | 18.9% | 8 | 7.5% | 15 | 5.6% | 1 | 3.4% | 2 | 3.8% | 5 | 10.2% |
| ***Total*** | **1718** | **100.0 %** | **34** | **100.0%** | **65** | **100%** | **950** | **100.0 %** | **164** | **100.0 %** | **107** | **100.0 %** | **267** | **100%** | **29** | **100.0%** | **53** | **100%** | **49** | **100%** |

As mentioned, there is an expectation of differences in children's characteristics between diversion and transition situations (see Exhibit 4.2). Thus, we conducted statistical tests (chi-square test) to identify any statistically significant relationship between children/family characteristics and enrollment source. Because *Indiana* has the highest enrollment, with almost all children having been diverted, we conducted the analyses on two samples, including or excluding Indiana's data, to test the consistency of results. *Virginia* has a transition-only policy, but the state sample size is too small to affect the program results. We found all demographic and mental health history variables except ethnicity to be related to the transition/diversion status. The limited variation in ethnicity (97 percent are non-Hispanics) among the enrollees may have suppressed the significance level of any status-ethnicity relationship. Compared to the transition children, diversion children are younger on average and more likely to be African American, living with family or in a relative's home, identified with attention-deficit/hyperactivity (ADD/ADHD) or oppositional defiant disorders at admission, and, not surprisingly, have fewer PRTF admissions prior program enrollment. These findings suggest the importance of controlling for diversion/transition status in predicting outcome differences.

Children/youth in the program have different demographic profiles from those of their counterparts in the general population. Compared to the statistics of US children,[8] more children in the waiver program are boys, older (15-18), black, and living with biological parents. More were diverted into the program than transitioned, and about half have attention-deficit/hyperactivity disorders (ADD/ADHD) or oppositional defiant disorder. The characteristics of children in the waiver program also vary based on their sources of enrollment. Diversion children are more likely to be boys, younger, black, to live with family or in a relative's home, and to have attention-deficit/hyperactivity (ADD/ADHD) or oppositional defiant disorders and fewer prior PRTF stays. This suggests the importance of controlling for children's characteristics, as well as sources of enrollment, in examining children's outcome change.

[8] America's Children in Brief: Key National Indicators of Well-being, 2010. http://childstats.ed.gov/americaschildren/demo.asp, last accessed, April 18, 2011

## Exhibit 4.2: Baseline Descriptive Statistics, Transitions vs. Diversions

| Key Individual Characteristics | All States | | | | | All States (Excluding Indiana) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Transition | | Diversion | | Chi-square | Transition | | Diversion | | Chi-square |
| | N | % | N | % | $\chi^2$ | N | % | N | % | $\chi^2$ |
| **Gender** | | | | | | | | | | |
| Male | 585 | 59.0% | 1005 | 68.1% | 21.45*** | 565 | 58.5% | 339 | 61.5% | 1.29 |
| Female | 406 | 41.0% | 470 | 31.9% | | 400 | 41.5% | 212 | 38.5% | |
| ***Total*** | **991** | **100.0%** | **1475** | **100.0%** | | **965** | **100.0%** | **551** | **100.0%** | |
| **Age** | | | | | | | | | | |
| <6 years | 27 | 2.7% | 21 | 1.4% | 19.86*** | 27 | 2.8% | 20 | 3.6% | 26.44*** |
| 6-11 years | 253 | 25.5% | 453 | 30.7% | | 247 | 25.6% | 106 | 19.2% | |
| 12-14 years | 168 | 17.0% | 279 | 18.9% | | 161 | 16.7% | 70 | 12.7% | |
| 15-18 years | 540 | 54.5% | 709 | 48.1% | | 527 | 54.6% | 343 | 62.3% | |
| >18 years | 3 | 0.3% | 13 | 0.9% | | 3 | 0.3% | 12 | 2.2% | |
| ***Total*** | **991** | **100.0%** | **1475** | **100.0%** | | **965** | **100.0%** | **551** | **100.0%** | |
| **Race** | | | | | | | | | | |
| White | 591 | 59.6% | 972 | 65.9% | 14.5*** | 573 | 59.4% | 254 | 46.1% | 26.49*** |
| Black | 321 | 32.4% | 374 | 25.4% | | 317 | 32.8% | 229 | 41.6% | |
| Other | 79 | 8.0% | 129 | 8.7% | | 75 | 7.8% | 68 | 12.3% | |
| ***Total*** | **991** | **100.0%** | **1475** | **100.0%** | | **965** | **100.0%** | **551** | **100.0%** | |
| **Ethnicity** | | | | | | | | | | |
| Hispanic | 33 | 3.3% | 56 | 3.8% | 0.37 | 32 | 3.3% | 24 | 4.4% | 1.07 |
| Non-Hispanic | 958 | 96.7% | 1419 | 96.2% | | 933 | 96.7% | 527 | 95.6% | |
| ***Total*** | **991** | **100.0%** | **1475** | **100.0%** | | **965** | **100.0%** | **551** | **100.0%** | |
| **Current Caregiver** | | | | | | | | | | |
| Biological Parent | 624 | 67.8% | 920 | 64.8% | 2.66 | 605 | 67.7% | 252 | 50.8% | 38.79*** |
| Step or Adoptive Parent | 88 | 9.6% | 142 | 10.0% | | 83 | 9.3% | 65 | 13.1% | |
| Relative | 94 | 10.2% | 168 | 11.8% | | 93 | 10.4% | 83 | 16.7% | |
| Foster Parent | 53 | 5.8% | 91 | 6.4% | | 53 | 5.9% | 44 | 8.9% | |
| Other | 61 | 6.6% | 99 | 7.0% | | 60 | 6.7% | 52 | 10.5% | |
| ***Total*** | **920** | **100.0%** | **1420** | **100.0%** | | **894** | **100.0%** | **496** | **100.0%** | |
| **Current Living Arrangement** | | | | | | | | | | |
| Family or Relative's Home | 689 | 81.5% | 1170 | 87.9% | 53.87*** | 684 | 83.5% | 330 | 81.1% | 11.71* |
| Foster Care Home | 34 | 4.0% | 55 | 4.1% | | 34 | 4.2% | 17 | 4.2% | |
| Therapeutic Foster Care | 11 | 1.3% | 32 | 2.4% | | 11 | 1.3% | 16 | 3.9% | |
| Detention/Jail | 2 | 0.2% | 12 | 0.9% | | 2 | 0.2% | 4 | 1.0% | |

| Key Individual Characteristics | All States | | | | | All States (Excluding Indiana) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Transition | | Diversion | | Chi-square | Transition | | Diversion | | Chi-square |
| | N | % | N | % | $\chi^2$ | N | % | N | % | $\chi^2$ |
| Other Setting | 109 | 12.9% | 62 | 4.7% | | 88 | 10.7% | 40 | 9.8% | |
| ***Total*** | **845** | **100.0%** | **1331** | **100.0%** | | **819** | **100.0%** | **407** | **100.0%** | |
| **DSM-IV** | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 356 | 42.6% | 682 | 49.8% | 37.09*** | 346 | 42.6% | 182 | 37.0% | 10.63* |
| Mood, Depressive, Bipolar Disorders | 340 | 40.7% | 503 | 36.7% | | 332 | 40.8% | 226 | 45.9% | |
| PTSD, Anxiety Disorders | 43 | 5.1% | 108 | 7.9% | | 40 | 4.9% | 39 | 7.9% | |
| Other Disorders | 97 | 11.6% | 77 | 5.6% | | 95 | 11.7% | 45 | 9.1% | |
| ***Total*** | **836** | **100.0%** | **1370** | **100.0%** | | **813** | **100.0%** | **492** | **100.0%** | |
| **Number of PRTF admissions till program enrollment** | | | | | | | | | | |
| 0 time | 16 | 5.3% | 892 | 63.1% | 395.18*** | 11 | 4.0% | 135 | 27.6% | 83.97*** |
| 1-2 times | 183 | 60.2% | 431 | 30.5% | | 164 | 59.0% | 274 | 55.9% | |
| 3-4 times | 64 | 21.1% | 62 | 4.4% | | 62 | 22.3% | 53 | 10.8% | |
| >4 times | 41 | 13.5% | 29 | 2.1% | | 41 | 14.7% | 28 | 5.7% | |
| ***Total*** | **304** | **100.0%** | **1414** | **100.0%** | | **278** | **100.0%** | **490** | **100.0%** | |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.Notes: Only the data for the first enrollment are reported.

## B. Reasons for Disenrollment

One of the variables in the Demonstration MDS is reason children are disenrolled[9] from the waiver program. This section summarizes the various reasons for disenrollment cited by the grantee states to further our understanding of the effectiveness of the waiver program. Exploration of such reasons may provide valuable insights into the overall effectiveness of the HCBS waiver program. The most positive reason for a child to be disenrolled is that her/his functional status improved so much that (s)he no longer needs the waiver services. This would be an indication that the Demonstration is achieving its goal of maintaining or improving an enrollees' functional status. If a child was disenrolled from the program because (s)he needed the services of a PRTF, in contrast, this may raise questions about the effectiveness of the program, at least in that child's case. The LOS is particularly relevant in these instances, as families may enroll their children in the Demonstration but change their mind and place their children in PRTFs after only a few months. Such a decision may be a result of the family's individual situation, rapport building with the Wraparound facilitator or other professional, or concern about their ability to maintain the children in the home, particularly if there are siblings at home. Whatever the reasons for disenrollment, this variable is a valuable supplement to the more detailed information on program effectiveness collected through the functional assessment, youth satisfaction, and program fidelity questionnaires. The MDS categories of reasons for disenrollment are listed in Exhibit 4.3. Since *Kansas* currently does not follow the MDS categorization, its reasons for disenrollment categories are listed separately in the exhibit.

**Exhibit 4.3: Reasons for Disenrollment**

| MDS<br>Reasons for Disenrollment | Kansas<br>Reasons for Disenrollment |
|---|---|
| Increased functioning; no need for HCBS waiver | Service plan goals get |
| Transfer to PRTF | Residential placement |
| Non-compliant | Lack of cooperation |
| | Refusal to sign or abide by the treatment plan |
| Parent chooses to opt out of waiver | Family/Youth choice to stop Waiver |
| Medicaid Ineligibility | Medicaid eligibility criteria not met |
| | Loss of clinical eligibility |
| Incarcerated/juvenile justice involvement | |
| Moved/Moved out of state | Moved out of CMHC catchment area |
| Transfer to inpatient facility, not PRTF | State hospital placement |
| Aged-out | Maximum age (22) |

[9] Disenrollment due to maintaining or improving functional assessment scores, removedremoval by external source, or return to PRTF.

| MDS<br>Reasons for Disenrollment | Kansas<br>Reasons for Disenrollment |
|---|---|
| Other | Change in medical condition |
| | Cost of services |
| | Death of beneficiary |
| | Service deemed critical not available or refused |
| | Lack of safe living arrangement |

**Analytical Methods and Results**

In the following sections, we tabulate the reasons for disenrollment. In addition to considering disenrolled children as a whole, we group them by length of program stay (LOS). Results from the Chi-square test of whether individual reasons for disenrollment vary by LOS are also reported where cell sizes across LOS categories were at least 15 for all states except *Kansas, Mississippi*, and *Maryland*. *Kansas* was analyzed separately because, as noted, it follows a different categorization. *Mississippi* was analyzed separately because it gives only a single reason for disenrollment for all its disenrolled children. Since *Mississippi* contributed more than one-third of the full sample, including it with the rest of the states would have skewed the results. *Maryland* is excluded from the analysis because it followed the Demonstration MDS categories of reasons for disenrollment that were originally provided to states and that the Care Management Entities were instructed to use when they were contracted in 2009. IMPAQ issued a revised MDS design in 2010. Since *Maryland* contributed only four children to the analytical sample, conducting a separate analysis was not considered worthwhile.

All states except *Kansas, Maryland*, and *Mississippi* (Exhibit 4.4) indicate that around one-third (30.2 percent) of the children are reported to have left the program due to an "increased functioning". Although this may indicate that continued enrollment in the program was no longer necessary, the information available provides no direct evidence for this conclusion. The percentage of children disenrolled for improved functioning steadily increases with LOS; 14.4 percent cited this reason among disenrolled children with an LOS of 3-6 months, and this percentage rises to 29.6 percent and 52.5 percent for those with an LOS of 7-12 months and more than 12 months, respectively. These differences across LOS categories are statistically significant. Increased functioning is the leading reason for disenrollment for children with a 7- to 12-month LOS and 12 months and up LOS. For the 3- to 6-month LOS category, t*ransfer to PRTF* is the most common reason for disenrollment (16.9 percent). *Transfer to PRTF* is the second most commonly cited reason overall (14.8 percent) and for the other two LOS categories. The opposite pattern is observed for the children transferred to a PRTF in relation to LOS vs. those who were disenrolled for increased *functioning*, with the percentage of children disenrolled for

the former reason (*transfer to a PRTF*) falling steadily with LOS; 16.9 percent, 14.8 percent, and 11.9 percent of children are reported to have transferred to a PRTF for an LOS of 3–6 months, 7-12 months, and more than 12 months, respectively. Since the sample size of children from the 12 months and up LOS category is less than 15, we did not test the statistical significance of this pattern.

The third most commonly reported reason for disenrollment was parent chooses to opt out of waiver, at 13.1 percent. However, there is no steady pattern in its change over LOS categories, as the rate falls from 15.6 percent for a 3- to 6-month LOS to 11.2 percent for a 7- to 12-month LOS and then rises to 12.7 percent for an LOS of 12 months and up.

Other reasons for disenrollment have lower frequencies: 9.5 percent of children for involvement with the justice system or incarceration; 8 percent for moving out; 7.8 percent for losing Medicaid eligibility, and 7.4 percent for being non-compliant.

*Mississippi:* The reason for disenrollment reported by the state for all 380 disenrolled children in the analytical sample was increased functioning; no need for HCBS waiver. We have not yet tested whether all participant children's functional status improved by the time of disenrollment as measured using a functional assessment instrument.

*Kansas:* As seen in Exhibit 4.5, the most commonly cited reason for children being disenrolled from the *Kansas* waiver program was residential placement, at 41.7 percent. This rate falls with longer LOS. Among children disenrolled after 3-6 months LOS, exactly half are reported to have incurred residential placement. This rate drops to 35.6 percent for the 7- to 12-month LOS category and to 26.3 percent for an LOS of 12 months and up. Interestingly, service plan goals met is cited as a reason for disenrollment for only 6.4 percent of children. Considering the available data, as shown in Exhibit 4.5, it is not possible to come to a conclusion about what percentage of children achieve increased functioning by the time of disenrollment. Around 18 percent of children are disenrolled because they move out of the Community Mental Health Centers (CMHC) catchment area. This percentage rises to 26.3 percent for children with LOS of more than a year, tying with residential placement within that LOS category. While 14.1 percent of the children are disenrolled because they or their parents choose to opt out of the program, 10.9 percent are disenrolled for lack of cooperation. A clear pattern across LOS categories is evident only for *lack of cooperation*. The percentage of children for whom this reason is cited falls from 12.8 percent to 10.2 percent to 5.3 percent with an LOS of 3–6 months, 7–12 months, and more than 12 months, respectively. Loss of Medicaid eligibility is the reason given for only two children (1.3 percent).

When we combine the results for all the states except *Kansas*, we find that 61.2 percent of the children are reportedly disenrolled for achieving improved functioning. While we cannot directly

authenticate this result, we can still cautiously consider this a positive outcome. But if we combine the results from all the states except *Mississippi*, we find that 21.4 percent of the children are transferred to a PRTF on disenrollment. This finding is of concern. The fact that 21.6 percent of the children from all states except *Mississippi* are disenrolled due to non-cooperation or because the children or their parents choose to opt out raises a red flag. Another area of concern is that 9.4 percent of the children from all states except *Kansas* and *Mississippi* are disenrolled due to incarceration or involvement with the justice system, although these findings are consistent with evidence from other evaluations and outcomes-based research on the effects of the wraparound practice model (Suter & Bruns, 2009). Between 1986 and 2008, seven studies used comparison groups to determine the effects of wraparound. Medium effects for youth living to small effects for mental health outcomes, overall youth functioning, school functioning and juvenile justice related outcomes.

**Exhibit 4.4: Reasons for Disenrollment by LOS - Alaska, Georgia, Indiana, Montana, South Carolina, and Virginia**

| | All (N=474) | | LOS: 3-6 Months (N=160) | | LOS: 7-12 Months (N=196) | | LOS: 1 Year + (N=118) | | Chi-square Stats |
|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | |
| **Increased functioning; no need for HCBS waiver** | 143 | 30.17 | 23 | 14.38 | 58 | 29.59 | 62 | 52.54 | 0.8 |
| **Transfer to PRTF** | 70 | 14.77 | 27 | 16.88 | 29 | 14.8 | 14 | 11.86 | |
| **Non-compliant** | 35 | 7.38 | 12 | 7.5 | 15 | 7.65 | 8 | 6.78 | |
| **Parent chooses to opt out of waiver** | 62 | 13.08 | 25 | 15.63 | 22 | 11.22 | 15 | 12.71 | 8.61** |
| **Medicaid Ineligibility** | 37 | 7.81 | 13 | 8.13 | 17 | 8.67 | 7 | 5.93 | |
| **Incarcerated/juvenile justice involvement** | 45 | 9.49 | 18 | 11.25 | 23 | 11.73 | 4 | 3.39 | |
| **Moved/Moved out of state** | 38 | 8.02 | 20 | 12.5 | 14 | 7.14 | 4 | 3.39 | |
| **Transfer to inpatient facility, not PRTF** | 12 | 2.53 | 5 | 3.13 | 5 | 2.55 | 2 | 1.69 | |
| **Aged-out** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Other** | 32 | 6.75 | 17 | 10.63 | 13 | 6.63 | 2 | 1.69 | |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.
Notes: Chi-square test statistics are reported from the test of whether reasons for disenrollment vary by LOS.
Blank cells indicate that no statistical test was done because at least one cell size was less than 15.
*P<0.05. **P<0.01. ***p<0.001

## Exhibit 4.5: Reasons for Disenrollment by LOS – Kansas

| | All (N=156) | | LOS (3-6m) (N=78) | | LOS (7-12m) (N=59) | | LOS (1y+) (N=19) | | Chi-square Stats |
|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | |
| Service plan goals met | 10 | 6.4 | 1 | 1.3 | 8 | 13.6 | 1 | 5.3 | |
| Loss of clinical eligibility | 6 | 3.85 | 1 | 1.28 | 2 | 3.39 | 3 | 15.79 | |
| Change in medical condition | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Residential placement | 65 | 41.67 | 39 | 50 | 21 | 35.59 | 5 | 26.32 | |
| Refusal to sign or abide by the treatment plan | 2 | 1.3 | 0 | 0 | 2 | 3.4 | 0 | 0 | |
| Lack of cooperation | 17 | 10.9 | 10 | 12.82 | 6 | 10.17 | 1 | 5.26 | |
| Family/youth choice to stop waiver | 22 | 14.1 | 9 | 11.54 | 10 | 16.95 | 3 | 15.79 | |
| Maximum age (22) | 1 | 0.64 | 0 | 0 | 1 | 1.69 | 0 | 0 | |
| State hospital placement | 3 | 1.9 | 2 | 2.6 | 0 | 0 | 1 | 5.3 | |
| Medicaid eligibility criteria not met | 2 | 1.3 | 1 | 1.3 | 1 | 1.7 | 0 | 0 | |
| Moved out of CMHC catchment area | 28 | 17.95 | 15 | 19.23 | 8 | 13.56 | 5 | 26.32 | |
| Death of beneficiary | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Service deemed critical not available or refused | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Cost of services | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Lack of safe living arrangement | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: Chi-square test statistics is reported from the test of whether reasons for disenrollment vary by LOS.
Blank cells indicate that no statistical test was done because at least one cell size was less than 15.
*P<0.05. **P<0.01. ***p<0.001

# CHAPTER 5. ASSESSMENT OF COMMON FUNCTIONAL OUTCOMES

As described earlier, state grantees use a variety of functional assessment instruments to measure children/youth's changes in behavior and mental health. The evaluation seeks to include at least a few common functional outcome variables among grantees. In most cases, these outcome variables assess behavior in the past 6 months. The outcome measures reflect changes in selected domains: school functioning (i.e., number of absences from school and school absence severity), substance abuse (i.e., severity of substance abuse), juvenile justice (i.e., number of arrests and any involvement with law enforcement), and others (e.g., involvement with child protective services).

Aggregating data across grantees for the common functional outcomes has the added benefit of producing a larger sample size (2,078 unique children[10]) than the specific functional assessment analyses. *Indiana*, *Mississippi*, and *Kansas* have the highest representation of enrolled children in this analytical sample, accounting for 40 percent, 31.7 percent, and 16.1 percent, respectively.

The common functional outcomes have different types of measures: continuous, categorical (i.e., interval),[11] and dichotomous (i.e., nominal) outcomes. The analysis of these measures follows the types of outcome variables. For continuous and categorical/interval outcomes, a mean parameter is calculated. Here, we use the paired t-test to compare children's changes in mean outcomes. For the dichotomous outcome variables, a proportion estimate is used instead of the mean, and we have to use a different statistical test, the McNemar's test. The McNemar's test is a non-parametric method used on nominal data to compare outcomes for matched pairs of subjects. (See Appendix A for an in-depth review of this methodological approach.)

## A. Baseline Outcome of Children by State and Source of Admission

We first examined the children's baseline outcomes within and among states. Exhibit 5.1 provides descriptive statistics of all children. We also present the baseline outcomes for children/youth by source of enrollment (transition or diversion). Children who transitioned from a PRTF into the program may spend their first few months in the institutions or in the program simply for their condition to be stabilized; thus, we may not observe immediate changes in the short term. It is also unlikely that

[10] The total number of children in this chapter is different from the total number of children enrolled in the waiver program due to data manipulations and exclusion/inclusion criteria. For example, we concentrate on the first enrollment records and children who stayed for more than 3 months in the program.

[11] These categorical variables use a Likert scale with four ordinal response categories: 1, 2, 3, and 4. These variables are, however, assumed to be interval outcomes since they have nearly the same response categories as those for the CANS outcomes, which are assumed to be interval in the other parts of the report.

the transition children had problems with school absences or similar outcome variables (because they were institutionalized), a different context from that of the children who join the program through diversion. Thus, in reporting the outcome changes, we do not report the results for transitioned children enrolled for less than six months. Due to small sample sizes for some states, we did not perform statistical tests to compare outcomes across states.

Inspection of the baseline means for all children shows that there is state variation on the number of school absences and number of arrests. There is less variation on the two interval outcomes:[12] severity of school absence and substance abuse.

As seen in Exhibit 5.1, there are more children enrolled as diversions than transitions (1,233 vs. 814). Although some mean differences exist, there are no large differences between transition and diversion children's baseline function on measured outcomes.

We conducted the same comparison for the two dichotomous outcomes as well. The results are provided in Exhibit 5.2. We observe clear differences in any involvement with law enforcement and with child protective services in the last 6 months among children in different states. The mean differences are also evident on the outcomes of transition and diversion children. However, since states with large samples show closer mean outcomes between transition and diversion children, the variation in outcomes may be a reflection of the small number of observations in some states. As new data become available, we will test these differences again.

In summary, due to the large sample size in *Indiana* (i.e., about 40 percent of the observations of all states and almost 70 percent of observations by diversion), this state may largely drive the results for all states combined, especially for the diversion children. Review of the outcomes in each state show clear differences among children's baseline status in different states. These differences hold for both transition and diversion children. However, states with larger samples, such as *Kansas* and *Mississippi*, have a good number of both transition and diversion children, and have similar outcomes observed for the two groups in baseline status. Thus, the smaller samples may not be representative of the level of need of the population of concern. Richer data reported for the small states may help clarify the relationship.

[12] For simplicity we assumed the categorical outcomes of the two severity variables are interval, so that a mean calculation is meaningful.

## Exhibit 5.1 Common Item Baseline Scores

| Baseline Score for Common Items | All States | | | Alaska | | | Georgia | | | Indiana | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **All Children** | | | | | | | | | | | | |
| Number of Absences from School (Past 6 months) | 1912 | 8.73 | 16.87 | 8 | 5.63 | 7.52 | 37 | 3.08 | 7.09 | 802 | 10.01 | 14.09 |
| Number of Arrests (Past 6 Months) | 2044 | 0.24 | 0.82 | 12 | 0.75 | 2.60 | 60 | 0.05 | 0.29 | 834 | 0.28 | 0.74 |
| Severity of School Absence | 1576 | 1.59 | 0.85 | 14 | 2.00 | 1.41 | 60 | 1.38 | 0.64 | 834 | 1.76 | 0.92 |
| Severity of Substance Abuse | 2047 | 1.25 | 0.62 | 23 | 1.52 | 0.95 | 63 | 1.14 | 0.56 | 834 | 1.24 | 0.56 |
| **Children by Transition** | | | | | | | | | | | | |
| Number of Absences from School (Past 6 months) | 729 | 7.70 | 16.44 | 0 | | | 20 | 1.30 | 3.44 | 17 | 6.29 | 10.17 |
| Number of Arrests (Past 6 Months) | 814 | 0.21 | 0.93 | 2 | 0 | | 40 | 0.03 | 0.16 | 18 | 0.33 | 1.19 |
| Severity of School Absence | 468 | 1.37 | 0.71 | 1 | 1 | | 39 | 1.31 | 0.66 | 18 | 1.50 | 0.86 |
| Severity of Substance Abuse | 814 | 1.23 | 0.63 | 4 | 1.5 | 1 | 41 | 1.10 | 0.49 | 18 | 1.22 | 0.55 |
| **Children by Diversion** | | | | | | | | | | | | |
| Number of Absences from School (Past 6 months) | 1183 | 9.36 | 17.11 | 8 | 5.63 | 7.52 | 17 | 5.18 | 9.51 | 785 | 10.10 | 14.15 |
| Number of Arrests (Past 6 Months) | 1230 | 0.26 | 0.73 | 10 | 0.90 | 2.85 | 20 | 0.10 | 0.45 | 816 | 0.28 | 0.73 |
| Severity of School Absence | 1108 | 1.68 | 0.89 | 13 | 2.08 | 1.44 | 21 | 1.52 | 0.60 | 816 | 1.76 | 0.92 |
| Severity of Substance Abuse | 1233 | 1.26 | 0.62 | 19 | 1.53 | 0.96 | 22 | 1.23 | 0.69 | 816 | 1.24 | 0.56 |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.
Note: Blank cells indicate that the common item score is not applicable.

## Exhibit 5.1 Common Item Baseline Scores (continued)

| Baseline Score for Common Items | Kansas | | | Maryland | | | Mississippi | | | Montana | | | South Carolina | | | Virginia | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **All Children** | | | | | | | | | | | | | | | | | | |
| Number of Absences from School (Past 6 months) | 334 | 4.00 | 10.17 | 80 | 7.19 | 12.11 | 581 | 10.81 | 23.49 | 19 | 3.47 | 5.24 | 49 | 4.29 | 6.61 | 2 | 13.00 | 4.24 |
| Number of Arrests (Past 6 Months) | 334 | 0.21 | 0.77 | 86 | 0.06 | 0.28 | 595 | 0.24 | 1.01 | 22 | 0.18 | 0.39 | 54 | 0.15 | 0.45 | 47 | 0.06 | 0.25 |
| Severity of School Absence | 248 | 1.04 | 0.26 | 72 | 1.35 | 0.67 | 224 | 1.59 | 0.73 | 21 | 1.57 | 0.87 | 56 | 1.68 | 1.05 | 47 | 1.81 | 1.01 |
| Severity of Substance Abuse | 334 | 1.41 | 0.84 | 75 | 1.12 | 0.37 | 596 | 1.16 | 0.48 | 21 | 1.24 | 0.77 | 54 | 1.59 | 0.92 | 47 | 1.30 | 0.69 |
| **Children by Transition** | | | | | | | | | | | | | | | | | | |
| Number of Absences from School (Past 6 months) | 280 | 3.84 | 9.70 | 8 | 1.13 | 1.64 | 387 | 11.22 | 20.22 | 10 | 1.80 | 3.82 | 5 | 2.40 | 3.36 | 2 | 13.00 | 4.24 |
| Number of Arrests (Past 6 Months) | 280 | 0.18 | 0.66 | 11 | 0.18 | 0.60 | 397 | 0.26 | 1.18 | 12 | 0.33 | 0.49 | 7 | 0.00 | 0.00 | 47 | 0.06 | 0.25 |
| Severity of School Absence | 194 | 1.04 | 0.28 | 6 | 1.67 | 1.21 | 145 | 1.62 | 0.74 | 11 | 1.91 | 1.04 | 7 | 1.43 | 0.79 | 47 | 1.81 | 1.01 |
| Severity of Substance Abuse | 280 | 1.33 | 0.78 | 8 | 1.38 | 0.74 | 398 | 1.15 | 0.46 | 11 | 1.45 | 1.04 | 7 | 1.71 | 1.25 | 47 | 1.30 | 0.69 |
| **Children by Diversion** | | | | | | | | | | | | | | | | | | |
| Number of Absences from School (Past 6 months) | 54 | 4.83 | 12.37 | 72 | 7.87 | 12.58 | 194 | 9.99 | 28.98 | 9 | 5.33 | 6.16 | 44 | 4.50 | 6.87 | | | |
| Number of Arrests (Past 6 Months) | 54 | 0.41 | 1.17 | 75 | 0.04 | 0.20 | 198 | 0.20 | 0.53 | 10 | 0.00 | 0.00 | 47 | 0.17 | 0.48 | | | |
| Severity of School Absence | 54 | 1.04 | 0.19 | 66 | 1.32 | 0.61 | 79 | 1.53 | 0.71 | 10 | 1.20 | 0.42 | 49 | 1.71 | 1.08 | | | |
| Severity of Substance Abuse | 54 | 1.81 | 1.05 | 67 | 1.09 | 0.29 | 198 | 1.18 | 0.53 | 10 | 1.00 | 0.00 | 47 | 1.57 | 0.88 | | | |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.
Note: Blank cells indicate that these items are not applicable for Virginia because it is a transition-only program.

## Exhibit 5.2: Common Item Scores by State

| Baseline Score for Common Items | All States | | | Alaska | | | Georgia | | | Indiana | | | Kansas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | % (Y) | SD | N | % (Y) | SD | N | % (Y) | SD | N | % (Y) | SD | N | % (Y) | SD |
| **All Children** | | | | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months | 2062 | 35% | 0.48 | 19 | 53% | 0.51 | 63 | 25% | 44% | 834 | 48% | 0.50 | 334 | 25% | 0.43 |
| Any Involvement w/ Child Protective Services in the Past 6 Months | 1983 | 22% | 0.42 | 32 | 0% | 0.00 | 62 | 18% | 39% | 834 | 35% | 0.48 | 241 | 7% | 0.25 |
| **Children by Transition** | | | | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months | 817 | 25% | 0.44 | 2 | 50% | 0.71 | 41 | 20% | 40% | 18 | 22% | 0.43 | 280 | 24% | 0.43 |
| Any Involvement w/ Child Protective Services in the Past 6 Months | 730 | 13% | 0.34 | 5 | 0% | 0.00 | 40 | 15% | 36% | 18 | 39% | 0.50 | 191 | 7% | 0.26 |
| **Children by Diversion** | | | | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months | 1245 | 41% | 0.49 | 17 | 53% | 0.51 | 22 | 36% | 49% | 816 | 49% | 0.50 | 54 | 26% | 0.44 |
| Any Involvement w/ Child Protective Services in the Past 6 Months | 1253 | 27% | 0.45 | 27 | 0% | 0.00 | 22 | 23% | 43% | 816 | 35% | 0.48 | 50 | 4% | 0.20 |

| Baseline Score for Common Items | Maryland | | | Mississippi | | | Montana | | | South Carolina | | | Virginia | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | % (Y) | SD | N | % (Y) | SD | N | % (Y) | SD | N | % (Y) | SD | N | % (Y) | SD |
| **All Children** | | | | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months | 85 | 15% | 0.36 | 596 | 27% | 0.44 | 22 | 23% | 0.43 | 62 | 29% | 0.46 | 47 | 28% | 0.45 |
| Any Involvement w/ Child Protective Services in the Past 6 Months | 86 | 6% | 0.24 | 596 | 13% | 0.34 | 22 | 18% | 0.39 | 63 | 33% | 0.48 | 47 | 21% | 0.41 |
| **Children by Transition** | | | | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months | 11 | 9% | 0.30 | 398 | 26% | 0.44 | 12 | 42% | 0.51 | 8 | 38% | 0.52 | 47 | 28% | 0.45 |
| Any Involvement w/ Child Protective Services in the Past 6 Months | 11 | 18% | 0.40 | 397 | 13% | 0.34 | 12 | 25% | 0.45 | 9 | 33% | 0.50 | 47 | 21% | 0.41 |
| **Children by Diversion** | | | | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months | 74 | 16% | 0.37 | 198 | 28% | 0.45 | 10 | 0% | 0.00 | 54 | 28% | 0.45 | | | |
| Any Involvement w/ Child Protective Services in the Past 6 Months | 75 | 4% | 0.20 | 199 | 13% | 0.34 | 10 | 10% | 0.32 | 54 | 33% | 0.48 | | | |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.
Note: Blank cells indicate that these items are not applicable for Virginia because it is a transition-only program.

## B. Effect by Measurement Point – All Children

Exhibit 5.3 shows the mean of each common functional outcome for all children at baseline, 6-month, 12-month, and 18-month followups, respectively, as well as t-statistics that compare the mean differences. Most continuous outcomes (i.e., number of school absences, number of arrests, severity of school absence, and severity of substance abuse) are maintained at each measurement point, as reflected by the non-statistically significant differences. There is stability of outcomes over time, as can be seen from the four continuous outcomes. It is also true that there are a few outcome improvements. The number of school absences is reduced over time from baseline to the 6-month followup, and the severity of school absence is also reduced at 6-month and 12-month measurement points.

Our analysis does show that, for transition children, their overall outcomes are maintained at different measurement points (where $n \geq 15$). Diversion children improve overall at different measurement points, especially at the 6-month followup. This is particularly evident in the reduction in number of arrests and severity of school absence. The program has no observable effect on children's severity of substance abuse, though this is plausibly because, as children and youth become more comfortable with their care coordinators and establish better rapport, they are disclosing more, particularly about substance abuse, preventing actual behavioral changes from being captured in our data.

Exhibit 5.4 displays a statistically significant reduction on the proportion of children's involvement with law enforcement and with child protective services (where $n \geq 15$). This is a definite positive effect of the program.

Evaluation of children's behavior and mental health has to take into account children's baseline conditions. Children with different levels of emotional disorder may have different reactions to and progress during the program. It is also true that combining data for all children may obscure different program effects for different subpopulations. Since two outcomes related to children's severity of school absence and substance abuse can be meaningfully classified into different baseline scores, we chose to do a more in-depth investigation with these two outcomes. Exhibit 5.5 shows the results for three subpopulations.

## Exhibit 5.3: Common Outcomes by Point of Measurement (T-Test)

| Common Functional Outcomes | 6 Months | | | | 12 Months | | | | 18 Months | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean B | Mean 6 Months | N | Mean B | Mean 6 Months | N | Mean B | Mean 6 Months | N | Mean B | Mean 6 Months |
| **All Children** | | | | | | | | | | | | |
| Number of absences from school (past 6 months) | 939 | 9.37 | 7.84 | 2.5* | 353 | 7.95 | 6.81 | 1.30 | 122 | 7.89 | 6.10 | 1.13 |
| Number of arrests (past 6 months) | 1006 | 0.25 | 0.19 | 1.82 | 391 | 0.20 | 0.27 | -1.47 | 137 | 0.21 | 0.13 | 1.27 |
| Severity of school absence | 773 | 1.63 | 1.50 | 4.14*** | 326 | 1.60 | 1.46 | 2.71** | 121 | 1.54 | 1.37 | 1.87 |
| Severity of substance abuse | 1012 | 1.23 | 1.24 | -0.77 | 395 | 1.22 | 1.22 | -0.08 | 137 | 1.30 | 1.26 | 0.64 |
| **All Children by Transition** | | | | | | | | | | | | |
| Number of absences from school (past 6 months) | | | | | 81 | 4.09 | 6.56 | -1.39 | 21 | 2.90 | 9.05 | -1.71 |
| Number of arrests (past 6 months) | | | | | 104 | 0.14 | 0.33 | -1.51 | 29 | 0.24 | 0.34 | -0.77 |
| Severity of school absence | | | | | 51 | 1.29 | 1.35 | -1.00 | 18 | 1.11 | 1.17 | -0.57 |
| Severity of substance abuse | | | | | 106 | 1.22 | 1.21 | 0.16 | 29 | 1.38 | 1.31 | 0.63 |
| **All Children by Diversion** | | | | | | | | | | | | |
| Number of absences from school (past 6 months) | 620 | 10.24 | 8.64 | 2.1* | 272 | 9.10 | 6.88 | 2.22* | 101 | 8.92 | 5.49 | 2.00* |
| Number of arrests (past 6 months) | 655 | 0.26 | 0.19 | 2.02* | 287 | 0.22 | 0.25 | -0.63 | 108 | 0.21 | 0.07 | 1.83 |
| Severity of school absence | 596 | 1.73 | 1.57 | 3.40*** | 275 | 1.65 | 1.48 | 2.96** | 103 | 1.62 | 1.41 | 1.99* |
| Severity of substance abuse | 658 | 1.24 | 1.26 | -0.69 | 289 | 1.22 | 1.22 | -0.19 | 108 | 1.28 | 1.25 | 0.42 |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.

Notes: N is the number of children enrolled at the relevant point of measurement. T-statistics are reported from the t-test of equality of means conducted on the sample of children with values at both baseline and the relevant point of measurement. (Higher number for each item means worse outcome.)

Blank cells indicate a small sample size (N < 15).

* P<0.05. **P<0.01. ***P<0.001.

## Exhibit 5.4: Common Outcomes by Point of Measurement (McNemar)

| Common Functional Outcomes | 6 Months | | | | 12 Months | | | | 18 Months | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | % (Yes) B | % (Yes) 6 Months | McNemar's Test (df=1) | N | % (Yes) B | % (Yes) 12 Months | McNemar's Test (df=1) | N | % (Yes) B | % (Yes) 18 Months | McNemar's Test (df=1) |
| **All Children** | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months (1, yes; 0, no) | 1014 | 37% | 32% | 10.52*** | 393 | 36% | 30% | 4.8* | 138 | 38% | 26% | 5.90* |
| Any Involvement w/ Child Protective Services in the Past 6 Months (1, yes; 0, no) | 954 | 25% | 18% | 22.35*** | 356 | 30% | 20% | 12.96*** | 126 | 30% | 14% | 11.11*** |
| **All Children by Transition** | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months (1, yes; 0, no) | | | | | 105 | 19% | 22% | 0.39 | 29 | 24% | 28% | 0.11 |
| Any Involvement w/ Child Protective Services in the Past 6 Months (1, yes; 0, no) | | | | | 74 | 11% | 8% | 0.33 | | | | |
| **All Children by Diversion** | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months (1, yes; 0, no) | 661 | 43% | 36% | 10.47*** | 288 | 42% | 33% | 7.52** | 109 | 42% | 26% | 8.1** |
| Any Involvement w/ Child Protective Services in the Past 6 Months (1, yes; 0, no) | 654 | 31% | 22% | 19.77*** | 282 | 35% | 23% | 13.14*** | 106 | 34% | 17% | 9.53** |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.

Notes: One-tailed McNemar test is conducted. The $H_0$ is there is no change of children's outcome between baseline and followup. The $H_a$ is children's outcomes have either improved or worsened.

Blank cells indicate a small sample size (N < 15).

* P<0.05. **P<0.01. ***P<0.001. One-tailed

## Exhibit 5.5: Selected Outcomes by Point of Measurement (T-test)

| Selected Common Functional Outcomes | 6 Months | | | | 12 Months | | | | 18 Months | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean B | Mean 6 Months | T-Stats | N | Mean B | Mean 12 Months | T-Stats | N | Mean B | Mean 18 Months | T-Stats |
| **Low Needs/Prevention [1-2)** | | | | | | | | | | | | |
| Severity of School Absence | 464 | 1.00 | 1.25 | -8.8*** | 202 | 1.00 | 1.26 | -6.17*** | 80 | 1.00 | 1.28 | -4.14* |
| Severity of Substance Abuse | 854 | 1.00 | 1.11 | -7.13*** | 335 | 1.00 | 1.11 | -5.39*** | 109 | 1.00 | 1.12 | -3.29** |
| **Intermediate Needs/Prevention [2-3)** | | | | | | | | | | | | |
| Severity of School Absence | 163 | 2.00 | 1.65 | 5.95*** | 66 | 2.00 | 1.55 | 4.92*** | 21 | 2.00 | 1.48 | 2.59* |
| Severity of Substance Abuse | 103 | 2.00 | 1.70 | 4.06** | 39 | 2.00 | 1.67 | 2.40* | 16 | 2.00 | 1.56 | 1.82 |
| **Immediate/Intensive Action (3-3]** | | | | | | | | | | | | |
| Severity of School Absence | 146 | 3.21 | 2.12 | 13.40*** | 57 | 3.25 | 2.09 | 8.62*** | 20 | 3.25 | 1.65 | 6.84*** |
| Severity of Substance Abuse | 55 | 3.25 | 2.35 | 5.74*** | 21 | 3.24 | 2.14 | 3.47** | | | | |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.

Notes: N is the number of children enrolled at the relevant point of measurement. T-statistics are reported from the t-test of equality of means conducted on the sample of children with values at both baseline and the relevant point of measurement. Cells are blank where n ≤ 15. A higher number for each item means a worse outcome.

The specific level of needs is included in the corresponding category if marked by a bracket"[", otherwise it is excluded and this is indicated by a parenthesis "(". Blank cells indicate a small sample size (N < 15).

* P<0.05. **P<0.01. ***P<0.001.

The exhibit shows that for children who have minor problems with school attendance or substance abuse at baseline, there is a worsening of their behavior in those two areas. For children who had worse behavioral conditions (reflected in the second and third group in Exhibit 5.5) at baseline, their outcomes improve almost consistently through time (where $n \geq 15$). However, once again, it is also plausible that as children and youth become more comfortable with their care coordinators and establish better rapport, they are disclosing more, thus obscuring actual behavioral improvements.

### C. Effect at Disenrollment by LOS

We also conducted analyses on the common functional outcomes of children who have been disenrolled or left the program. Exhibit 5.6 depicts the comparison of children's measures at enrollment and disenrollment. We present the mean of each common functional outcome. This exhibit shows that no statistically significant changes occur (status quo is maintained) for any of the common functional outcomes (numerical or interval outcomes) listed for children disenrolled from the program, regardless of LOS. After conducting the same comparisons for transition and diversion children, the results do not change. One exception is that the severity of substance abuse worsens for diversion children disenrolled between 7 and 12 months.

Exhibit 5.7 looks at the functional outcomes in law enforcement and child protective services at baseline and at disenrollment using the McNemar's test. The comparison also shows that disenrolled children maintain nearly the same level of involvement with both agencies regardless of LOS.

Similar to the analysis in the point of measurement section, we examined subpopulations of children based on their baseline status in two outcomes. The results are included in Exhibit 5.8. Similar to previous analyses using baseline conditions, the outcomes for children who have attended school regularly and have had no substance abuse problems worsen regardless of their LOS. However, we can observe improvements in the outcomes of children with more severe conditions (i.e., children with more severe school absence and substance abuse problems) at enrollment. The same caveat regarding the reporting of substance abuse applies here.

## Exhibit 5.6: Common Functional Outcomes from Baseline to Disenrollment by Length of Program Stay (LOS)

| Common Functional Outcomes | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | | LOS: 1 Year + | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Baseline | Disenrollment | | | Baseline | Disenrollment | | | Baseline | Disenrollment | |
| | N | Mean Score | Mean Score | T-Stats | N | Mean Score | Mean Score | T-Stats | N | Mean Score | Mean Score | T-Stats |
| **All Disenrolled Children** | | | | | | | | | | | | |
| Number of absences from school (past 6 months) | 275 | 8.49 | 10.89 | -1.75 | 331 | 10.42 | 10.00 | 0.33 | 134 | 6.12 | 7.34 | -0.95 |
| Number of arrests (past 6 months) | 293 | 0.39 | 0.45 | -1.12 | 362 | 0.30 | 0.32 | -0.41 | 160 | 0.25 | 0.15 | 1.80 |
| Severity of school absence | 247 | 1.66 | 1.76 | -1.66 | 273 | 1.73 | 1.63 | 1.58 | 127 | 1.55 | 1.54 | 0.10 |
| Severity of substance abuse | 292 | 1.35 | 1.42 | -1.42 | 360 | 1.32 | 1.38 | -1.35 | 159 | 1.30 | 1.23 | 0.97 |
| **All Disenrolled Children Enrolled by Transition** | | | | | | | | | | | | |
| Number of absences from school (past 6 months) | | | | | 129 | 8.60 | 7.41 | 0.63 | 26 | 5.85 | 5.58 | 0.09 |
| Number of arrests (past 6 months) | | | | | 146 | 0.19 | 0.17 | 0.33 | 44 | 0.18 | 0.16 | 0.24 |
| Severity of school absence | | | | | 74 | 1.38 | 1.36 | 0.19 | 25 | 1.48 | 1.48 | 0.00 |
| Severity of substance abuse | | | | | 144 | 1.33 | 1.31 | 0.21 | 43 | 1.21 | 1.21 | 0.00 |
| **All Disenrolled Children Enrolled by Diversion** | | | | | | | | | | | | |
| Number of absences from school (past 6 months) | 166 | 10.54 | 12.95 | -1.20 | 202 | 11.58 | 11.67 | -0.05 | 108 | 6.19 | 7.76 | -1.12 |
| Number of arrests (past 6 months) | 176 | 0.42 | 0.53 | -1.73 | 216 | 0.37 | 0.42 | -0.63 | 116 | 0.28 | 0.15 | 1.91 |
| Severity of school absence | 164 | 1.78 | 1.87 | -1.07 | 199 | 1.85 | 1.72 | 1.60 | 102 | 1.57 | 1.56 | 0.10 |
| Severity of substance abuse | 177 | 1.37 | 1.40 | -0.38 | 216 | 1.32 | 1.42 | -2.01* | 116 | 1.33 | 1.24 | 1.07 |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.

Notes: N for each item is the number of children who have both baseline and disenrollment data for the item at the corresponding LOS group.

T-statistics are reported from the t-test of equality of means at baseline and disenrollment. For transition children with LOS between 3 and 6 months, we did not conduct a separate analysis for them because many of these children are in institutions or are simply stabilizing their conditions. (Higher number for each item means worse outcome.)

Blank cells indicate a small sample size (N < 15).

* P<0.05. **P<0.01. ***P<0.001.

## Exhibit 5.7: McNemar Test Results for Common Functional Outcomes from Baseline to Disenrollment by LOS

| Common Functional Outcomes | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | | LOS: 1 Year + | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Baseline % (Yes) | Disenrollment % (Yes) | McNemar's Test (df=1) | N | Baseline % (Yes) | Disenrollment % (Yes) | McNemar's Test (df=1) | N | Baseline % (Yes) | Disenrollment % (Yes) | McNemar's Test (df=1) |
| **All Disenrolled Children** | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months (1, yes; 0, no) | 297 | 47% | 43% | 1.22 | 364 | 38% | 35% | 1.11 | 160 | 39% | 32% | 2.32 |
| Any Involvement w/ Child Protective Services in the Past 6 Months (1, yes; 0, no) | 276 | 27% | 24% | 0.92 | 348 | 24% | 19% | 3.85 | 148 | 28% | 16% | 9.53 |
| **All Disenrolled Children Enrolled by Transition** | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months (1, yes; 0, no) | | | | | 146 | 27% | 27% | 0.03 | 44 | 34% | 34% | 0.00 |
| Any Involvement w/ Child Protective Services in the Past 6 Months (1, yes; 0, no) | | | | | 136 | 13% | 8% | 3.27 | 37 | 22% | 16% | 0.67 |
| **All Disenrolled Children Enrolled by Diversion** | | | | | | | | | | | | |
| Any Involvement w/ Law Enforcement in the Past 6 Months (1, yes; 0, no) | 178 | 55% | 51% | 0.83 | 218 | 46% | 41% | 1.30 | 116 | 41% | 31% | 3.13 |

| Common Functional Outcomes | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | | LOS: 1 Year + | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Baseline % (Yes) | Disenrollment % (Yes) | McNemar's Test (df=1) | N | Baseline % (Yes) | Disenrollment % (Yes) | McNemar's Test (df=1) | N | Baseline % (Yes) | Disenrollment % (Yes) | McNemar's Test (df=1) |
| Any Involvement w/ Child Protective Services in the Past 6 Months (1, yes; 0, no) | 179 | 30% | 25% | 0.90 | 212 | 30% | 26% | 1.67 | 111 | 30% | 15% | 9.14 |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: One-tailed McNemar test is conducted. The $H_0$ is there is no change of children's outcome between baseline and followup. The $H_a$ is children's outcomes have either improved or worsened.
Blank cells indicate a small sample size (N < 15).
* P<0.05. **P<0.01. ***P<0.001. One-tailed

Exhibit 5.8: Selected Common Functional Outcomes from Baseline to Disenrollment by LOS

| Selected Common Functional Outcomes | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | | LOS: 1 Year + | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Baseline | Disenrollment | | | Baseline | Disenrollment | | | Baseline | Disenrollment | |
| | N | Mean Score | Mean Score | T-Stats | N | Mean Score | Mean Score | T-Stats | N | Mean Score | Mean Score | T-Stats |
| **Low needs/prevention (0-1)** | | | | | | | | | | | | |
| Severity of School Absence | 145 | 1 | 1.37 | -6.15*** | 156 | 1 | 1.33 | -5.98*** | 80 | 1 | 1.34 | -4.61*** |
| Severity of Substance Abuse | 223 | 1 | 1.22 | -5.51*** | 278 | 1 | 1.21 | -5.66*** | 126 | 1 | 1.2 | -3.55** |
| **Intermediate needs/action (1-2)** | | | | | | | | | | | | |
| Severity of School Absence | 50 | 2 | 2.12 | -0.88 | 51 | 2 | 1.78 | 1.67 | 29 | 2 | 1.59 | 3.04** |
| Severity of Substance Abuse | 41 | 2 | 1.90 | 0.73 | 55 | 2 | 1.64 | 4.35*** | 23 | 2 | 1.57 | 3.54** |
| **Immediate/intensive action (2-3)** | | | | | | | | | | | | |

| Selected Common Functional Outcomes | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | | LOS: 1 Year + | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Baseline | Disenrollment | | | Baseline | Disenrollment | | | Baseline | Disenrollment | |
| | N | Mean Score | Mean Score | T-Stats | N | Mean Score | Mean Score | T-Stats | N | Mean Score | Mean Score | T-Stats |
| Severity of School Absence | 52 | 3.15 | 2.50 | 4.15*** | 66 | 3.23 | 2.21 | 6.97*** | 18 | 3.28 | 2.39 | 2.95** |
| Severity of Substance Abuse | 28 | 3.21 | 2.32 | 3.85*** | 27 | 3.26 | 2.52 | 3.31** | | | | |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: N for each item is the number of children who have both baseline and disenrollment data for the item at the corresponding LOS group.
T-statistics are reported from the t-test of equality of means at baseline and disenrollment.
Blank cells indicate a small sample size (N < 15).
A higher number for each item means a worse outcome.
* P<0.05. **P<0.01. ***P<0.001.

## D. Summary

Changes in the functional outcomes over time are clear, regardless of the sample. There is a broad positive effect (i.e., either maintaining or improving children's functional outcomes) in the domains of juvenile justice, school functioning, substance abuse, and child protective services. For disenrolled children, their functional outcomes are, for the most part, maintained, as reflected by the lack of statistical significance on the outcome differences between program enrollment and disenrollment.

We find that not controlling for children's baseline status obscures the actual program effect on children with different types of baseline conditions. The program seems to have positive outcomes for children with more severe functional problems at admission but is associated with worsening outcomes for children with lower impairment at enrollment. It is critical to assess what is causing the negative effects on children with lower impairment, so we can provide a clearer assessment of the program effect.

It is also important to note that a large share of data is missing for the common functional outcomes and that a large number of disenrolled children do not have either the disenrollment *or* baseline data. We are working with the state grantees in improving their data reporting, which we expect to strengthen our analysis and yield more consistent and generalizable findings.

# CHAPTER 6. STATES USING CHILD AND ADOLESCENT NEEDS AND STRENGTHS (CANS)

In this section, we examine whether the Demonstration program is effective in improving or maintaining children's functional outcomes using the CANS instrument.

Child and Adolescent Needs and Strengths (CANS; Lyons, 2009) was developed to assess the strengths and needs of youth who have emotional and behavioral disorders, and to aid in the development of treatment plans to guide service delivery. Administered in interviews with parents/caregivers by either a certified CANS user, the CANS can be used for treatment planning outcome measurement and monitoring. It has several versions—CANS-Mental Health (MH), CANS Comprehensive Multisystem Assessment, and other versions tailored to different populations with specific needs, including those for developmental disability, juvenile justice, and child welfare.

The subset of CANS states (*Indiana, Maryland, Mississippi*, and *Virginia*) use different versions of CANS according to their needs and preferences. *Virginia, Maryland,* and *Indiana* use the CANS Comprehensive Multisystem Assessment, while *Mississippi* uses CANS-Mental Health (MH). The CANS domains differ slightly by version. The CANS-MH includes the domains of problem presentation, risk behaviors, functioning, care intensity and organization, family/caregiver needs and strengths. The core domains of CANS Comprehensive Multisystem Assessment are life functioning, child strengths, acculturation, caregiver strengths, caregiver needs, child behavioral/emotional needs, and child risk behaviors. Extension modules are triggered by core questions and include developmental disability, health, sexuality, adoption, trauma, substance use, violence, juvenile justice, fire setting, and psychotropic medication. Specific items or questions are the same across all versions.

The CANS variables included in the Demonstration MDS were chosen based on the functional domains pre-defined by CMS in the PRTF grant application and across the CANS versions used by the state grantees. Exhibit 6.1 presents the CANS items by functional domain.

## Exhibit 6.1: CANS Items Included in the CBA MDS

| Variable MDS Code | Domain/Variable Name |
|---|---|
| **School Functioning** | |
| F2CANS_01 | School Achievement |
| F2CANS_02 | School Attendance |
| F2CANS_03 | School Behavior |
| **Juvenile Justice** | |
| F2CANS_04 | Juvenile Justice |
| **Alcohol & Other Drug Use** | |
| F2CANS_05 | Substance Use |
| **Mental Health** | |
| F2CANS_06 | Adjustment to Trauma |
| F2CANS_07 | Depression/Anxiety |
| F2CANS_08 | Attention Deficit/Impulse Control/Hyperactivity |
| F2CANS_09 | Danger to Others |
| F2CANS_10 | Oppositional Behavior |
| F2CANS_11 | Psychosis |
| F2CANS_12 | Sexual Aggression/Abusive Behavior |
| F2CANS_13 | Danger to Self/Suicide Risk |
| F2CANS_14 | Social Behavior |
| **Social Support** | |
| F2CANS_15 | Family Social Support |
| F2CANS_16 | Interpersonal Social Support |
| F2CANS_17 | Relationship Permanence |
| **Family Functioning Outcomes** | |
| F2CANS_18 | Family Safety |
| F2CANS_19 | Family Involvement |
| F2CANS_20 | Family Knowledge |
| F2CANS_21 | Supervision |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.

Each CANS item has four levels of assessment and each level translates into separate needs and strengths assessments. The basic scoring metric for the CANS items is 0 through 3. In the case of needs assessment, a score of 0 indicates there is no evidence of needs, while a score of 3 indicates immediate/intensive action. In the case of strengths assessments, a 0 reflects a centerpiece strength while a 3 shows no strength identified.

For the purposes of summary and "comparison" across other instruments, we constructed an overall domain score (such as social support domain).[13] For all domains except school functioning, the domain score is defined as the mean rating of the items. In the case of the school functioning domain score, we use the highest level of need on any CANS item within that domain. This definition of overall domain score allows for the capturing of the highest need of an item within the domain. It also allows for consistency in using the CANS item-ratings system (0, 1, 2, and 3) with its implication intact on the degree of functional impairment and on the level of action needed. Other researchers have used the method of adding the item scores for a child. Our approach is built on discussions that program staff in *Indiana*, one of the state grantees, had with Dr. John Lyons, the CANS developer. In reading the tables and results, the reader should keep in mind that a *lower score in a functional domain indicates a higher functional status*.

We present three sets of analyses: (1) for all children, we conducted baseline domain score analysis by state for subpopulations of children's characteristics and program maturity at baseline; (2) for all children, we evaluated the effect of the program at two points of measurement (6- and/or 12-month followup from the baseline); (3) for the disenrolled sample, we evaluated effects of the program by LOS. All the analyses for CANS are on the domain level.

We find that the Demonstration program has positive effects on functional outcomes for all children evaluated together and for disenrolled children evaluated separately. Importantly, we find that the waiver program is more effective for children with poor functional status at enrollment than for children with relatively better initial functional status.

### A. Baseline Domain Scores by State and Children's Characteristics.

We analyzed each of the CANS domain scores at baseline across subpopulations and across states that use CANS. The subpopulations are defined by gender, age, program maturity, transition/diversion, and selected conditions based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV.) Here we concentrate on the mental health domain (see Exhibit 6.2). All other domains are presented in the Appendix B (Exhibit 1).

[13] There are various ways of analyzing the children's functionality using CANS, depending on factors including the categorization of the domains. The method specified in this interim report was used for the specific categorization of pre-defined domains. In the final report, we will consider exploring other ways of interpreting CANS instrument. For example, we may concentrate on needs rather than combining strengths and needs on a score.

## Exhibit 6.2 CANS Baseline Domain Scores by State for Each of the Subgroups (Mental Health)

| CANS Functional Outcomes at Baseline | All 4 States | | | Indiana | | | Mississippi | | | Virginia | | | Maryland | | | All but Indiana | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **Gender** | | | | | | | | | | | | | | | | | | |
| Male | 778 | **1.44** | 0.50 | 437 | 1.74 | 0.34 | 313 | 1.07 | 0.41 | 21 | 1.08 | 0.43 | 7 | 0.95 | 0.34 | 341 | 1.07 | 0.41 |
| Female | 386 | **1.34** | 0.51 | 166 | 1.70 | 0.38 | 199 | 1.07 | 0.41 | 14 | 0.89 | 0.41 | 7 | 1.25 | 0.74 | 220 | 1.06 | 0.42 |
| *Total* | 1164 | 1.41 | 0.50 | 603 | 1.73 | 0.35 | 512 | 1.07 | 0.41 | 35 | 1.01 | 0.43 | 14 | 1.10 | 0.58 | 561 | 1.07 | 0.41 |
| **Age** | | | | | | | | | | | | | | | | | | |
| 6-11 years | 382 | **1.55** | 0.46 | 231 | **1.79** | 0.35 | 140 | **1.20** | 0.39 | 7 | 0.98 | 0.22 | 4 | 1.08 | 0.23 | 151 | **1.19** | 0.38 |
| 12-14 years | 379 | **1.41** | 0.50 | 208 | **1.72** | 0.34 | 159 | **1.03** | 0.40 | 10 | 1.10 | 0.32 | 2 | 0.72 | 0.39 | 171 | **1.03** | 0.40 |
| 15-18 years | 383 | **1.28** | 0.50 | 163 | **1.65** | 0.35 | 195 | **1.00** | 0.39 | 17 | 0.92 | 0.52 | 8 | 1.21 | 0.72 | 220 | **1.01** | 0.42 |
| *Total* | 1163 | 1.41 | 0.50 | 603 | 1.73 | 0.35 | 511 | 1.07 | 0.41 | 35 | 1.01 | 0.43 | 14 | 1.10 | 0.58 | 560 | 1.07 | 0.42 |
| **Program Maturity at Enrollment** | | | | | | | | | | | | | | | | | | |
| 0 - 1 year | 314 | **1.39** | 0.54 | 173 | 1.72 | 0.38 | 121 | **0.98** | 0.39 | 6 | 0.83 | 0.41 | 14 | 1.10 | 0.58 | 141 | **0.99** | 0.41 |
| 1 - 2 years | 579 | **1.44** | 0.49 | 313 | 1.72 | 0.33 | 240 | **1.12** | 0.43 | 26 | 1.04 | 0.43 | | | | 266 | **1.11** | 0.43 |
| 2 - 3 years | 263 | **1.35** | 0.50 | 115 | 1.73 | 0.35 | 145 | **1.05** | 0.38 | 3 | 1.07 | 0.53 | | | | 148 | **1.05** | 0.38 |
| Total | 1156 | 1.41 | 0.50 | 601 | 1.72 | 0.35 | 506 | 1.07 | 0.41 | 35 | 1.01 | 0.43 | 14 | 1.10 | 0.58 | 555 | 1.06 | 0.41 |
| **Transition/Diversion** | | | | | | | | | | | | | | | | | | |
| Transition | 380 | **1.08** | 0.44 | 12 | 1.75 | 0.44 | 331 | 1.07 | 0.43 | 35 | 1.01 | 0.43 | 2 | 1.00 | 0.47 | 368 | 1.06 | 0.43 |
| Diversion | 784 | **1.57** | 0.46 | 591 | 1.73 | 0.35 | 181 | 1.07 | 0.38 | | | | 12 | 1.12 | 0.61 | 193 | 1.07 | 0.39 |
| *Total* | 1164 | 1.41 | 0.50 | 603 | 1.73 | 0.35 | 512 | 1.07 | 0.41 | 35 | 1.01 | 0.43 | 14 | 1.10 | 0.58 | 561 | 1.07 | 0.41 |
| **DSM-IV** | | | | | | | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 554 | **1.42** | 0.49 | 311 | **1.70** | 0.32 | 234 | 1.07 | 0.43 | 6 | 0.94 | 0.17 | 3 | 0.85 | 0.17 | 243 | 1.06 | 0.43 |
| Mood, Depressive, Bipolar Disorders | 366 | **1.42** | 0.51 | 184 | **1.75** | 0.36 | 159 | 1.08 | 0.39 | 14 | 1.06 | 0.42 | 9 | 1.27 | 0.62 | 182 | 1.08 | 0.41 |
| PTSD, Anxiety Disorders | 75 | **1.59** | 0.51 | 52 | **1.82** | 0.37 | 22 | 1.10 | 0.34 | | | | 1 | 0.22 | | 23 | 1.06 | 0.38 |

| CANS Functional Outcomes at Baseline | All 4 States | | | Indiana | | | Mississippi | | | Virginia | | | Maryland | | | All but Indiana | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| Other Disorders | 88 | **1.26** | 0.55 | 26 | **1.84** | 0.411 | 60 | 1.02 | 0.38 | 1 | 0.11 | | 1 | 1.22 | | 62 | 1.01 | 0.40 |
| ***Total*** | **1083** | **1.42** | **0.51** | **573** | **1.73** | **0.35** | **475** | **1.07** | **0.41** | **21** | **0.98** | **0.41** | **14** | **1.10** | **0.58** | **510** | **1.06** | **0.41** |

Source. IMPAQ International, LLC and Westat, National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.

Notes: It is assumed that the scores from 0 to 3 are evenly spaced so that all CANS item scores are interval variables. N is the number of children with data on the ID, Enrollment and Record Trail Variables in both Core and CANS files. T-test was used to compare the statistical difference for the subpopulation with two categories. F-test was used to compare the statistical difference for the subpopulation with more than two categories.

Statistically significant differences between categories at least 5% significance level are indicated in bold font. Blank cells indicate N =0.

As mentioned before, we have a keen interest in the subpopulations of children and youth who were transitioned from PRTFs vs. diverted to the program. CANS states differ in their distribution of transition and diversion cases. In *Indiana*, for example, 98 percent of children were diverted to the program. On the other hand, the majority (65 percent) of children in *Mississippi* are transitioned, and *Virginia* has a transition-only policy. In *Maryland*, 12 of 14 children were diverted.

The average baseline scores of all transition children from all four states are lower than diversion children in all domains. This result indicates that children who transitioned to the waiver program had better functional status than those who were diverted to the program. Caution, however, is needed to interpret the result, since the total average score for all four states for a specific group of children may be explained predominantly by other factors. That is the case here. *Indiana's* domain scores are relatively higher than other states,[14] and *Indiana* has the largest sample size.[15] The vast majority of *Indiana's* children were diverted to the program, so it has a larger impact on the transition/diversion comparisons.

Transition and diversion enrollees' scores are similar for each state. Despite this apparent similarity at the state level, the average scores of all diversion children are higher than those for transition children. For example, in the mental health domain, the aggregate scores for diversion children are much higher than for transition children, and the difference is statistically significant at 0.1 percent level. However, the aggregate differences (high score of diversion children) are driven by *Indiana's* diversion children, who have higher scores than other states' diversion children and who account for most of the total diversion children (75 percent). Nonetheless, the few transition children in *Indiana* have also high scores (as high as the diversion children). To confirm the similarity of transition and diversion children's scores, we examine the scores for all states but *Indiana*. The transition children's score average for all states but *Indiana* is 1.06, while the diversion children's is 1.07, and they are not significantly different at the 5 percent level. *Indiana's* influence on the average scores between transition and diversion children can be found in school functioning, mental health, and social support domains.

[14] The school functioning domain score over all children regardless of transition or diversion status, for example, is 2.48 in Indiana, whereas it is 1.99, 1.43, and 2.00 in Mississippi, Virginia, and Maryland, respectively. All other domains, except for alcohol and other drug use domain, show similar state-specific patterns where Indiana has the highest average scores. In the alcohol and other drug use domain, the scores are similar over all states but Maryland (whose sample size is small), e.g., 0.30, 0.33 and 0.31 for Indiana, Mississippi, and Virginia, respectively.

[15] Indiana's (all four states') total sample size of both transition and diversion children is 603 (1,164) for all domains but family functioning domains.

Considering the possibility of one state driving the average over all states, as found in the transition and diversion subgroup analysis, we focus now on the state-specific baselines. For the gender subgroup analysis, the state scores show that boys and girls have similar baseline scores at enrollment in all but social support domain, where the boys' mean baseline score is significantly lower than the girls' in *Mississippi*.[16]

Regarding the age subgrouping, older children in *Indiana* and *Mississippi* evidenced higher need in the juvenile justice, alcohol, and other drug use domains at enrollment than younger children. By contrast, younger children evidence higher need in the mental health domain at enrollment than older children in those states. These differences among the age subpopulation categories are statistically significant at 0.1 percent level.[17] In other states and in other domains, there is no statistically significant difference among age categories.

For the DSM-IV subgroup, the difference among the four categories is not statistically significant in any of the states except *Indiana*. In *Indiana*, children in various DSM-IV categories show statistically significant differences in the domains of alcohol and other drug use, mental health, and social support. In the alcohol and other drug use domains, children with attention-deficit/hyperactivity disorder (ADD/ADHD) and oppositional defiant disorder had the best functional status at enrollment in *Indiana*, while children with mood, depressive, or bipolar disorders reporting the poorest functional status. Regarding the mental health domain, children with attention-deficit/hyperactivity disorders (ADD/ADHD) or oppositional defiant disorder reported the best mental health functional status at enrollment in *Indiana*. In the social support domain, children with posttraumatic stress disorder (PTSD) or anxiety disorders reported the best functional status in *Indiana*.

In terms of program maturity, the juvenile justice domain in *Indiana* shows that as the program matures, children have fewer juvenile justice needs. It is unclear what drives this outcome.

### B. Effect by Measurement Point – All Children

We analyzed changes in children's functional outcomes from baseline to 6-month and 12-month followups. We present the overall estimates. However, as argued earlier, the changes (direction and magnitude) in functional status are a function of a child's initial functional status at enrollment. To reflect the differences over time for children with different baseline scores, we present additional statistics and concentrate on those to report program changes for the CANS states. We categorize the

[16] If the significance level is not specified, the 5 percent significance level was used in the CANS section.
[17] F-test was used to compare the statistical difference for the subgroup with more than two categories.

baseline scores into three different groups following the CANS ratings system: low needs/prevention (0-<1), intermediate needs/action (1-<2), and immediate/intensive action (2-3).

Exhibit 6.3 summarizes CANS functional outcomes by baseline scores for each point of measurement. Note that the sample size (N) for each point of measurement varies, depending on data availability at the domain level. Only the domains with a sample size of at least 30 are included in the analysis. The results only include data for children who have been enrolled for a particular timeframe and have domain data for that measurement point and have a corresponding baseline score.

## Exhibit 6.3: CANS Domain Scores for Each Point of Measurement by Baseline Scores

| | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-stats | N | Baseline Mean | 12 Month Mean | T-stats |
| **All CANS Baseline Scores** | | | | | | | | |
| School Functioning | 839 | 2.15 | 1.97 | 4.8*** | 309 | 2.3 | 2.18 | 1.74 |
| Juvenile Justice | 845 | 0.99 | 0.86 | 4.15*** | 309 | 1.1 | 0.92 | 3.2** |
| Alcohol & Other Drug Use | 845 | 0.26 | 0.27 | -0.41 | 309 | 0.2 | 0.24 | -2.4* |
| Mental Health | 846 | 1.42 | 1.27 | 10.24*** | 309 | 1.6 | 1.48 | 3.19** |
| Social Support | 845 | 1.74 | 1.61 | 6.54*** | 309 | 1.9 | 1.78 | 2.82** |
| Family Functioning Outcomes | 841 | 1.06 | 1.05 | 0.58 | 309 | 1.2 | 1.21 | 0.12 |
| **Low Needs/Prevention (0-1)** | | | | | | | | |
| School Functioning | 53 | 0.00 | 1.21 | -4.69*** | | | | |
| Juvenile Justice | 369 | 0.00 | 0.27 | -8.37*** | 130 | 0.0 | 0.39 | -5.95*** |
| Alcohol & Other Drug Use | 687 | 0.00 | 0.11 | -6.98*** | 273 | 0.0 | 0.13 | -5.24*** |
| Mental Health | 171 | 0.69 | 0.73 | -1.29 | 35 | 0.7 | 0.88 | -3.24** |
| Social Support | 70 | 0.46 | 0.81 | -5.28*** | | | | |
| Family Functioning Outcomes | 330 | 0.44 | 0.64 | -5.56*** | 89 | 0.5 | 0.76 | -5.86*** |
| **Intermediate Needs/Action (1-2)** | | | | | | | | |
| School Functioning | 131 | 1.00 | 1.44 | -5.1*** | 37 | 1.0 | 1.73 | -4.92*** |
| Juvenile Justice | 219 | 1.00 | 0.90 | 1.94 | 66 | 1.0 | 0.92 | 0.76 |
| Alcohol & Other Drug Use | 104 | 1.00 | 0.81 | 2.48* | | | | |
| Mental Health | 544 | 1.46 | 1.31 | 9.54*** | 208 | 1.5 | 1.49 | 0.88 |
| Social Support | 378 | 1.39 | 1.40 | -0.38 | 114 | 1.4 | 1.58 | -3.32** |
| Family Functioning Outcomes | 428 | 1.31 | 1.23 | 3.66*** | 173 | 1.3 | 1.30 | 0.37 |
| **Immediate/Intensive Action (2-3)** | | | | | | | | |
| School Functioning | 655 | 2.56 | 2.13 | 11.61*** | 254 | 2.6 | 2.34 | 4.86*** |
| Juvenile Justice | 257 | 2.39 | 1.67 | 12.18*** | 113 | 2.5 | 1.53 | 10.04*** |
| Alcohol & Other Drug Use | 54 | 2.19 | 1.22 | 7.96*** | | | | |
| Mental Health | 131 | 2.16 | 1.81 | 8.58*** | 66 | 2.2 | 1.74 | 6.82*** |

| | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-stats | N | Baseline Mean | 12 Month Mean | T-stats |
| Social Support | 397 | 2.30 | 1.94 | 12.74*** | 177 | 2.3 | 1.98 | 8.95*** |
| Family Functioning Outcomes | 83 | 2.25 | 1.75 | 6.52*** | 47 | 2.2 | 1.71 | 4.9*** |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set.
Notes: T-statistics report the test of equality of means at baseline and 6- and 12-months. Negative t-statistics indicate a decrease in functional assessment between measurement points.
* P<0.05. **P<0.01. ***P<0.001. Blanks cells indicate N <30.

At the 6-month followup, all children show improvement in their functional outcomes in school functioning, juvenile justice, mental health, and social support domains. In the alcohol and other drug use and family functioning outcomes domains, children maintain their functional status. This is a positive outcome for the Demonstration. Findings change slightly for children with low needs/prevention (0-<1 s). For these children, functional outcomes decrease in all domains except for mental health domain. Children in the intermediate group (1-<2) decrease in the school functioning domain only. They improve in their alcohol and other drug use, mental health, and family functioning outcomes and maintain their functioning in the juvenile justice and social support domains. Interestingly, children with the lowest functional status (2-3) show improvements in all domains.

At the 12-month followup, all children, regardless of baseline scores, show improvement in juvenile justice, mental health, and social support domains. They maintain their functional status in school functioning and family functioning outcomes. A negative change is observed in the alcohol and other drug use domain. Similar to the findings at the 6-month followup, children with low needs decrease in their functioning in all domains (N<30) and children in the intermediate group decrease in school functioning (as was the case at 6 months) and social support domains, whereas in other domains (N<30) their functional status is maintained (no statistically significant change in either direction). Again, children with the worst initial functional statuses show improvements in several domains.

The findings above are consistent with the evidence from the common outcome measures described in chapter 5. Further evidence of the positive impact on overall children's functional scores from the functional improvement of children with the lowest functioning can be seen in the school functioning domain. Exhibit 6.3 indicates that all children (top section) improve their functional status at the 6- and 12-month followups. However, the children requiring immediate/intensive action (poor initial school functioning status) are the only children improving over time. The children with better functioning status actually show a statistical deterioration in that domain. In other domains, similar patterns are observed, in which children with poor (or good) initial functional status show improvement (or worsening) in their functional status at followup. These findings suggest that the waiver program may be more effective for children with poor functional status at enrollment than to children with relatively better initial functional status.

Based on estimates from these four states, we argue that the waiver program is more effective for children with lower functional status at enrollment than for children with relatively better initial functional status. This finding is consistent with the population of youth for whom wraparound services are intended, youth with needs that span home, school, and community; youth with needs in multiple

life domains (school, employment, residential stability, safety, family relationships and basic needs); and youth for whom there are many adults involved who need to work well together for the youth to be successful. However, the positive effects on the children with poor functional status at enrollment might be driven by *Indiana*'s children, whose CANS scores are relatively high and who have potentially more gains in scores. To consider the possibility of state-driven outcomes, we conduct the measurement point analysis by states. Note that sample sizes of *Virginia* and *Maryland* in this analysis are less than 30 for all domains, and we exclude these two states from this state-specific measurement point analysis. Exhibits 2 and 3 in Appendix B show the measurement point effect in *Indiana* and *Mississippi*, respectively. In general, the pattern of children with poorer functional status at enrollment improving more at the follow-up is still observed in both states. Due to the small sample size (≤ 30), however, we cannot check for this pattern in all domains.

### C. Effect at Disenrollment by LOS – Disenrolled Children

Exhibit 6.4 shows CANS functional outcomes of disenrollment children by baseline scores and by LOS. Note that the baseline mean score for a domain in each LOS category is the average of the domain scores of children who have both baseline and disenrollment data at the corresponding LOS. This approach accounts for the discrepancy in the number of observations for an LOS group and the numbers of observations (N) for each domain at that LOS group.

## Exhibit 6.4: CANS Domain Scores for Each LOS Category by Baseline Scores

| All 4 States | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | | LOS: 1 Year + | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats |
| **All CANS Baseline Scores** | | | | | | | | | | | | |
| School Functioning | 233 | 2.18 | 2.24 | -0.65 | 349 | 2.18 | 1.73 | 6.66*** | 132 | 2.30 | 1.67 | 6.48*** |
| Juvenile Justice | 237 | 1.14 | 1.16 | -0.25 | 352 | 0.98 | 0.88 | 1.91 | 132 | 1.21 | 0.80 | 4.01*** |
| Alcohol & Other Drug Use | 237 | 0.44 | 0.49 | -1.21 | 351 | 0.37 | 0.33 | 0.91 | 132 | 0.26 | 0.17 | 1.87 |
| Mental Health | 237 | 1.38 | 1.28 | 3.32** | 352 | 1.35 | 1.03 | 10.53*** | 132 | 1.46 | 1.09 | 7.58*** |
| Social Support | 236 | 1.68 | 1.65 | 0.83 | 351 | 1.65 | 1.38 | 7.13*** | 132 | 1.84 | 1.41 | 6.57*** |
| Family Functioning Outcomes | 235 | 1.07 | 1.19 | -2.14* | 348 | 1.01 | 0.94 | 1.74 | 132 | 1.13 | 0.95 | 2.32* |
| **Low Needs/Prevention** | | | | | | | | | | | | |
| School Functioning | | | | | | | | | | | | |
| Juvenile Justice | 94 | 0.00 | 0.54 | -6.18*** | 155 | 0.00 | 0.37 | -7.21*** | 51 | 0.00 | 0.51 | -4.5*** |
| Alcohol & Other Drug Use | 163 | 0.00 | 0.13 | -3.6*** | 262 | 0.00 | 0.15 | -5.34*** | 110 | 0.00 | 0.04 | -2.03* |
| Mental Health | 48 | 0.67 | 0.81 | -2.08* | 84 | 0.68 | 0.65 | 0.5 | | | | |
| Social Support | | | | | 34 | 0.41 | 0.88 | -4.72*** | | | | |
| Family Functioning Outcomes | 88 | 0.45 | 0.89 | -3.94*** | 153 | 0.42 | 0.67 | -5.58*** | 49 | 0.47 | 0.55 | -1.12 |
| **Intermediate Needs/Action** | | | | | | | | | | | | |
| School Functioning | 37 | 1.00 | 1.81 | -3.6*** | 47 | 1.00 | 1.28 | -1.48 | | | | |
| Juvenile Justice | 54 | 1.00 | 1.17 | -1.35 | 93 | 1.00 | 0.91 | 0.93 | | | | |
| Alcohol & Other Drug Use | 49 | 1.00 | 1.14 | -1.41 | 55 | 1.00 | 0.82 | 1.8 | | | | |
| Mental Health | 160 | 1.45 | 1.31 | 4.04*** | 227 | 1.45 | 1.08 | 10.22*** | 81 | 1.47 | 1.16 | 6.72*** |
| Social Support | 110 | 1.45 | 1.53 | -1.65 | 179 | 1.38 | 1.18 | 4.34*** | 45 | 1.37 | 1.30 | 0.74 |
| Family Functioning Outcomes | 124 | 1.28 | 1.28 | 0 | 165 | 1.31 | 1.10 | 4.59*** | 65 | 1.33 | 1.14 | 1.37 |
| **Immediate/Intensive Action** | | | | | | | | | | | | |
| School Functioning | 180 | 2.62 | 2.39 | 3.09** | 282 | 2.54 | 1.84 | 11.05*** | 106 | 2.67 | 1.76 | 9.41*** |
| Juvenile Justice | 89 | 2.43 | 1.80 | 5.98*** | 104 | 2.42 | 1.61 | 8.16*** | 54 | 2.46 | 1.15 | 9.98*** |
| Alcohol & Other Drug Use | | | | | 34 | 2.18 | 0.94 | 8.1*** | | | | |
| Mental Health | | | | | 41 | 2.18 | 1.50 | 6.38*** | | | | |

| All 4 States | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | | LOS: 1 Year + | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats |
| Social Support | 100 | 2.27 | 2.00 | 4.39*** | 138 | 2.31 | 1.77 | 9.19*** | 74 | 2.36 | 1.60 | 9.82*** |
| Family Functioning Outcomes | | | | | 30 | 2.32 | 1.48 | 5.31*** | | | | |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set.
Note: T-statistics are reported from the test of equality of means at baseline and disenrollment.
* P<0.05. **P<0.01. ***P<0.001.
Blanks cells indicate N < 30

For the 3–6 month LOS group, all disenrolled children maintain or improve their functional status in all but their family functioning.[18] For the 6- and/or 12-month followup analyses, children with relatively good initial functional status have worse outcomes at disenrollment while children with poor initial functional status have better outcomes at disenrollment. For the 7- to 12-month LOS group, all disenrolled children maintain or improve their functional status in all domains.[19] Children in the low needs/prevention group, however, show deterioration of functional status in all domains (N<30) except the mental health domain.[20] As before, children with poor initial functional status have improved outcomes at disenrollment in all domains.[21]

For the over 12-month LOS group, all disenrolled children show improvement in all domains but alcohol and other drug use. However, these children maintain their alcohol and other drug use functional status; that is, there was no worsening effect. The same pattern of outcome changes for children with low needs and with poor functioning is observed in all domains with a large enough sample size (N≥30), particularly juvenile justice and social support.

Based on the 6- and 12-month followup analysis, it seems that the waiver program is more effective for children with poor functional statuses at enrollment than for children with relatively better initial functional status. We verified if the effects are driven by a specific state. Appendix B (Exhibits 4 and 5) shows the CANS domains scores for each LOS category by baseline scores in *Indiana* and *Mississippi*, respectively. A similar finding is observed (program is more effective for children with poor functional status at enrollment than for children with relatively better initial functional status) in each state, although it cannot be checked for all domains due to small sample sizes (N<30). For example, for the 7- to 12-month LOS group, children with low needs/prevention for juvenile justice show deterioration at disenrollment, while children with immediate/intensive action regarding juvenile justice show improvement at disenrollment in *Indiana*. In *Mississippi*, children with low needs/prevention for mental health maintain their functional status at disenrollment, whereas children with intermediate needs/action show improvement at disenrollment.

[18] They show improvement in mental health domain and show maintained functional status in the remaining domains.
[19] They show improvement in school functioning, mental health, and social support domains.
[19] Children with intermediate needs/action show maintained or improved outcomes in all domains.

## D. Summary and Discussion

We examined the functional outcomes of children measured by the CANS instrument. In the analyses of the effect of the program at two points of measurement (6- and/or 12-month follow-up from the baseline) and the effect by LOS, we find that children receiving Demonstration services in *Indiana, Mississippi, Virginia*, and *Maryland* show positive results on the improvement or maintenance of functional outcomes on average. Furthermore, we find that the program has more positive effects for children with poorer functional statutes at baseline.

# CHAPTER 7. STATES USING CHILD BEHAVIORAL CHECKLIST (CBCL)

The Child Behavioral Checklist (CBCL; Achenbach & Rescorla, 2001)[22] is a 120-item questionnaire completed by parents/caregivers who reflect upon the child/youth's functional competence as well as level of emotional and behavioral problems. The CBCL consists of three competence subscales and eight syndrome subscales. The competence subscales are activities, social, and school, which are summed to a total competence scale ranging from 0 to 35. The eight syndrome subscales are summed to the total syndrome scale, which can be categorized into two broadband scales: internalizing (anxious/depressed, withdrawn/depressed, and somatic complaints), and externalizing (rule-breaking behavior and aggressive behavior), plus other problems (including social problems, thought problems, and attention problems). Each subscale (competence and syndrome) is aggregated from a series of individual items that have three Likert-scale values (0 = not true, 1 = somewhat or sometimes true, and 2 = very or often true). The total syndrome scale can range from 0 to 240. Due to the directionality of the questions, a higher competence score indicates better functional outcome but a higher syndrome score indicates poorer functional outcome.

Currently, *Kansas, Montana*, and *South Carolina* are using the CBCL/6-18 to assess children's functional outcomes.[23] Our analytical sample has 289 children (260 unique children in *Kansas*, 8 in *Montana,* and 21 in *South Carolina*).

The data requested by the Demonstration's MDS only included subscale scores and a selected number of individual item scores. One of the CBCL developer requirements to calculate the total score is that no more than 20 items should have missing scores. Since the MDS does not request all CBCL items,[24] we calculated the sum of the subscales but, for accuracy, termed them "competence scale core sum" and "syndrome scale score sum," as opposed to "total competence scale" and "total syndrome scale," which would be the appropriate terms if we had all CBCL items.

Our analysis described children's CBCL scores at baseline for all three states, aggregated and by state. We then examined children's outcome change between baseline and various measurement points, including disenrollment. Because CBCL scores are all continuous outcomes, we used the paired t-

[22] Achenbach, T. M., & Rescorla, L. A. (2001). Manual for the ASEBA School-Age Forms & Profiles. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.

[23] The CBCL technical guidance indicates that applying CBCL to a proxy for children under 6 and over 18 is fine, if the survey respondent knows the child well (for example, living with him/her). Only 11 of 289 children were outside the age 6-18 range in the current analysis data.

[24] State grantees in 2007 raised issues of a high administrative burden to collect all items. CMS chose to minimize data collection burden and selected a limited number of CBCL items.

test to identify the outcome changes. We created three groups (low, intermediate, and high impairment range) based on children's scores at admission, and conducted analyses of whether the program has different effects on children with different degrees of behavioral and mental health problems. In addition to identifying statistically significant outcome changes, we also investigated whether children move from the intermediate or high impairment range to a higher functioning level.

### A. Baseline Domain Scores by State and Children's Characteristics

Our analysis finds that the baseline competence score of children in three states are within the same range for all children and program characteristics: age, gender, program maturity (measured as the time between the date of a children's program enrollment and the program start date of implementation), transition vs. diversion, and DSM-IV conditions (Exhibit 7.1) However, there is some variation across children and program characteristics in the baseline syndrome scores for all three states, primarily in gender, age, program maturity, and children's syndrome scores by DSM-IV. Children's externalizing problems are similar among states, but the internalizing problems vary for children with different characteristics across states. The detailed results for syndrome scores are included Appendix C (Exhibit 1). As it has been highlighted in other sections, some of the variation and unreliable estimates may be due to the small sample sizes for *Montana* and *South Carolina*.

### B. Effect by Measurement Point– All Children

Exhibit 7.2 shows the number of observations and mean of competence subscale and total scale score from baseline to 6-month and 12-month followups. Overall, children/youth competence in activity and school scales is maintained after being enrolled in the program for 6 and 12 months, respectively. However, social skill scale improves at the 6-month followup and maintains at the 12-month followup.

## Exhibit 7.1: CBCL Baseline Subscale Scores by State for Each of the Subgroups

| CBCL Functional Outcomes at Baseline | All 3 States | | | Kansas | | | Montana | | | South Carolina | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **Competence Scale Score Sum** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 172 | 15.65 | 4.88 | 154 | 15.46 | 4.90 | 4 | 19.25 | 1.55 | 14 | 16.71 | 5.00 |
| Female | 115 | 15.36 | 4.76 | 106 | 15.14 | 4.70 | 4 | 18.13 | 3.04 | 5 | 17.70 | 6.45 |
| ***Total*** | **287** | **15.53** | **4.83** | **260** | **15.33** | **4.82** | **8** | **18.69** | **2.31** | **19** | **16.97** | **5.25** |
| **Age** | | | | | | | | | | | | |
| < 6 years | | | | | | | | | | | | |
| 6-11 years | 54 | 16.83 | 4.50 | 41 | 17.04 | 4.75 | 5 | 18.00 | 2.00 | 8 | 15.06 | 4.20 |
| 12-14 years | 38 | 16.58 | 4.53 | 36 | 16.24 | 4.40 | 1 | 22.50 | | 1 | 23.00 | |
| 15-18 years | 185 | 15.14 | 4.89 | 173 | 14.94 | 4.82 | 2 | 18.50 | 2.12 | 10 | 17.90 | 5.75 |
| 18 years < | 10 | 11.90 | 3.86 | 10 | 11.90 | 3.86 | | | | | | |
| ***Total*** | **287** | **15.53** | **4.83** | **260** | **15.33** | **4.82** | **8** | **18.69** | **2.31** | **19** | **16.97** | **5.25** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 89 | 15.03 | 4.44 | 74 | 14.47 | 4.22 | 4 | 19.38 | 2.59 | 11 | 17.23 | 5.07 |
| 1 - 2 years | 160 | 15.62 | 5.02 | 150 | 15.54 | 5.01 | 2 | 17.75 | 3.18 | 8 | 16.63 | 5.81 |
| 2 - 3 years | 38 | 16.36 | 4.89 | 36 | 16.25 | 4.99 | 2 | 18.25 | 1.77 | | | |
| *Total* | 287 | 15.53 | 4.83 | 260 | 15.33 | 4.82 | 8 | 18.69 | 2.31 | 19 | 16.97 | 5.25 |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 214 | 15.64 | 4.72 | 208 | 15.61 | 4.76 | 4 | 17.38 | 1.89 | 2 | 15.25 | 6.01 |
| Diversion | 73 | 15.23 | 5.15 | 52 | 14.22 | 4.93 | 4 | 20.00 | 2.08 | 17 | 17.18 | 5.32 |
| ***Total*** | **287** | **15.53** | **4.83** | **260** | **15.33** | **4.82** | **8** | **18.69** | **2.31** | **19** | **16.97** | **5.25** |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 87 | 16.04 | 4.68 | 77 | 15.84 | 4.64 | 2 | 18.50 | 1.41 | 8 | 17.31 | 5.55 |
| Mood, Depressive, Bipolar Disorders | 123 | 15.35 | 4.50 | 112 | 15.17 | 4.54 | 6 | 18.75 | 2.66 | 5 | 15.50 | 4.43 |
| PTSD, Anxiety Disorders | 8 | 15.94 | 4.41 | 6 | 16.75 | 4.741 | | | | 2 | 13.50 | 2.83 |
| Other Disorders | 19 | 12.87 | 5.90 | 18 | 12.33 | 5.573 | | | | 1 | 22.50 | |
| ***Total*** | **237** | **15.43** | **4.73** | **213** | **15.22** | **4.735** | **8** | **18.69** | **2.31** | **16** | **16.59** | **4.94** |
| **Syndrome Scale Score Sum** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 168 | 79.73 | 31.81 | 153 | 80.50 | 32.26 | 4 | 68.00 | 22.14 | 11 | 73.36 | 28.85 |
| Female | 116 | 84.81 | 30.52 | 106 | 83.63 | 31.34 | 4 | 98.75 | 18.70 | 6 | 96.42 | 15.68 |
| ***Total*** | **284** | **81.81** | **31.34** | **259** | **81.78** | **31.86** | **8** | **83.38** | **25.10** | **17** | **81.50** | **26.94** |
| **Age** | | | | | | | | | | | | |
| < 6 years | | | | | | | | | | | | |
| 6-11 years | 51 | 80.30 | 26.87 | 40 | 79.98 | 29.19 | 5 | 84.20 | 17.80 | 6 | 79.25 | 17.38 |

| CBCL Functional Outcomes at Baseline | All 3 States | | | Kansas | | | Montana | | | South Carolina | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| 12-14 years | 39 | 80.56 | 31.24 | 36 | 81.00 | 31.67 | 1 | 79.00 | | 2 | 73.50 | 43.13 |
| 15-18 years | 184 | 81.98 | 32.32 | 173 | 81.82 | 32.35 | 2 | 83.50 | 55.86 | 9 | 84.78 | 31.60 |
| 18 years < | 10 | 91.20 | 37.34 | 10 | 91.20 | 37.34 | | | | | | |
| ***Total*** | **284** | **81.81** | **31.34** | **259** | **81.78** | **31.86** | **8** | **83.38** | **25.10** | **17** | **81.50** | **26.94** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 87 | 83.59 | 27.16 | 74 | 84.59 | 27.42 | 4 | 78.00 | 17.61 | 9 | 77.78 | 29.84 |
| 1 - 2 years | 159 | 82.47 | 33.09 | 149 | 82.50 | 33.60 | 2 | 67.50 | 33.23 | 8 | 85.69 | 24.58 |
| 2 - 3 years | 38 | 74.97 | 32.64 | 36 | 73.03 | 32.29 | 2 | 110 | 18.38 | | | |
| ***Total*** | **284** | **81.81** | **31.34** | **259** | **81.78** | **31.86** | **8** | **83.38** | **25.10** | **17** | **81.50** | **26.94** |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 214 | 80.73 | 32.09 | 208 | 80.68 | 32.25 | 4 | 82.00 | 33.42 | 2 | 82.75 | 27.22 |
| Diversion | 70 | 85.11 | 28.88 | 51 | 86.25 | 30.12 | 4 | 84.75 | 18.66 | 15 | 81.33 | 27.87 |
| ***Total*** | **284** | **81.81** | **31.34** | **259** | **81.78** | **31.86** | **8** | **83.38** | **25.10** | **17** | **81.50** | **26.94** |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 85 | 77.98 | 29.93 | 77 | 79.03 | 30.29 | 2 | 99.50 | 3.54 | 6 | 57.33 | 19.70 |
| Mood, Depressive, Bipolar Disorders | 123 | 83.48 | 32.87 | 112 | 83.19 | 33.42 | 6 | 78.00 | 27.22 | 5 | 96.70 | 27.86 |
| PTSD, Anxiety Disorders | 8 | 90.69 | 26.67 | 6 | 92.17 | 29.31 | | | | 2 | 86.25 | 25.10 |
| Other Disorders | 19 | 83.45 | 33.91 | 18 | 82.22 | 34.46 | | | | 1 | 105.50 | |
| ***Total*** | **235** | **81.73** | **31.69** | **213** | **81.85** | **32.19** | **8** | **83.38** | **25.10** | **14** | **78.96** | **28.91** |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: N is the number of children with data in both Core and CBCL files, whereas the CBCL file only has all records for a beneficiary who has passed 50 percent threshold for critical functional variables on at least one of his record trails.
Blank cells indicate that there were no children in those categories.
Higher competence scores indicate improvement in functional outcomes.
Higher syndrome scores indicate worsening of functional outcomes.

Also presented in Exhibit 7.2, the score changes by baseline groups indicate that the program effects are mixed. Children in the low impairment range at baseline see their social functioning maintained, but their school and activity competence worsens at both the 6-month and 12-month followup. Children in the intermediate impairment range maintain their outcomes on all scales. However, outcomes of children in the high impairment range significantly improve in all aspects (activities, social, school, and total competence, where n ≥15). Again, this pattern of results when inspecting scores by baseline conditions is very similar to what we observe in the common outcome analysis (school absence and substance abuse).

We examined if children's syndrome scale changes in the same way as the competence scale above and find similar results. Outcomes for children in the low impairment range worsen in most of the subscale areas at the 6-month followup. Children in the intermediate impairment range maintain their outcomes, and children in the high impairment range improve their outcomes in all subscales. The same is found for these children's outcomes at the 12-month followup. The results are included in Appendix C (Exhibit 2).

We also measured the proportion of children who move from lower functional levels (intermediate and high impairment ranges) to higher levels in each competence scale. The detailed results are reflected in Exhibit 7.3. At both the 6-month and 12-month followup, we found a large proportion of children increase their functioning and move up to a higher functioning level, which suggests a very positive program effect. For example, at the 6-month followup, 51 percent of children move from the high to the low impairment range, and 38 percent of children move from the intermediate to the low impairment range, in the competence scales. These results are telling because they demonstrate that these children experience statistically significant improvements and "clinical" improvements after program admission.

## Exhibit 7.2: CBCL Competence Scale Scores for Each Point of Measurement by Baseline Scores

| Competence Scale | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-stats | N | Baseline Mean | 12 Month Mean | T-stats |
| **All Children** | | | | | | | | |
| Activities | 185 | 8.67 | 8.31 | -1.41 | 69 | 8.27 | 7.70 | -1.44 |
| Social | 185 | 4.03 | 4.71 | 3.44*** | 69 | 4.12 | 4.68 | 1.75 |
| School | 183 | 2.56 | 2.5 | -0.5 | 69 | 2.40 | 2.18 | -1.00 |
| **Competence Scale Score Sum** | **183** | **15.27** | **15.48** | **0.55** | **69** | **14.78** | **14.55** | **-0.38** |
| **Low Impairment[25] Range** | | | | | | | | |
| Activities | 125 | 10.52 | 9.04 | -5.99*** | 44 | 10.45 | 8.56 | -5.08*** |
| Social | 60 | 6.67 | 6.27 | -1.22 | 23 | 6.54 | 5.78 | -1.31 |
| School | 83 | 3.83 | 2.95 | -4.75*** | 28 | 3.80 | 2.57 | -3.85*** |
| **Competence Scale Score Sum** | **99** | **18.94** | **17.25** | **-4.27*** ** | **36** | **18.60** | **16.13** | **-3.54**** |
| **Intermediate Impairment** | | | | | | | | |
| Activities | 19 | 6.89 | 6.84 | -0.10 | | | | |
| Social | 38 | 4.39 | 4.80 | 1.12 | | | | |
| School | 21 | 2.76 | 2.52 | -1.03 | | | | |
| **Competence Scale Score Sum** | **41** | **13.48** | **14.35** | **1.17** | | | | |

[25] The low, intermediate, and high impairment range are based on the scoring rules we developed. Since we do not have T-score, we developed a scoring rule based on the raw score to sort children into these ranges, based o different subscale scores. We also used the same scoring rule for boys and girls because the different coding rules by gender were not available to us at the time of analysis.

| Competence Scale | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-stats | N | Baseline Mean | 12 Month Mean | T-stats |
| **High Impairment** | | | | | | | | |
| Activities | 41 | 3.88 | 6.76 | 4.49*** | 19 | 3.66 | 6.26 | 4.19*** |
| Social | 87 | 2.05 | 3.60 | 5.32*** | 31 | 2.21 | 4.06 | 4.34*** |
| School | 79 | 1.18 | 2.02 | 4.56*** | 32 | 1.09 | 1.63 | 1.85 |
| **Competence Scale Score Sum** | **43** | **8.54** | **12.50** | **4.48*** ** | **20** | **8.43** | **12.23** | **3.41** ** |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: Blank cells indicate a small sample size (N < 15).
T-statistics are reported from the test of equality of means at baseline and 6/12 months. Higher competence scores indicate improvement in functional outcomes.
* P<0.05. **P<0.01. ***P<0.001.

## Exhibit 7.3 CBCL Competence Scale Scores Change for Each Point of Measurement by Baseline Scores

| Baseline Status | 6 Months | | | 12 Months | | |
|---|---|---|---|---|---|---|
| | N | Types of Improvement | | N | Types of Improvement | |
| **Children in Intermediate Impairment Range** | | **% Changed to Intermediate Impairment Range** | **% Changed to Low Impairment Range** | | **% Changed to Intermediate Impairment Range** | **% Changed to Low Impairment Range** |
| **Competence Scale Score Sum** | 19 | N/A | 37.50% | | N/A | |
| **Syndrome Scale Score Sum** | 53 | N/A | 33.96% | 20 | N/A | 35.00% |
| **Internalizing** | 42 | N/A | 26.19% | 23 | N/A | 17.39% |
| **Externalizing** | 35 | N/A | 28.57% | 16 | N/A | 25% |
| **Children in High Impairment Range** | | **% Changed to Intermediate Impairment Range** | **% Changed to Low Impairment Range** | | **% Changed to Intermediate Impairment Range** | **% Changed to Low Impairment Range** |
| **Competence Scale Score Sum** | 41 | 9.76% | 51.22% | 19 | 26.32% | 31.58% |
| **Syndrome Scale Score Sum** | 69 | 24.64% | 17.39% | 28 | 35.71% | 17.86% |
| **Internalizing** | 102 | 15.69% | 15.69% | 36 | 16.67% | 19.44% |
| **Externalizing** | 106 | 21.70% | 15.09% | 42 | 23.81% | 16.67% |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: Blank cells indicate small sample size (N < 15).
N/A indicates that the results do not apply.
Higher competence scores indicate improvement in functional outcomes.
Higher Syndrome scores indicate worsening of functional outcomes.

### C. Effect at Disenrollment by Length of Program Stay – Disenrolled Children

The findings in this section are limited because of the sample size issue. Many children in *Kansas, Montana*, and *South Carolina* do not have both baseline and disenrollment records. Thus, the results described below will need to be further tested as the sample size gets larger and missing data issues are addressed.

Exhibit 7.4 presents the change in children/youth's functional outcomes between baseline and disenrollment, by LOS, and by functional status at baseline. For those with LOS between 3 and 6 months, the competence scale score decreases for social and school subscale as well as for the total competence score sum, all suggesting statistically significant negative outcomes. The outcomes of children in the high impairment range are maintained overall (for scale scores with n ≥15). Nonetheless, due to the small sample size, outcome changes for children in the intermediate impairment range are not able to be assessed. The negative effect for children in the low impairment range dominate the average program effect due to the small sample size for the other two baseline groups.

For children/youths with LOS between 7 and 12 months, the competence scale score sum is maintained and the social skill scale shows a statistically significant improvement. The outcomes for children in the low impairment range show a negative effect (except for social skills), as has been illustrated before. Children in the high impairment range improve their social outcome as well and maintain their school performance. Again, the sample size is too small to yield any reliable conclusion.

We find similar results of outcome changes between baseline and disenrollment for the syndrome scales as well. The detailed results are included in the Appendix C (Exhibit 3).

By looking at the proportion of children who move from the high impairment range to the intermediate or low impairment range, we find a good percentage of children move up to either intermediate or low impairment range, based on their syndrome score scale sum and internalizing and externalizing score (Exhibit 7.5).

## Exhibit 7.4: CBCL Competence Scores for Each LOS Category by Baseline Scores

| Competence Score | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats |
| **All children** | | | | | | | | |
| Activities | 61 | 8.73 | 7.93 | -1.92 | 46 | 8.18 | 7.30 | -1.54 |
| Social | 61 | 4.60 | 3.94 | -2.37* | 46 | 4.27 | 5.16 | 2.3* |
| School | 61 | 3.01 | 2.39 | -2.65* | 46 | 2.64 | 2.23 | -1.33 |
| **Competence Scale Score Sum** | **61** | **16.34** | **14.26** | **-3.23**** | **46** | **15.09** | **14.70** | **-0.52** |
| **Low Impairment[26] Range** | | | | | | | | |
| Activities | 42 | 10.42 | 8.81 | -3.43** | 29 | 10.17 | 8.00 | -3.12** |
| Social | 23 | 6.98 | 5.33 | -3.68** | 15 | 7.47 | 7.07 | -0.71 |
| School | 34 | 4.04 | 2.75 | -3.93*** | 22 | 4.01 | 2.91 | -2.31* |
| **Competence Scale Score Sum** | **40** | **18.83** | **15.18** | **-5.04***** | **26** | **19.06** | **16.42** | **-3.55**** |
| **Intermediate Impairment Range** | | | | | | | | |
| Activities | | | | | | | | |
| Social | 17 | 4.5 | 3.62 | -2.24* | | | | |
| School | | | | | | | | |
| **Competence Scale Score Sum** | | | | | | | | |
| **High Impairment Range** | | | | | | | | |
| Activities | | | | | | | | |
| Social | 21 | 2.07 | 2.69 | 1.44 | 22 | 1.98 | 4.07 | 3.9*** |
| School | 22 | 1.48 | 1.86 | 1.5 | 20 | 1.10 | 1.60 | 1.31 |

[26]The low, intermediate, and high impairment range are based on the scoring rules we developed. Since we do not have T-score, we developed a scoring rule based on the raw score to sort children into these ranges, based on different subscale scores. We also used the same scoring rule for boys and girls because the different coding rules by gender were not available to us at the time of analysis.

| Competence Score | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats |
| **Competence Scale Score Sum** | | | | | | | | |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities, Minimum data Set, January 2011.
Notes: Blank cells indicate a small sample size (N < 15). T-statistics are reported from the test of equality of means at baseline and 6/12 months.
* P<0.05. **P<0.01. ***P<0.001.

### Exhibit 7.5: CBCL Competence Scale Scores Change by Length of Stay- Positive Improvement

| Baseline Status | LOS: 3-6 Months | | | LOS: 7-12 Months | | |
|---|---|---|---|---|---|---|
| | N | Types of Improvement | | N | Types of Improvement | |
| **Children in High Impairment Range** | | % Changed to Intermediate Impairment Range | % Changed to Low Impairment Range | | % Changed to Intermediate Impairment Range | % Changed to Low Impairment Range |
| **Competence Scale Score Sum** | | | | | | |
| **Syndrome Scale Score Sum** | 32 | 15.63% | 15.63% | 21 | 28.57% | 33.33% |
| **Internalizing** | 41 | 12.20% | 14.63% | 30 | 20.00% | 16.67% |
| **Externalizing** | 39 | 12.82% | 12.82% | 29 | 24.14% | 17.24% |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities, Minimum Data Set, January, 2011.
Notes: Blank cells a small sample size (N < 15).
There were too few children in the borderline status who were included the LOS analysis, so all the results in this table are N/A. Therefore, results for all children at borderline are suppressed in this table.

## D. Summary and Discussion

Children receiving Demonstration services in *Kansas, Montana*, and *South Carolina* show mixed results, as measured by the mean competence and syndrome scales. Functional outcomes for children in the low impairment range decline at the 6- and 12-month followups. The program has a more positive effect for children with a lower functional assessment at baseline. These outcome patterns have been reported earlier in the common outcome and the CANS section. Future analyses with larger samples will generate more reliable results. There are different reasons for the current small analytical sample. First, not all enrolled children have an MDS record, but the numbers are close to the total enrollment. Second, we only include those with the baseline data in our analysis. Third, only those with outcome data are included. Many children do not have scores even if they have the baseline data.

# CHAPTER 8. STATES USING CHILD & ADOLESCENT FUNCTIONAL ASSESSMENT SCALE (CAFAS)

The Child & Adolescent Functional Assessment Scale, or CAFAS, rates children/youth's day-to-day ability to function by levels of emotional, behavioral, psychological, psychiatric, or substance use problems (Hodges, 1994; 2000). It consists of eight subscales: school/work performance; home role performance; community; behavior towards others; moods/emotions; self-harmful behavior; substance use; and thinking. In addition, there is a family/social support subscale, which assesses caregivers' ability to provide for the children so that functioning is not impeded.[27] The Demonstration MDS also contains data on 14 CAFAS items that capture children/youth's engagement in risky behaviors and their performance on various dimensions of school, social, and home life. [28]

The following CAFAS-specific outcome indicators, as described in Hodges et al. (2004), are used to assess the effect of program participation on children's functional outcomes.

*i.* *CAFAS total score:* Sum of scores on the eight CAFAS subscales. The total score ranges from 0 to 240. A higher score indicates lower functioning.

*ii.* *Total number of severe impairments:* Sum of the number of scores at the severe impairment level on the eight CAFAS subscales.

*iii.* *Clinically significant improvement in the CAFAS total score:* Reduction in total CAFAS score by at least 20 points.

*iv.* *Normal functioning:* CAFAS total score of 40 or less at followup.

*v.* *Scores on the CAFAS subscales:* Levels of impairment on the subscales are scored as severe (30), moderate (20), mild (10) and no/minimal (0) impairment. Higher subscale scores indicate lower functioning.

*vi.* *Clinically significant improvement in impairment:* Reduction in impairment from the severe or moderate levels to mild or no/minimal impairment levels on the CAFAS subscales.

In addition to assessing the average effect of the program on participants, we also explored the effect of the program on subpopulations. The effects of the program may vary by the level of children's functioning. To assess potential heterogeneity of effects, we divided the children into three groups according to their baseline impairment and separately evaluate program effects for them. For outcomes *i* through *iv* listed above, the three levels of functioning are defined as follows:

[27] This subscale is not included in calculating the total score.

[28] For simplicity of presentation, the evaluation of children's outcome changes on 14 CAFAS items is not included in this report.

- *Low baseline impairment*: Total score <80
- *Medium baseline impairment:* 80 <= Total score < 160
- *High baseline impairment*: Total score >= 160

For *scores on the CAFAS subscales* (outcome v), the baseline categories are as follows:

- *Mild or no impairment at baseline*: Subscale score = 0 or 10
- *Moderate impairment at baseline*: Subscale score = 20
- *Severe impairment at baseline*: Subscale score = 30

The analysis for *clinically significant improvement in impairment* was only conducted for the group of children with severe (30) or moderate (20) impairment at baseline.

As with CANS and CBCL, the primary method of analysis is a test of the statistical difference of the means/proportions at baseline and followup periods. Lack of statistical significance is interpreted as functioning status being maintained from baseline to followup. Maintenance and statistically significant improvements, as noted, fulfill the goals of the Demonstration. T-tests or McNemar tests are conducted for all the outcome measures mentioned above except for *clinically significant improvement in* the CAFAS *total score* and the *clinically significant improvement in impairment*. For the latter two proportion measures, a percentage is used to report the amount of children/youth demonstrating improvement.

Among all the states participating in the Demonstration, only three (*Alaska, Georgia*, and *Kansas*) measure children's functional outcomes using CAFAS.[29] A total of 261 out of the 285 children with CAFAS records are from *Kansas* alone. [30] The corresponding numbers from *Alaska* and *Georgia* are 13 and 11, respectively. Therefore, the aggregate CAFAS results will be disproportionately influenced by the observed outcomes in *Kansas*. Small sample sizes from *Alaska* and *Georgia* preclude having definite outcome change assessments by state.

We conducted an exploration of baseline functional outcomes of enrolled children based on differences in children's characteristics and program maturity at the time of admission, both at the aggregate level and by state. Once baseline scores and subpopulations have been defined, we present the effects of the Demonstration on the functional outcomes of children. We display and discuss the functional outcome assessment results only for those subgroups with a sample size of at least 15.

[29] Although Virginia originally used CAFAS as the statewide uniform instrument, it has now adopted CANS as the standard functional assessment instrument. Since CAFAS data for Virginia only reflect outcomes for children/youth that participated relatively early in the Demonstration, we exclude Virginia CAFAS records from all analysis.

[30] Only those children who have a length of program stay of at least 3 months, have baseline and at least one other followup record and have at least one of their records pass the 50 percent threshold for non-missing critical variables are included in the analytical sample.

## A. Baseline Domain Scores by State and by Children's Characteristics

Baseline personal characteristics of enrollees as well as the maturity of the program at the time of their enrollment may play a role in the effects of the Demonstration. Exhibit 8.1 shows differences in baseline impairment among children by gender, age, program maturity, transition/diversion, and DSM-IV subgroups. We also consider interstate differences. (See Appendix D for complete Exhibit)

There are no large gender differences in total score, total number of severe impairments, and subscales across gender. For all the subscales, the scores of male and female children fall within the vicinity of the same level of impairment. Though the differences are too small to be meaningful, in *Georgia*, females have slightly better scores than males on all domains except for the substance abuse subscale. None of the *Georgia* children are impaired on the substance abuse subscale.

Though the differences in baseline scores among the age groups are too small to draw any definitive conclusions, there seems to be a trend of lower functional status at enrollment for older children. Children above age 18 have the worst baseline scores on all outcomes measured. All 10 children ages 18 or older are from *Kansas.* There is no pattern in baseline scores among children who enrolled within the first, second, or third year of program launch at either the state and aggregate level.[31] This finding is consistent with evidence from other states.

There are no large differences in terms of absolute size between diverted and transitioned children. However, diverted children seem to have worse functional assessment scores at enrollment compared to transitioned children on every outcome measured, particularly in *Kansas*; there are mixed results for *Alaska* and *Georgia*. We also see no aggregate or state-level patterns in baseline scores based on DSM-IV categories.

[31] There were no children with program maturity greater than 2 years from Alaska or Georgia.

## Exhibit 8.1: CAFAS Baseline Functional Outcome Scores by State

| CAFAS Functional Outcomes at Baseline | All 3 States | | | Alaska | | | Georgia | | | Kansas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **Total Score** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 170 | 123.82 | 37.18 | 9 | 133.33 | 39.05 | 6 | 148.33 | 26.39 | 155 | 122.32 | 37.20 |
| Female | 115 | 122.26 | 40.24 | 4 | 122.50 | 51.88 | 5 | 124.00 | 20.74 | 106 | 122.17 | 40.80 |
| ***Total*** | **285** | **123.19** | **38.38** | **13** | **130.00** | **41.43** | **11** | **137.27** | **26.11** | **261** | **122.26** | **38.63** |
| **Age** | | | | | | | | | | | | |
| < 6 years | | | | | | | | | | | | |
| 6-11 years | 47 | 112.34 | 33.05 | 2 | 85.00 | 21.21 | 4 | 140.00 | 40.82 | 41 | 110.98 | 31.69 |
| 12-14 years | 69 | 119.71 | 36.05 | 4 | 115.00 | 41.23 | 2 | 135.00 | 7.07 | 63 | 119.52 | 36.52 |
| 15-18 years | 159 | 125.47 | 39.47 | 7 | 151.43 | 33.88 | 5 | 136.00 | 20.74 | 147 | 123.88 | 39.85 |
| 18 years < | 10 | 162.00 | 35.53 | | | | | | | 10 | 162.00 | 35.53 |
| ***Total*** | **285** | **123.19** | **38.38** | **13** | **130.00** | **41.43** | **11** | **137.27** | **26.11** | **261** | **122.26** | **38.63** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 87 | 130.23 | 40.86 | 7 | 128.57 | 44.51 | 5 | 124.00 | 20.74 | 75 | 130.80 | 41.87 |
| 1 - 2 years | 157 | 119.49 | 36.91 | 6 | 131.67 | 41.67 | 1 | 170.00 | | 150 | 118.67 | 36.67 |
| 2 - 3 years | 36 | 119.44 | 37.87 | | | | | | | 36 | 119.44 | 37.87 |
| ***Total*** | **280** | **122.82** | **38.49** | **13** | **130.00** | **41.43** | **6** | **131.67** | **26.39** | **261** | **122.26** | **38.63** |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 216 | 118.47 | 39.53 | 3 | 116.67 | 66.58 | 5 | 140.00 | 25.50 | 208 | 117.98 | 39.45 |
| Diversion | 69 | 137.97 | 30.32 | 10 | 134.00 | 35.02 | 6 | 135.00 | 28.81 | 53 | 139.06 | 30.08 |
| ***Total*** | **285** | **123.19** | **38.38** | **13** | **130.00** | **41.43** | **11** | **137.27** | **26.11** | **261** | **122.26** | **38.63** |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 85 | 120.24 | 34.67 | 3 | 146.67 | 40.41 | 4 | 152.50 | 30.96 | 78 | 117.56 | 33.81 |
| Mood, Depressive, Bipolar Disorders | 116 | 123.79 | 37.57 | 2 | 85.00 | 35.36 | 2 | 135.00 | 7.07 | 112 | 124.29 | 37.70 |
| PTSD, Anxiety Disorders | 9 | 122.22 | 57.18 | 3 | 136.67 | 61.10 | | | | 6 | 115.00 | 59.58 |
| Other Disorders | 21 | 128.10 | 45.01 | 3 | 143.33 | 37.86 | | | | 18 | 125.56 | 46.55 |
| ***Total*** | **231** | **122.81** | **37.95** | **11** | **131.82** | **45.13** | **6** | **146.67** | **25.82** | **214** | **121.68** | **37.72** |
| **Total Number of Severe Impairments** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 170 | 2.22 | 1.59 | 9 | 2.22 | 1.86 | 6 | 3.33 | 1.51 | 155 | 2.17 | 1.58 |
| Female | 115 | 2.06 | 1.46 | 4 | 2.00 | 2.16 | 5 | 1.40 | 0.89 | 106 | 2.09 | 1.46 |
| ***Total*** | **285** | **2.15** | **1.54** | **13** | **2.15** | **1.86** | **11** | **2.45** | **1.57** | **261** | **2.14** | **1.53** |
| **Age** | | | | | | | | | | | | |

| CAFAS Functional Outcomes at Baseline | All 3 States | | | Alaska | | | Georgia | | | Kansas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| < 6 years | | | | | | | | | | | | |
| 6-11 years | 47 | 1.89 | 1.49 | 2 | 0.50 | 0.71 | 4 | 3.50 | 2.08 | 41 | 1.80 | 1.36 |
| 12-14 years | 69 | 2.13 | 1.58 | 4 | 1.25 | 0.96 | 2 | 2.50 | 0.71 | 63 | 2.17 | 1.62 |
| 15-18 years | 159 | 2.16 | 1.50 | 7 | 3.14 | 1.95 | 5 | 1.60 | 0.89 | 147 | 2.13 | 1.48 |
| 18 years < | 10 | 3.50 | 1.72 | | | | | | | 10 | 3.50 | 1.72 |
| ***Total*** | **285** | **2.15** | **1.54** | **13** | **2.15** | **1.86** | **11** | **2.45** | **1.57** | **261** | **2.14** | **1.53** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 87 | 2.36 | 1.70 | 7 | 2.00 | 1.73 | 5 | 1.80 | 1.10 | 75 | 2.43 | 1.74 |
| 1 - 2 years | 157 | 2.02 | 1.46 | 6 | 2.33 | 2.16 | 1 | 4.00 | | 150 | 1.99 | 1.43 |
| 2 - 3 years | 36 | 2.17 | 1.40 | | | | | | | 36 | 2.17 | 1.40 |
| ***Total*** | **280** | **2.14** | **1.54** | **13** | **2.15** | **1.86** | **6** | **2.17** | **1.33** | **261** | **2.14** | **1.53** |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 216 | 2.05 | 1.56 | 3 | 2.33 | 2.52 | 5 | 2.60 | 2.07 | 208 | 2.03 | 1.55 |
| Diversion | 69 | 2.48 | 1.43 | 10 | 2.10 | 1.79 | 6 | 2.33 | 1.21 | 53 | 2.57 | 1.39 |
| ***Total*** | **285** | **2.15** | **1.54** | **13** | **2.15** | **1.86** | **11** | **2.45** | **1.57** | **261** | **2.14** | **1.53** |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 85 | 2.18 | 1.54 | 3 | 3.00 | 2.00 | 4 | 4.00 | 1.41 | 78 | 2.05 | 1.48 |
| Mood, Depressive, Bipolar Disorders | 116 | 2.14 | 1.55 | 2 | 0.00 | 0.00 | 2 | 1.50 | 0.71 | 112 | 2.19 | 1.55 |
| PTSD, Anxiety Disorders | 9 | 2.00 | 1.80 | 3 | 2.33 | 2.52 | | | | 6 | 1.83 | 1.60 |
| Other Disorders | 21 | 2.43 | 1.72 | 3 | 3.00 | 1.73 | | | | 18 | 2.33 | 1.75 |
| ***Total*** | **231** | **2.17** | **1.57** | **11** | **2.27** | **2.00** | **6** | **3.17** | **1.72** | **214** | **2.14** | **1.54** |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.
Notes: Total score is aggregated from 8 CAFAS subscale scores and ranges from 0 to 240 points. The score from Family/Social Support subscale is not included.
The higher the total/sub-scale score, the lower the functional status.
Total number of severe impairments is the count of CAFAS subscales on which the score is 30.
Levels of impairment on the CAFAS subscales are scored as severe (30), moderate (20), mild (10) and no/minimal (0) Impairment.
N is the number of children with data on the ID, Enrollment and Record Trail Variables in both Core and CAFAS files.
Data on Family/Social Support Subscale are not available for children from Alaska.
Blank cells under N and Mean columns indicate that there are no children fitting that particular profile. Blank cells under SD indicate that standard deviation is not available either because there were no children in the relevant category or there was only one child. Blank cells under the Family/Social Support domain for Alaska indicate that no data on this domain was provided by Alaska.

## B. Effect by Measurement Point – All Children

Exhibit 8.2 shows statistically significant improvements in total score and total number of severe impairments at both 6- and 12-month followup for all children in the sample. Children with both medium and high baseline scores (lower functioning) achieve statistically significant improvement in both total score and total number of severe impairments within 6 months. In contrast, children with higher functioning at baseline show a statistically significant deterioration in the two outcomes at 6 months.

Of the total number of children/youth at the 6-month followup, 47 percent show a clinically significant improvement in total score (see Exhibit 8.2). At 12 months, 45 percent show similar improvement. Seventy-seven percent of children with high baseline impairment show improvement at 6 months. Likewise, 44 percent of children with medium baseline impairment show improvement at 6-month and 12-month points of measurement. The corresponding rate for children with low baseline impairment at 6 months is only 18 percent. However, this does not seem surprising considering that there is a statistically significant worsening in total score for the low baseline impairment group at the 6-month followup.

Normal functioning is one of the most stringent outcome measures. We do not notice any sizable progress in returning to normal functioning with program participation. However, for the low baseline impairment group, the percentage of children with normal functioning falls from 22 to 14 at the 6-month point.

## Exhibit 8.2: CAFAS Baseline Functional Outcome Scores by Impairment Level

| CAFAS Functional Outcome | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-stats | N | Baseline Mean | 12 Month Mean | T-stats |
| **All** | | | | | | | | |
| Total Score | 191 | 119.95 | 106.54 | 4.61*** | 73 | 118.36 | 105.48 | 2.24* |
| Total Number of Severe Impairments | 191 | 2.02 | 1.45 | 4.52*** | 73 | 1.93 | 1.23 | 3.45*** |
| **Low Baseline Impairment** | | | | | | | | |
| Total Score | 22 | 54.09 | 75.00 | -2.32* | | | | |
| Total Number of Severe Impairments | 22 | 0.23 | 0.95 | -2.46* | | | | |
| **Medium Baseline Impairment** | | | | | | | | |
| Total Score | 138 | 118.48 | 106.38 | 3.82*** | 54 | 116.85 | 105.37 | 2.00 |
| Total Number of Severe Impairments | 138 | 1.88 | 1.47 | 3.1** | 54 | 1.72 | 1.17 | 2.42* |
| **High Baseline Impairment** | | | | | | | | |
| Total Score | 31 | 173.23 | 129.68 | 8.31*** | | | | |
| Total Number of Severe Impairments | 31 | 3.90 | 1.71 | 7.44*** | | | | |
| | 6 Months | | | | 12 Months | | | |
| | N | Baseline Percentage | 6 Month Percentage | Chi-Square stats | N | Baseline Percentage | 12 Month Percentage | Chi-Square stats |
| **All** | | | | | | | | |
| Clinically Significant Improvement in Total Score | 191 | | 46.60% | | 73 | | 45.21% | |
| Normal Functioning | 191 | 2.60% | 3.70% | 0.33 | 73 | 4.10% | 4.10% | 0.00 |
| **Low Baseline Impairment** | | | | | | | | |
| Clinically Significant Improvement in Total Score | 22 | | 18.18% | | | | | |
| Normal Functioning | 22 | 22.70% | 13.60% | 0.50 | | | | |
| **Medium Baseline Impairment** | | | | | | | | |
| Clinically Significant Improvement in Total Score | 138 | | 44.20% | | 54 | | 44.44% | |
| Normal Functioning | 138 | 0% | 2.90% | | 54 | 0% | 3.70% | |

| CAFAS Functional Outcome | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-stats | N | Baseline Mean | 12 Month Mean | T-stats |
| **High Baseline Impairment** | | | | | | | | |
| Clinically Significant Improvement in Total Score | 31 | | 77.42% | | | | | |
| Normal Functioning | 31 | 0% | 0% | | | | | |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.

Notes: Total score is aggregated from 8 CAFAS subscale scores and ranges from 0 to 240 points. The score from Family/Social Support subscale is not included. Total score at baseline is categorized by the authors into low, medium and high impairment categories for scores <80, 80 <= score < 160 and >=160, respectively .Clinically significant improvement in total score is a reduction in total score by at least 20 points from baseline. Normal functioning occurs when total score is less than or equal to 40 points (out of a potential total of 240 points).T-statistics/Chi-square statistics are reported from tests of equality at baseline and 6/12 months.* P<0.05. **P<0.01. ***P<0.001.

Blank cells indicate N<15, except in the case of clinically significant improvement in total score. Since the latter is a measure of improvement from baseline, there is no value in the Baseline Percentage column. The statistical test column is blank because no test is done on this measure.

Out of the nine CAFAS subscales, children achieve statistically significant improvement in the mean scores for self-harmful behavior, behavior towards others, and home role performance, at both 6 months and 12 months (see Exhibit 8.3). Children with severe impairment at baseline show statistically significant improvement on all six of the subscales for which the group has sufficient sample sizes at the 6-month point, and on all three of the subscales with adequate sample sizes at the 12-month point. The three subscales on which these children show statistically significant improvement at both points of measurement are behavior towards others, school/work performance, and home role performance. Results are similar for children with moderate impairment at baseline as absolute scores improved on all subscales both at 6- and 12-month points of measurement. The improvements in self-harmful behavior, behavior towards others, thinking, community and family/social support are statistically significant. For the subscale of self-harmful behavior, the mean score crosses the mild impairment threshold of 10. As seen in other sections, there is a deterioration of scores on all subscales for children with mild or no impairment at baseline, with results being statistically significant for all except substance abuse at 6 months. Results are similar at 12 months on all the six subscales with sample sizes of 15 or more. Of these, improvements are not statistically significant only for self-harmful behavior and substance abuse subscales.

Exhibit 8.4 shows wide variation in the percentage of children/youth who achieve clinically significant reduction in impairment on the various CAFAS subscales. At 6 months, while only 20 percent of children/youth improve on the moods/emotions and home role performance subscales, 65 percent improve on the self-harmful behavior subscale. After 12 months, children/youth achieve minimum improvement on home role performance of 16 percent and maximum improvement on self-harmful behavior of 70 percent. Around half the children/youth suffering from moderate or severe impairment on the substance abuse subscale at baseline improve to a mild or no impairment state by the 6-month point of measurement.

## Exhibit 8.3: CAFAS Subscale Scores for Each Point of Measurement by Baseline Scores

| CAFAS Functional Outcome | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-Stats | N | Baseline Mean | 12 Month Mean | T-Stats |
| **All** | | | | | | | | |
| Self-harmful Behavior | 191 | 8.80 | 5.50 | 4.35*** | 73 | 9.18 | 4.79 | 2.9** |
| Behavior Towards Others | 191 | 20.99 | 18.12 | 4.68*** | 73 | 20.82 | 17.53 | 2.93** |
| Moods/Emotions | 191 | 19.84 | 19.01 | 1.34 | 73 | 19.86 | 19.86 | 0.00 |
| Thinking | 191 | 8.59 | 8.48 | 0.14 | 73 | 8.63 | 9.04 | -0.33 |
| Community | 191 | 11.78 | 10.31 | 1.86 | 73 | 10.82 | 9.45 | 0.82 |
| School/Work Performance | 191 | 20.94 | 20.21 | 0.83 | 73 | 20.41 | 19.04 | 0.87 |
| Substance Abuse | 191 | 3.82 | 3.51 | 0.58 | 73 | 3.84 | 4.11 | -0.28 |
| Home Role Performance | 191 | 25.18 | 21.41 | 4.77*** | 73 | 24.79 | 21.64 | 2.53* |
| Family/Social Support | 180 | 3.78 | 3.94 | -0.27 | 69 | 4.78 | 4.93 | -0.14 |
| **Severe Impairment at Baseline** | | | | | | | | |
| Self-harmful Behavior | 20 | 30.00 | 12.50 | 7*** | 10 | 30.00 | 6.00 | 9*** |
| Behavior Towards Others | 54 | 30.00 | 20.93 | 11.94*** | 18 | 30.00 | 17.22 | 7.21*** |
| Moods/Emotions | 36 | 30.00 | 23.06 | 5.87*** | 13 | 30.00 | 21.54 | 3.81** |
| Thinking | | | | | | | | |
| Community | 28 | 30.00 | 18.21 | 5.39*** | | | | |
| School/Work Performance | 97 | 30.00 | 23.40 | 6.96*** | 36 | 30.00 | 22.22 | 4.72*** |
| Substance Abuse | | | | | | | | |
| Home Role Performance | 133 | 30.00 | 22.93 | 9.2*** | 48 | 30.00 | 22.92 | 5.78*** |
| Family/Social Support | | | | | | | | |
| **Moderate Impairment at Baseline** | | | | | | | | |
| Self-harmful Behavior | 40 | 20.00 | 9.00 | 7.28*** | 16 | 20.00 | 8.13 | 4.84*** |
| Behavior Towards Others | 107 | 20.00 | 17.66 | 3.55*** | 45 | 20.00 | 17.78 | 2.12* |
| Moods/Emotions | 123 | 20.00 | 18.86 | 1.66 | 49 | 20.00 | 20.00 | 0.00 |
| Thinking | 48 | 20.00 | 13.96 | 5.11*** | 17 | 20.00 | 14.71 | 3.04** |
| Community | 52 | 20.00 | 15.00 | 3.84*** | 19 | 20.00 | 10.53 | 4.02*** |
| School/Work Performance | 39 | 20.00 | 18.72 | 0.90 | | | | |
| Substance Abuse | 18 | 20.00 | 14.44 | 1.97 | | | | |
| Home Role Performance | 30 | 20.00 | 18.67 | 0.81 | 15 | 20.00 | 18.67 | 0.62 |
| Family/Social Support | 15 | 20.00 | 6.67 | 5.74*** | | | | |
| **Mild or No Impairment at Baseline** | | | | | | | | |
| Self-harmful Behavior | 131 | 2.14 | 3.36 | -2.09* | 47 | 1.06 | 3.40 | -1.97 |
| Behavior Towards Others | 30 | 8.33 | 14.67 | -3.74*** | | | | |
| Moods/Emotions | 32 | 7.81 | 15.00 | -5*** | | | | |
| Thinking | 133 | 2.86 | 5.79 | -3.68*** | 52 | 3.27 | 6.73 | -2.48* |
| Community | 111 | 3.33 | 6.13 | -3.28** | 45 | 3.11 | 8.67 | -3.27** |

| CAFAS Functional Outcome | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-Stats | N | Baseline Mean | 12 Month Mean | T-Stats |
| School/Work Performance | 55 | 5.64 | 15.64 | -6.42*** | 23 | 5.65 | 16.96 | -5.13*** |
| Substance Abuse | 166 | 0.96 | 1.75 | -1.80 | 65 | 1.38 | 2.62 | -1.53 |
| Home Role Performance | 28 | 7.86 | 17.14 | -4.26*** | | | | |
| Family/Social Support | 160 | 1.44 | 3.19 | -3.31** | 59 | 1.86 | 4.24 | -2.59* |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.
Notes: Data on Family/Social Support Subscale is not available for children from Alaska. Levels of impairment on the CAFAS subscales are scored as severe (30), moderate (20), mild (10) and no/minimal (0) Impairment. Observations are categorized into severe, moderate and mild or no impairment based on baselines scores.T-statistics are reported from the test of equality of means at baseline and 6/12 months. Blank cells indicate N < 15. * P<0.05. **P<0.01. ***P<0.001

## Exhibit 8.4: CAFAS Subscales by Point of Measurement – Clinical Improvement

| CAFAS Subscale | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | Baseline | | 6 Months | | Baseline | | 12 Months | |
| | Severe or Moderate Impairment | | Clinically Significant Reduction in Impairment | | Severe or Moderate Impairment | | Clinically Significant Reduction in Impairment | |
| | N | Percentage | N | Percentage | N | Percentage | N | Percentage |
| **Self-Harmful Behavior** | 60 | 31.4% | 39 | 65.0% | 26 | 35.6% | 18 | 69.2% |
| **Behavior Towards Others** | 161 | 84.3% | 38 | 23.6% | 63 | 86.3% | 21 | 33.3% |
| **Moods/Emotions** | 159 | 83.3% | 32 | 20.1% | 62 | 84.9% | 11 | 17.1% |
| **Thinking** | 58 | 30.4% | 24 | 41.4% | 21 | 28.8% | 8 | 38.1% |
| **Community** | 80 | 41.9% | 27 | 33.8% | 28 | 38.4% | 17 | 60.7% |
| **School/Work Performance** | 136 | 71.2% | 29 | 21.3% | 50 | 68.5% | | |
| **Substance Abuse** | 25 | 13.1% | 13 | 52.0% | | | | |
| **Home Role Performance** | 163 | 85.3% | 32 | 19.6% | 63 | 86.3% | | |
| **Family/Social Support** | 20 | 11.1% | 12 | 60.0% | | | | |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: Cells are left blank where N < 15 at baseline. Otherwise small N indicates children with change out of a N >15 at baseline.
Data on Family/Social Support Subscale are not available for children from Alaska.
Levels of impairment on the CAFAS subscales are scored as severe (30), moderate (20), mild (10), and no/minimal (0) Impairment.
Clinically significant reduction in impairment is a movement from severe or moderate impairment to mild or no impairment.
The base for the percentage calculation at baseline is the total number of children present at baseline and 6/12 months.
The base for the percentage calculation at the 6/12 month points are children present both at the baseline and the relevant point of measurement and have severe to moderate impairment at baseline.

### C. Effect at Disenrollment by LOS – Disenrolled Children

The sample size falls considerably when reporting outcomes for children with longer LOS. Since only 18 children/youth have functional assessment data available after 12 months or more of program stay, we present results only for 3- to 6-month and 7- to 12-month LOS, unlike the CANS and CBCL analyses.

Exhibit 8.5 displays the total score for the performance of disenrolled children/youth and the total number of severe impairments. Short (3–6 months) LOS does not exert any significant influence on total scores or total number of severe impairments. At a 7- to 12-month LOS, children/youth display a statistically significant reduction in their total score.

Children with higher functioning impairment in the program achieve a statistically significant improvement in both their total score and total number of severe impairments at 6-month LOS. The total number of severe impairments decreases from 4.2 to 2.6, almost a 50 percent reduction. Statistically significant improvement in total score also occurs for children with medium baseline impairment and 7 to 12 months LOS.

The percentage of children/youth displaying clinically significant improvement in total score rises with LOS, with 36 percent and 58 percent showing improvement after a 3- to 6-months and 7- to 12-months LOS, respectively. For children with more severe impairment at baseline, around two-thirds (68 percent) achieve clinically significant improvement with a 3- to 6-month LOS. Among children with medium baseline impairment, a quarter (26 percent) show clinically significant improvement in total score after a 3- to 6-month LOS and half (50 percent) after a 7- to 12-month LOS.

While only about 3 percent of the children who have been disenrolled in *Kansas, Alaska,* and *Georgia* were functioning normally at baseline, 10 percent show normal functioning after an LOS of 3-6 months. This rate rises to 16 percent with an LOS of 7-12 months. The latter improvement is statistically significant. As can be seen in Exhibit 8.5, there is considerable improvement in the rate of normal functioning for children with high and medium impairments at baseline.

## Exhibit 8.5: CAFAS Overall Functional Outcomes for Each LOS by Baseline Scores

| CAFAS Functional Outcome | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | Disenrollment Mean | T-Stats | N | Baseline Mean | Disenrollment Mean | T-Stats |
| **All** | | | | | | | | |
| Total Score | 80 | 123.63 | 121.50 | 0.36 | 58 | 124.66 | 103.97 | 2.67** |
| Total Number of Severe Impairments | 80 | 2.19 | 2.18 | 0.06 | 58 | 2.17 | 2.00 | 0.71 |
| **Low Baseline Impairment** | | | | | | | | |
| Total Score | | | | | | | | |
| Total Number of Severe Impairments | | | | | | | | |
| **Medium Baseline Impairment** | | | | | | | | |
| Total Score | 53 | 115.09 | 118.49 | -0.56 | 42 | 123.81 | 101.67 | 2.66* |
| Total Number of Severe Impairments | 53 | 1.72 | 2.06 | -1.50 | 42 | 2.00 | 1.79 | 0.77 |
| **High Baseline Impairment** | | | | | | | | |
| Total Score | 19 | 176.84 | 136.32 | 3.76** | | | | |
| Total Number of Severe Impairments | 19 | 4.16 | 2.58 | 4.82*** | | | | |

| CAFAS Functional Outcome | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Percentage | Disenrollment Percentage | Chi-Square stats | N | Baseline Percentage | Disenrollment Percentage | Chi-Square stats |
| **All** | | | | | | | | |
| Clinically Significant Improvement in Total Score | 80 | | 36.3% | | 58 | | 48.3% | |
| Normal Functioning | 80 | 2.5% | 10.0% | 3.60 | 58 | 3.4% | 15.5% | 4.45* |
| **Low Baseline Impairment** | | | | | | | | |
| Clinically Significant Improvement in Total Score | | | | | | | | |
| Normal Functioning | | | | | | | | |
| **Medium Baseline Impairment** | | | | | | | | |
| Clinically Significant Improvement in Total Score | 53 | | 26.4% | | 42 | | 50.0% | |
| Normal Functioning | 53 | 0.0% | 9.4% | | 42 | 0.0% | 14.3% | |

| CAFAS Functional Outcome | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Percentage | Disenrollment Percentage | Chi-Square stats | N | Baseline Percentage | Disenrollment Percentage | Chi-Square stats |
| **High Baseline Impairment** | | | | | | | | |
| Clinically Significant Improvement in Total Score | 19 | | 68.4% | | | | | |
| Normal Functioning | 19 | 0.0% | 5.3% | | | | | |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011. Notes: Total score is aggregated from 8 CAFAS subscale scores and ranges from 0 to 240 points. The score from Family/Social Support subscale is not included. Total score at baseline is categorized by the authors into low, medium and high impairment categories for scores <80, 80 <= score < 160 and >=160, respectively. Clinically significant improvement in total score is a reduction in total score by at least 20 points from baseline. Normal functioning occurs when total score is less than or equal to 40 points (out of a potential total of 240 points).T-statistics/Chi-square statistics are reported from tests of equality at baseline and disenrollment.* P<0.05.**P<0.01. ***P<0.001. Blank cells indicate N < 15, except in the case of clinically significant improvement in total score. Since the latter is a measure of improvement from baseline, there is no value in the Baseline Percentage column. The statistical test column is blank because no test is done on this measure.

Exhibit 8.6 presents the scores on the CAFAS subscales. For disenrolled children with an LOS of 3-6 months, scores improve on some subscales and fall for others, with none of the changes statistically significant. Community and home role performance are the only two subscales with statistically significant improvement after an LOS of 7-12 months. In the case of children with severe impairment at baseline, there is statistically significant improvement in scores on all subscales for which there is adequate sample size. For children with moderate impairment, there is statistically significant improvement in the subscales of thinking and family/social support at 3- to 6-months LOS and in community at 7- to 12-months LOS. We note that disenrolled children with mild or no impairment at baseline display statistically significant deterioration in scores on all subscales with adequate sample size, except for self-harmful behavior with a 3- to 6-month LOS and for self-harmful behavior and community with a 7- to 12-month LOS.

Finally, Exhibit 8.7 indicates that children/youth show clinically significant reductions in severe to moderate impairment on all subscales, and there is a wide range in improvement rates, as is the case with the points of measurement analysis. Though there were no systematic differences in baseline severity in impairment between the 3- to 6-month and 7- to 12-month LOS groups, the improvement rates are larger for children with longer LOS.

## Exhibit 8.6: CAFAS Subscale Scores for Each LOS by Baseline Scores

| CAFAS Functional Outcome | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline | Disenrollment | T-Stats | N | Baseline | Disenrollment | T-Stats |
| **All** | | | | | | | | |
| Self-Harmful Behavior | 80 | 10.50 | 8.38 | 1.73 | 58 | 8.45 | 5.69 | 1.68 |
| Behavior Towards Others | 80 | 20.38 | 21.50 | -1.07 | 58 | 21.21 | 19.31 | 1.42 |
| Moods/Emotions | 80 | 19.75 | 20.38 | -0.53 | 58 | 19.48 | 17.07 | 1.55 |
| Thinking | 80 | 6.25 | 8.13 | -1.69 | 58 | 8.10 | 7.41 | 0.47 |
| Community | 80 | 15.88 | 14.25 | 1.05 | 58 | 15.69 | 10.17 | 3.02** |
| School/Work Performance | 80 | 20.25 | 19.25 | 0.63 | 58 | 20.34 | 17.76 | 1.22 |
| Substance Abuse | 80 | 3.75 | 4.50 | -0.80 | 58 | 5.86 | 5.69 | 0.11 |
| Home Role Performance | 80 | 26.88 | 25.13 | 1.56 | 58 | 25.52 | 20.86 | 2.7** |
| Family/Social Support | 77 | 6.75 | 5.84 | 0.84 | 57 | 2.81 | 5.09 | -1.75 |
| **Severe Impairment at Baseline** | | | | | | | | |
| Self-Harmful Behavior | | | | | | | | |
| Behavior Towards Others | 23 | 30.00 | 25.65 | 3.15** | 15 | 30.00 | 24.00 | 2.81* |
| Moods/Emotions | 17 | 30.00 | 24.71 | 4.24*** | 12 | 30.00 | 15.83 | 4.53*** |
| Thinking | | | | | | | | |
| Community | 22 | 30.00 | 17.27 | 4.81*** | 15 | 30.00 | 16.67 | 3.84** |
| School/Work Performance | 34 | 30.00 | 21.18 | 4.48*** | 28 | 30.00 | 20.00 | 3.97*** |
| Substance Abuse | | | | | | | | |
| Home Role Performance | 62 | 30.00 | 25.48 | 4.12*** | 42 | 30.00 | 21.67 | 4.8*** |
| Family/Social Support | | | | | | | | |
| **Moderate Impairment at Baseline** | | | | | | | | |
| Self-Harmful Behavior | 18 | 20.00 | 14.44 | 2.05 | | | | |
| Behavior Towards Others | 40 | 20.00 | 21.00 | -0.81 | 36 | 20.00 | 17.78 | 1.43 |
| Moods/Emotions | 49 | 20.00 | 18.57 | 1.10 | 34 | 20.00 | 17.94 | 1.56 |
| Thinking | 18 | 20.00 | 13.89 | 2.65* | | | | |
| Community | 24 | 20.00 | 17.92 | 0.96 | 18 | 20.00 | 10.00 | 3.43** |
| School/Work Performance | 24 | 20.00 | 19.58 | 0.20 | | | | |
| Substance Abuse | | | | | | | | |
| Home Role Performance | | | | | | | | |
| Family/Social Support | 16 | 20.00 | 11.88 | 3.31** | | | | |
| **Mild or No Impairment at Baseline** | | | | | | | | |
| Self-Harmful Behavior | 51 | 2.94 | 4.71 | -1.50 | 43 | 2.79 | 4.65 | -1.43 |
| Behavior Towards Others | 17 | 8.24 | 17.06 | -3.27** | | | | |
| Moods/Emotions | | | | | | | | |
| Thinking | 60 | 1.33 | 6.00 | -4.24*** | 42 | 2.62 | 6.19 | -2.56* |
| Community | 34 | 3.82 | 9.71 | -2.9** | 25 | 4.00 | 6.40 | -1.06 |
| School/Work Performance | 22 | 5.45 | 15.91 | -3.43** | 18 | 5.56 | 16.11 | -3.04** |
| Substance Abuse | 69 | 0.58 | 2.75 | -2.64* | 45 | 1.11 | 4.44 | -2.19* |

| CAFAS Functional Outcome | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline | Disenrollment | T-Stats | N | Baseline | Disenrollment | T-Stats |
| Home Role Performance | | | | | | | | |
| Family/Social Support | 57 | 1.40 | 3.51 | -2.45* | 52 | 0.96 | 4.81 | -3.29** |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.
Notes: Data on Family/Social Support Subscale is not available for children from Alaska. Levels of impairment on the CAFAS subscales are scored as severe (30), moderate (20), mild (10) and no/minimal (0) Impairment. Observations are categorized into severe, moderate and mild or no impairment based on baselines scores. T-statistics are reported from the test of equality of means at baseline and disenrollment. Blank cells indicate N < 15. * P<0.05. **P<0.01. ***P<0.001.

## Exhibit 8.7: CAFAS Subscales from Baseline to Disenrollment by LOS – Clinical Improvement

| CAFAS Subscale | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | Baseline | | Disenrollment | | Baseline | | Disenrollment | |
| | Severe or Moderate Impairment | | Clinically Significant Reduction in Impairment | | Severe or Moderate Impairment | | Clinically Significant Reduction in Impairment | |
| | N | Percentage | N | Percentage | N | Percentage | N | Percentage |
| **Self-Harmful Behavior** | 29 | 36.3% | 10 | 34.5% | 15 | 25.9% | 10 | 66.7% |
| **Behavior Towards Others** | 63 | 78.8% | 8 | 12.7% | 51 | 87.9% | 11 | 21.6% |
| **Moods/Emotions** | 66 | 82.5% | 12 | 18.2% | 46 | 79.3% | 16 | 34.8% |
| **Thinking** | 20 | 25.0% | | | 16 | 27.6% | 13 | 81.3% |
| **Community** | 46 | 57.5% | 16 | 34.8% | 33 | 56.9% | 17 | 51.5% |
| **School/Work Performance** | 58 | 72.5% | 18 | 31.0% | 40 | 69.0% | 17 | 42.5% |
| **Substance Abuse** | | | | | | | | |
| **Home Role Performance** | 74 | 92.5% | 13 | 17.6% | 50 | 86.2% | 14 | 28.0% |
| **Family/Social Support** | 20 | 26.0% | | | | | | |

Source. IMPAQ International, LLC and Westat, Inc National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.
Notes: Blank cells indicate a small sample size (N < 15).
Data on Family/Social Support Subscale are not available for children from Alaska.
Levels of impairment on the CAFAS subscales are scored as severe (30), moderate (20), mild (10) and no/minimal (0) Impairment.
Clinically significant reduction in impairment is a movement from severe or moderate impairment to mild or no impairment.
The base for the percentage calculation at baseline is the total number of children present at baseline and disenrollment.
The base for the percentage calculation at disenrollment is children present both at the baseline and disenrollment and have severe to moderate impairment at baseline.

## D. Summary and Discussions

We began our analysis by looking at the baseline functional outcomes of children with different personal and program characteristics. While older children and diverted children had worse functional outcomes at baseline, the differences are not large. We find no noteworthy differences in initial conditions in terms of gender, program maturity, or DSM-IV categories.

The effects of the program on enrollees are separately analyzed for an all children sample and a disenrolled children only sample. The analysis of all children with a followup record either at the 6-month or 12-month point of measurement shows that, on average, they achieve statistically significant improvement over time in total score and total number of severe impairments. They also achieve clinically significant improvements in their total score. There is also clinically significant reduction in moderate to severe impairment. However, improvements in the mean scores of most subscales are not statistically significant. For disenrolled children in the aggregate, equality of means tests indicate no statistically significant changes from baseline on the total score and most subscale scores. However, there is clinically significant improvement in total score and severity of impairment.

Dividing the children into three categories by baseline level of impairment allowed us to measure the effects of the program on children with different baseline conditions. Children/youth with high impairments show the most progress during the Demonstration. They achieve statistically significant improvement on most outcomes. Those enrolling in the program with medium baseline impairments maintain their functional status on most outcomes and improve on some others.

For the children/youth with low impairments at baseline, we cannot make any strong claims on the effect of the Demonstration due to small sample sizes. However, these children seem to experience some decrease in their level of functioning.

We can surmise from the results thus far that children/youth, on average, maintain or improve their functional outcomes, as measured by CAFAS, during their participation in the program. This provides some positive evidence on the effectiveness of the Demonstration. However, due to small sample sizes, definitive conclusions are not yet possible.

Several caveats need mentioning. The CAFAS findings presented above may be driven by outcomes in *Kansas,* since 92 percent of the analytical sample is from that state. However, we do not see differences at the state level when inspecting baseline functional outcomes by child characteristics. The only exception is diverted children from *Kansas,* who have more pronounced baseline impairment severity vis-à-vis transitioned children. The results presented above are tentative at best due to the

small sample sizes for several outcomes and subgroups, particularly for measurement of outcome changes for longer LOS.

# CHAPTER 9. YOUTH SATISFACTION SURVEY

The Youth Services Survey (YSS) was developed to evaluate children's perspectives on the public mental health services they receive under the Demonstration. The Youth Services Survey for Families (YSS-F) is a version of YSS that assesses the views of the families whose children received the services. Dr. Molly Brunk (2011) developed YSS as part of the State Indicator Project funded by the Center for Mental Health Services (CMHS). It was adapted from the Family Satisfaction Questionnaire used with the CMHS Comprehensive Community Mental Services for Children and their Families Program and the national Mental Health Statistics Improvement Program (MHSIP) Consumer Survey. The survey (YSS and YSS-F) has five core domains: access to care, participation in treatment, cultural sensitivity, appropriateness, and outcome.

Exhibit 9.1 displays the domains of YSS and associated survey questions. The same domain and item structure is used for the YSS-(F) with word changes to suit the children's families. The questions are scored using the five-point Likert scale: 1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, and 5=Strongly Agree.

**Exhibit 9.1: YSS Domains and Associated Items**

| Domain | Items |
|---|---|
| **Access to Care** | The location of services was convenient.<br>Services were available at times that were convenient for me. |
| **Participation in Treatment** | I helped choose my services.<br>I helped choose my treatment goals.<br>I participated in my own treatment. |
| **Cultural Sensitivity** | Staff treated me with respect.<br>Staff respected my family's religious/spiritual beliefs.<br>Staff spoke with me in a way that I understood.<br>Staff were sensitive to my cultural/ethnic background. |
| **Appropriateness** | Overall, I am satisfied with the services I received.<br>The people helping me stuck with me no matter what.<br>I felt I had someone to talk to when I was troubled.<br>I received services that were right for me.<br>I got the help I wanted.<br>I got as much help as I needed. |
| **Outcomes** | I am better at handling daily life.<br>I get along better with family members.<br>I get along better with friends and other people.<br>I am doing better in school and/or work.<br>I am better able to cope when things go wrong.<br>I am satisfied with my family life right now. |

We calculate domain scores based on the YSS scoring guideline. First, we record the ratings of "Not Applicable," "Don't Know," or "Refused" as missing values. Then, for each domain, we kept respondents with non-missing answers on at least two-third of the items for the domain and calculated the mean of the item scores over the respondents in each the domain.

The state grantees included in this analysis are *Indiana, Maryland, Mississippi*, and *South Carolina*, which have records at 6 months after enrollment, and *Kansas,* which has records at disenrollment.[32] Exhibit 9.2 describes the YSS data submission requirements as outlined in the Demonstration's MDS development report and subsequent guidance. Although 12-month followup and disenrollment are required for all states but *Maryland,* state grantees report data at the preferred interval of 6 months. *Virginia* and *Montana* data are not available, and *Alaska* and *Georgia* data are not used because of computation problems.

**Exhibit 9.2: YSS Data Submission Requirements**

| MDS Summary of Information | | | | |
|---|---|---|---|---|
| **Instrument** | | **Frequency** | **References** | **Notes/Recommendations** |
| **Satisfaction** | **YSS and YSS Family** | Every 12 Months, Disenrollment | 1) MDS Development and Mode of Transmission (p. 4, p. 9)<br>2) PRTF Bulletin #6<br>3) Evaluation Design Report (p. 27) | 1) Optional for participant and family<br>2) Required for state grantee<br>3) May use similar instrument (i.e., KFSS)<br>4) More frequent data collection is recommended (i.e., every 6 months) |

We present two sets of analyses. First, we conduct aggregate and state-specific analyses for YSS to examine the percentage of children who report positive responses for each domain; we then did the same for YSS-F to examine the satisfaction of children's families about the program. Second, we compared the YSS and YSS-F to see whether and how children and their families responded differently to each domain. The ages of the children range from 13 to 18 years old for YSS and from 6 to 18 years old for YSS-F, as recommended by the YSS developer.[33]

[32] The most common record trail over all states that reported the YSS/YSS-F was the 6-month followup.

[33] Regarding appropriate ages for youth, the YSSF can be completed by caregivers of youth who are in school, age 6 years to 18 years (up to 21 years would be appropriate if the youth is in special education and the caregiver is still the guardian). The youth self-report (YSS) would be appropriate for youth age 13 years and up to the same upper limit as stated above.

## A. Percentage of Children/Family Reporting Positive Responses

The typical method of interpreting YSS and/or YSS-F results is to examine the percentage of children and/or families who report positive responses on each of the domains. This percentage measure is calculated using the domain scores. As mentioned, the item scores for a domain range from 1 to 5, with 1 meaning strongly disagreeing on the item question and 5 meaning strongly agreeing. Thus, the domain scores range from 1 to 5. Using the YSS developer's guidance, we concentrate on the percentage of respondents whose domain scores are greater than 3.5,[34] that is, the percentage of people (children for YSS and family for YSS-F) who respond positively about the domain.

Exhibit 9.3 shows the percentage of children who report positive responses in each domain for states with 6-month followup data and for *Kansas,* whose responses are from the YSS collected at disenrollment.

Overall, the majority of children (at least 75.0 percent for the 6-month followup data) show positive responses in all satisfaction domains. Cultural sensitivity ranks high among children, with 89.9 percent of children reporting positively on staff treating them respectfully in consideration of their cultural, ethnic, and religious background and their level of oral communication. Participation in treatment and outcome rank low. Still, a significant proportion of children report positive responses in these domains as well. Among states, cultural sensitivity is ranked highest in all four states with 6-month followup data – *Indiana, Mississippi, Maryland*, and *South Carolina.*[35] Outcome ranks lowest in *Indiana*, while participation in treatment ranks lowest in *Mississippi*.

Exhibit 9.4 shows the percentage of the families who report positive responses in each domain for states with 6-month followup data and for *Kansas,* whose responses are from the YSS-F collected at disenrollment. Over half the families whose children receive the program services express positive responses in all domains. As in the children survey, cultural sensitivity ranks highest among families; 97.4 percent of families express satisfaction on how respectful the staff are to their children. Outcome ranks lowest, however, with 59 percent of families reporting positively regarding improvements in their children's ability to handle daily life, their relationship with family, friends and other people, their school or work performance, their self-coping skill, and/or their satisfaction in family life. Looking across states, we observe the same pattern: cultural sensitivity ranks highest and outcome lowest.

[34] This method is also consistent with methods developed for Adult Mental Health Statistics Improvement Program (MHSIP), and it widely used in the analyses that use YSS or YSS-F data.

[35] Maryland and South Carolina have only small sample sizes of 13 and 3, which warrant caution in the interpretation of the ranking.

## Exhibit 9.3: Percentage of Positive Responses at 6-Month Followup by State (YSS)

| YSS | All excluding KS (N=148) | | IN (N=54) | | MD (N=13) | | MS (N=78) | | SC (N=3) | | KS* (N=8~12) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N[1] | % | N[1] | % | N[1] | % | N[1] | % | N[1] | % | N[1] | % |
| **Access to Care** | 118 | 79.7% | 339 | 72.2% | 112 | 92.3% | 64 | 82.1% | 3 | 100.0% | 99 | 81.8% |
| **Participation in Treatment** | 112 | 75.7% | 445 | 83.3% | 112 | 92.3% | 53 | 67.9% | 2 | 66.7% | 88 | 66.7% |
| **Cultural Sensitivity** | 133 | 89.9% | 448 | 88.9% | 113 | 100.0% | 69 | 88.5% | 3 | 100.0% | 110 | 83.3% |
| **Appropriateness** | 122 | 82.4% | 445 | 83.3% | 111 | 84.6% | 63 | 80.8% | 3 | 100.0% | 99 | 75.0% |
| **Outcome** | 111 | 75.0% | 338 | 70.4% | 113 | 100.0% | 58 | 74.4% | 2 | 66.7% | 86 | 75.0% |

Notes: The percentage (%) for each domain is the proportion of observations with domain scores > 3.5 (scores range from 1 to 5) among non-missing observations.
N[1] for each survey is the number of respondents reporting positively on each domain.
Kansas results are from YSS data at disenrollment.

## Exhibit 9.4: Percentage of Positive Responses at 6-Month Followup by State (YSS-F)

| YSS-F | All exc. KS (N=424) | | IN (N=137) | | MD (N=35) | | MS (N=242) | | SC (N=10) | | KS (N=34~47) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N[1] | % | N[1] | % | N[1] | % | N[1] | % | N[1] | % | N[1] | % |
| **Access to Care** | 387 | 91.3% | 125 | 91.2% | 31 | 88.6% | 221 | 91.3% | 10 | 100.0% | 4 | 2.3% |
| **Participation in Treatment** | 371 | 87.5% | 130 | 94.9% | 35 | 100.0% | 196 | 81.0% | 10 | 100.0% | 5 | 5.7% |
| **Cultural Sensitivity** | 413 | 97.4% | 136 | 99.3% | 35 | 100.0% | 232 | 95.9% | 10 | 100.0% | 9 | 4.8% |
| **Appropriateness** | 360 | 84.9% | 122 | 89.1% | 24 | 68.6% | 204 | 84.3% | 10 | 100.0% | 9 | 1.7% |
| **Outcome** | 250 | 59.0% | 81 | 59.1% | 16 | 45.7% | 145 | 59.9% | 8 | 80.0% | 1 | 2.4% |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: The percentage (%) for each domain is the proportion of observations with domain scores > 3.5 among non-missing observations. KS results are from YSS-F data at disenrollment.

We conducted the same analysis using the YSS and YSS-F data at disenrollment from *Indiana, Mississippi* and *Kansas*.[36] The results are in Appendix E (Exhibits 1 and 2). As in the 6-month followups, the pattern of outcome ranked among the lowest and cultural sensitivity ranked the highest is also observed in the YSS and YSS-F data collected at disenrollment.

### B. Comparison of YSS & YSS-F

Children's satisfaction with the program may differ from that of their families. We compared the YSS and YSS-F results and examined in what domains (if any) there is a difference in satisfaction. In this analysis, we only include children who have both YSS and YSS-F records. Thus, our sample sizes are smaller than the previous section and the reliability of the estimates decreases accordingly. It is reasonable to assume that the family's positive view of the program is not independent of their children's perception, as both views depend on the children's characteristics and family backgrounds. Therefore, McNemar's test is used to see whether there is a statistically significant difference between the satisfaction levels of children as compared to that of their families.[37]

Exhibit 9.5 shows the percentages of children and families who report positive responses on each domain and displays the McNemar's test statistics that test equality of YSS and YSS-F responses. The families show more positive responses than the children in access to care, participation in treatment, and cultural sensitivity. These differences in response between families and children are all statistically significant at 5 percent level in those domains. Interestingly, we find that families are less satisfied with their children's outcome than their children are; 62.4 percent of families report positive responses in outcome as compared to 73.8 percent of children.

[36] South Carolina has one observation of a disenrollment in the YSS and YSS-F dataset. Thus, it is not included in this analysis for disenrollment data.

[37] McNemar's test can be used when paired data with categorical variables are dependent.

## Exhibit 9.5: Comparison of YSS and YSS-F

| YSS & YSS-F (N=141) | YSS | | YSS-F | | Test |
|---|---|---|---|---|---|
| | N[1] | % | N[1] | % | Statistics |
| **Access to Care** | 111 | 78.7% | 132 | 93.6% | 12.60*** |
| **Participation in Treatment** | 107 | 75.9% | 123 | 87.2% | 7.11* |
| **Cultural Sensitivity** | 126 | 89.4% | 138 | 97.9% | 8.00** |
| **Appropriateness** | 116 | 82.3% | 120 | 85.1% | 0.44 |
| **Outcome** | 104 | 73.8% | 88 | 62.4% | 6.40* |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes. The percentage (%) for each domain is the proportion of observations with scores > 3.5 (range of 1 to 5) among non-missing observations. $N^1$ for each survey is the number of respondents who reported positively on each domain for the survey. McNemar's test is used to test the equality of the probability of reporting positive answers on YSS and on YSS-F. P<0.05. **P<0.01. ***P<0.001.

We also examined the satisfaction of children and their families by gender, age, and the transition/diversion subgroups. We excluded children 5 years or younger due to small sample size, and there was no child older than age 18 in the YSS/YSS-F data sample. We find no statistically significant differences in the satisfaction with the program among subpopulation categories for gender and age subpopulations. Chi-square tests were used to examine whether there are statistically significant differences between genders and among the three age groups. The test results indicate that there are no statistically significant differences in any of the domains for either gender or age subpopulations at the 5 percent level. As for the transition/diversion subgroup, diversion children are more satisfied with the cultural sensitivity domain of the program than transition children. In all other domains, however, there is no statistically significant difference between transition and diversion children. Exhibits 3 to 7 in Appendix E show the percentage of positive responses by subpopulation category.

## C. Summary and Discussion

We examined perceptions and satisfaction of children and their families in the Demonstration using the YSS and the YSS-F, respectively. Main findings indicate that the majority of children and their families show positive responses on the Demonstration program services in all domains of the surveys. Cultural sensitivity ranks highest for both children and family. Furthermore, we find that on average families are less satisfied with their children's outcome than are the children, although most of the families are satisfied with overall satisfaction, access to care, participation in treatment, cultural sensitivity, and appropriateness of the program.

# CHAPTER 10. COST NEUTRALITY

To address the second question posed by Congress, that of cost neutrality of the Demonstration grant waiver program, we reviewed the annual CMS Mod-PRTF Demo 372 Report form submitted by state grantees. No other cost data are mandated. The calculation of cost neutrality on the CMS Mod-PRTF Demo 372 Report is straightforward and is independently checked by CMS as a condition for continued participation in the waiver program. We re-examined Form 372 calculations conducted by grantees, recording the results across states for inclusion in the interim and final evaluation reports.

Exhibit 10.1 displays data recorded on the 372 Report by state for waiver year 1 and waiver year 2. Year 3 Forms are not due until 6 months after September 30, 2010 (the end of that waiver year). The third column contains the number of unduplicated participants for which claims were paid and is used to calculate the average *per capita* cost of waiver services. The fourth column is the average per capita cost of waiver costs plus the average per capita cost of all other Medicaid services. The fifth column shows the average per capita cost for comparable services institutions. This figure is based on paid PRTF claims and provides a point of comparison for waiver expenditures.

It is important to note that not all states had submitted their year 1 and 2 estimates as of March 2011. Many of the states expressed difficulty in completing the 372 forms and required further instruction from CMS. In particular, *Georgia* noted that it had incorrectly completed the forms and CMS had granted an extension to resolve the errors. States for which data are incomplete for year 1 did not have any service expenditures during that time.

As indicated by the cost neutrality column in the exhibit below, for those state grantees that submitted information, grant waiver programs cost no more, on average, than the anticipated aggregate PRTF expenditures in the absence of the demonstration. A positive number signifies that waiver program expenditures on services were less than expenditures on services in PRTF institutions and is, therefore, cost neutral.

## Exhibit 10.1: CMS MOD-PRTF DEMO 372 Report – Expenditures for Waiver Year

| State | Waiver Year | Unduplicated Participants for Claims Paid | Average Per Capita 1915(c) Waiver Costs + Other Medicaid Services (D + D') | Average Per Capita Total Medicaid Costs for Services in Other Institutions (G + G') | Cost Neutrality (Subtract D + D' from G + G') | Waiver Costs as Percentage of G +G | Average Length of Stay (Days) |
|---|---|---|---|---|---|---|---|
| **Alaska** | **WY 1** | | | | | | |
| | **WY 2** | 1 | $27,514 | $135,949 | $108,435 | 20% | 112 |
| **Georgia** | **WY 1** | | | | | | |
| | **WY 2** | | | | | | |
| **Indiana** | **WY 1** | 77 | $7,684 | $42,293 | $38,353 | 18% | 126 |
| | **WY 2** | 329 | $16,650 | $39,567 | $22,917 | 42% | 206 |
| **Kansas** | **WY 1** | 28 | $2,281 | $23,263 | $20,982 | 10% | 60 |
| | **WY 2** | 157 | $7,771 | $33,033 | $25,262 | 24% | 143 |
| **Maryland** | **WY 1** | | | | | | |
| | **WY 2** | | | | | | |
| **Mississippi** | **WY 1** | 107 | $18,857 | $48,601 | $29,744 | 39% | 137 |
| | **WY 2** | 304 | $23,282 | $49,337 | $26,055 | 47% | 159 |
| **Montana** | **WY 1** | 3 | $10,635 | $43,159 | $32,524 | 25% | 253 |
| | **WY 2** | 13 | $21,342 | $83,176 | $61,834 | 26% | 153 |
| **South Carolina** | **WY 1** | | | | | | |
| | **WY 2** | 3 | $1,924 | $67,596 | $65,672 | 3% | 90 |
| **Virginia** | **WY 1** | 4 | $9,503 | $54,400 | $44,897 | 17% | 151 |
| | **WY 2** | 30 | $8,246 | $55,279 | $47,033 | 15% | 199 |

Source. Department of Health and Human Services, Centers for Medicare & Medicaid Services: Medical Assistance Expenditures by Type of Service for 1915(c) HCBS Waiver, CMS MOD-PRTF DEMO 372 report: Expenditures for Waiver Year.

More than simply being cost neutral, most states have seen significant savings in costs of care as a result of the Demonstration waiver, although the extent of savings varies by state. *Alaska* has the greatest savings per person at $108,435, which is about 20 percent of spending on services in PRTF institutions. *South Carolina* has the greatest savings in terms of percentage of spending compared to PRTF institutions. Demonstration waiver service expenditures there were only 3 percent of spending in PRTF institutions, at $65,672 per person.

*Mississippi* and *Montana* have similar rates of savings per person of about $30,000 in year 1. And Demonstration waiver services costs were 39 percent and 25 percent of costs in PRTF institutions for *Mississippi* and *Montana,* respectively. In year 2, *Mississippi's* services cost about half as much (47 percent), saving $26,055 per person. *Montana's* waiver was amended to more accurately reflect the costs of G and G' as a result, the rate of savings remained relatively unchanged (26 percent) in year 2 and the per capita savings nearly doubled, to $61,834 per person.

*Indiana's* Demonstration waiver program costs were 18 percent of costs for services in PRTF institutions in year 1 and 42 percent in year 2, a savings of $38,353 and $22,917 per person, respectively. *Kansas'* program spending was 10 percent of spending in PRTF institutions in year 1 and 24 percent in year 2, saving $20,982 and $25,262 per person, respectively. *Virginia's* savings remained relatively stable over the two years. Demonstration expenditures were 15 percent and 17 percent of expenditures in PRTF institutions in year 1 and year 2, respectively, saving about $45,000 per person each year.

The variations in average per capita waiver costs by waiver year and across states are due to several factors, including date of program implementation and state policies. Some can also be attributed to the fact that states were still developing and refining their programs in year 1 and service use was still gaining momentum. This is also the case for some states in year 2 due to later implementation dates.

To really understand the cost effectiveness of service, cross system data are needed: from Medicaid claims, child welfare, juvenile justice, education and adult human services (TANF, unemployment, criminal justice and physical and behavioral health (Manteuffel, 2010). Effective intervention in childhood may avert more costly health care and public costs in the near and distant future. At this time, our cost neutrality study is limited to considering Medicaid claims.

# CHAPTER 11. CONCLUSION

This interim evaluation of the Demonstration waiver has examined several behavioral and mental health domains, including mental health status, involvement with the juvenile justice system, school and family functioning, and alcohol and other drug use, in response to the first question posed by Congress: whether the Demonstration treatment services result in the maintenance of or improvement in an enrollee's functional status. In addition to these substantive domains, we analyzed reasons for disenrollment and youth and family satisfaction. Finally, we addressed the second question posed by Congress: whether treatment costs, on average, total no more than anticipated aggregate PRTF expenditures in the absence of the Demonstration.

Results by domain from three different instruments (CANS, CAFAS, and CBCL) for different subsets of states and by common outcomes across states show that the Demonstration is clearly successful in regard to the first question set by Congress (Exhibit 11.1). *Children and/or youth have either maintained or improved their functional status while in the Demonstration.*

**Exhibit 11.1 Functional Status by Instrument**

| Domain | CANS (IN, MD, MS, VA) | | CAFAS (AK ,GA, KS) | | CBCL (KS, MT, SC) | |
|---|---|---|---|---|---|---|
| | 6 m (N=844) | 12 m (N= 309) | 6 m (N= 190) | 12 m (N= 73) | 6 m (N= 177 ) | 12 m (N= 62) |
| School Functioning | + | • | • | • | • | • |
| Juvenile Justice | + | + | | | + | • |
| Alcohol & Other Drug Use | • | — | • | • | | |
| Mental Health[1] | + | + | + / • | + / • | + / • | • |
| Social Support | + | + | • | • | • | • |
| Family Functioning Outcomes[1] | • | • | + / • | + / • | | |

• indicates that there was no statistically significant improvement or worsening in functional status.
+ indicates a statistically significant improvement in functional status for the domain.
— indicates a statistically significant worsening in functional status for the domain.
[1] Domain is measured by multiple factors for certain instruments. In these cases, we show the outcome changes for each factor.
Black cells indicate that domain is not measured by the instrument.

Although the findings vary by domain, children show statistically significant improvements for most states and across time in the domains of mental health and juvenile justice, and they maintain their level of functioning for school and family functioning. Alcohol and drug use varies from the other domains. We observe a maintenance and/or deterioration of the level of functioning for this domain. The two states that led the enrollment of children into the Demonstration, *Indiana* and *Mississippi*, show a positive change in children's functioning across most domains. These findings are consistent with lessons learned from the national evaluation of the Children Mental Health Initiative, authorized by Congress and funded by the Substance Abuse Mental Health Services Administration (SAMSHA) since 1993. Data collected on over 98,000 children and youth find that children and families, as a whole, show improvement in consistent patterns. Variability in outcomes is related primarily to inputs, services, and fidelity to treatment and site level difference (Manteuffel, 2010).

We also see a consistent trend in the Demonstration effect on children and youth stratified by baseline functional assessment scores (low impairment, intermediate impairment, and high impairment). Each instrument and the common functional assessment outcomes show that participating children with a higher impairment status at enrollment have substantively greater improvement relative to children with lower initial functional impairment (Exhibit 11.2).

On another research domain, satisfaction with the program, we find that the majority of children show positive responses in all items (Exhibit 11.3). Cultural sensitivity ranks high among children, with 89.9 percent of children reporting positively on whether the staff treat them respectfully in consideration of their cultural, ethnic, and religious background and their level of oral communication. Participation in treatment and outcome domains rank lower in satisfaction among children. Still, a significant proportion of children report positive responses in these domains as well. The YSS-F results indicate that over half the families whose children receive program services express positive responses in all domains. As in the children survey (YSS), cultural sensitivity ranks highest among families and outcome lowest. Nevertheless, children feel more satisfied than their families in terms of outcome; 73.8 percent of children report positive responses in outcome, compared with 62.4 percent of the families (Exhibit 11.4).

## Exhibit 11.2: Functional Status by Impairment Level and Instrument

| CANS (IN, MD, MS, VA) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Domain | Low Impairment | | | Intermediate Impairment | | | High Impairment | | |
| | N (at 6m) | 6m | 12m | N (at 6m) | 6m | 12m | N (at 6m) | 6m | 12m |
| School Functioning | 53 | — | • | 131 | — | — | 655 | + | + |
| Juvenile Justice | 369 | — | — | 219 | • | • | 257 | + | + |
| Alcohol & Other Drug Use | 687 | — | — | 104 | + | • | 54 | + | + |
| Mental Health | 171 | • | — | 544 | + | • | 131 | + | + |
| Social Support | 70 | — | — | 378 | • | — | 397 | + | + |
| Family Functioning Outcomes | 330 | — | — | 428 | + | • | 83 | + | + |

| CAFAS (AK, GA, KS) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Domain | Low Impairment | | | Intermediate Impairment | | | High Impairment | | |
| | N (at 6m) | 6m | 12m | N (at 6m) | 6m | 12m | N (at 6m) | 6m | 12m |
| School Functioning | 131 | — | — | 40 | • | • | 20 | + | + |
| Juvenile Justice | | | | | | | | | |
| Alcohol & Other Drug Use | 166 | • | • | 18 | • | • | 7 | NS | NS |
| Mental Health[1] | 327 | — | —<br>• | 169 | 3(+)<br>• | 3(+)<br>• | 268 | 3(+)<br>NS | 3(+)<br>NS |
| Social Support | 32 | — | — | 123 | + | + | 36 | + | NS |
| Family Functioning Outcomes[1] | 190 | — | — | 122 | +<br>• | +<br>• | 59 | +<br>NS | +<br>NS |

| CBCL (KS, MT, SC) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Domain | Low Impairment | | | Intermediate Impairment | | | High Impairment | | |
| | N (at 6m) | 6m | 12m | N (at 6m) | 6m | 12m | N (at 6m) | 6m | 12m |
| School Functioning | 81 | — | — | 21 | • | NS | 73 | + | + |
| Juvenile Justice | 66 | — | — | 29 | • | NS | 82 | + | • |
| Alcohol & Other Drug Use | | | | | | | | | |
| Mental Health[1] | 273 | 3(—)<br>• | 3(—)<br>• | 143 | • | NS | 292 | + | + |
| Social Support | 76 | — | — | 35 | • | NS | 66 | + | • |
| Family Functioning Outcomes | | | | | | | | | |

• indicates that there was no statistically significant improvement or worsening in functional status.
+ indicates a statistically significant improvement in functional status for the domain.
— indicates a statistically significant worsening in functional status for the domain.
NS indicates that the sample size was not sufficient.
[1] Domain is measured by multiple factors for certain instruments. In these cases, we show the outcome changes for each factor. Thus, 3 (+) indicates that three factors had a positive effect
Black cells indicate that domain is not measured by the instrument.

## Exhibit 11.3: Percentage of Positive Responses at 6 month follow-up by State (YSS and YSS-F)

| YSS | YSS All excluding Kansas (N=148) | | YSS-F All excluding Kansas (N=424) | |
|---|---|---|---|---|
| | N[1] | % | N[1] | % |
| **Access to Care** | 1118 | 91.3% | 387 | 79.7% |
| **Participation in Treatment** | 1112 | 87.5% | 371 | 75.7% |
| **Cultural Sensitivity** | 1133 | 97.4% | 413 | 89.9% |
| **Appropriateness** | 1122 | 84.9% | 360 | 82.4% |
| **Outcome** | 1111 | 59.0% | 250 | 75.0% |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set (MDS), January, 2011.
Notes: The percentage (%) for each domain is the proportion of observations with domain scores > 3.5 (scores range from 1 to 5) among non-missing observations.

## Exhibit 11.4: Comparison of YSS and YSS-F

| YSS & YSS-F (N=141) | YSS | | YSS-F | |
|---|---|---|---|---|
| | N[1] | % | N[1] | % |
| **Access to Care** | 111 | 78.7% | 132 | 93.6% |
| **Participation in Treatment** | 107 | 75.9% | 123 | 87.2% |
| **Cultural Sensitivity** | 126 | 89.4% | 138 | 97.9% |
| **Appropriateness** | 116 | 82.3% | 120 | 85.1% |
| **Outcome** | 104 | 73.8% | 88 | 62.4% |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set (MDS), January, 2011.
Notes: The percentage (%) for each domain is the proportion of observations with domain scores > 3.5 (scores range from 1 to 5) among non-missing observations.

The positive reactions to the Demonstration may increase involvement of participating children and families in the program, which is likely to make it even more successful in terms of program adherence and behavior modification.

Finally, most states have seen significant savings in costs of caring for children and youth as a result of the Demonstration waiver. The extent of the savings varies by state. *South Carolina* has the greatest savings in terms of percentage of spending compared to PRTF institutions. Demonstration waiver service expenditures were $1,924 per person, 3 percent of the spending in PRTF institutions ($67,596). In most cases, waiver costs were around 25 percent of the average per capita total Medicaid costs for services in institutions, an average per capita saving of $20,000 to $60,000, excluding high and low outliers.

The findings described earlier highlight the importance of using common outcomes and subpopulations, including baseline scores and source of enrollment (diversion vs. transition) for analysis. Additional analyses of other subpopulations, such as DSM-IV conditions and state-specific polices, as well as larger sample sizes will be critical in the next round of analysis. Furthermore, the use of comparison group data will assist in validating the effect of the Demonstration services on children's mental health and other functional status. The final results will assist grantee states in better targeting services to children with particular profiles, optimizing the benefits of the program as a whole.

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# APPENDICES

- **Appendix A**: McNemar Methodology
- **Appendix B**: CANS Exhibits
- **Appendix C**: CBCL Exhibits
- **Appendix D**: CAFAS Exhibits
- **Appendix E**: YSS Exhibits

# APPENDIX A: MCNEMAR METHODOLOGY

## TECHNICAL NOTES FOR THE MCNEMAR'S TEST USED FOR DICHOTOMOUS OUTCOMES

For the two dichotomous (and nominal) variables (any involvement with law enforcement or Child Protective Services), the McNemar's test was used instead of the paired t-test. The t-test can be used for continuous outcomes, but not for the dichotomous outcome where the proportion instead of the mean of the outcome is meaningful. The McNemar's test is a non-parametric method used on nominal data to compare outcomes for matched pairs of subjects. It is applied to two-by-two contingency tables to determine whether the row and column marginal frequencies are equal.

Exhibit A-1 is an example of contingency table which compares a dichotomous outcome score at baseline and at disenrollment.

**Exhibit A-1: Contingency Table**

| | | Outcome at Disenrollment | |
|---|---|---|---|
| | | Value = 1 | Value = 0 |
| **Outcome at Baseline** | Value = 1 | Outcome maintained (N = a) | Outcome improved (N = b) |
| | Value = 0 | Outcome worsened (N = c) | Outcome maintained (N = d) |

Note: In this example table, value 1 means a poor condition (e.g., needs mental health services), and 0 means a good condition (e.g., doesn't need mental health services).

The null hypothesis of the test, by default, states that the two marginal probabilities for each outcome, in the above table, are the same, i.e., $p_a + p_b = p_a + p_c$ and $p_c + p_d = p_b + p_d$. Therefore, the null is simply $p_{b} = p_{c.}$ In short, by default, the null-hypothesis ($H_0$) for the McNemar's test for the table above shows no difference between the baseline and follow-up outcomes, but the alternative hypothesis ($H_a$) does show a difference. The McNemar's test statistics is typically calculated as (b-c)^2/(b+c) and takes a binominal distribution. When the sample size is large enough, however, the binominal distribution approximates the chi-square distribution with 1 degree of freedom. To determine whether the null is rejected or not, this statistics is compared to the critical value of the bi-nominal or chi-square distribution (depending on the sample size).

For our particular research purpose, however, program outcomes that are shown to have been maintained or improved over time are both considered as a success or positive program effect. We therefore implemented a one-tailed McNemar's test. More specifically, our null hypothesis is still $p_{b} = p_{c}$,

but the alternative hypothesis is $p_b < p_c$. If the null is rejected and thus the alternative hypothesis is accepted, the children's outcomes have worsened. Otherwise, if the null is accepted, it means there is insufficient evidence in the sample to suggest that the program worsens the children's functional outcome and thus we can interpret the outcomes being maintained or improved.

In preparing the result tables, we reported the McNemar's test statistics with one degree of freedom and the exact significance probability against the chi-square distribution in determining the significance level. Note: the reason we compare the exact significance probability against the chi-square distribution is that, since we have a large enough sample size in our analysis so far, the use of the exact significance probability or chi-square probability is not expected to yield any different conclusions.

# APPENDIX B: CANS EXHIBITS

## Exhibit B-1: CANS Baseline Domain Scores by State for Each of the Sub-groups

| CANS Functional Outcomes at Baseline | All 4 States | | | Indiana | | | Mississippi | | | Virginia | | | Maryland | | | All but Indiana | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **School Functioning** | | | | | | | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | | | | | | | |
| Male | 778 | **2.28** | 1.01 | 437 | 2.49 | 0.74 | 313 | 2.04 | 1.24 | 21 | 1.71 | 1.01 | 7 | 1.71 | 0.95 | 341 | 2.02 | 1.22 |
| Female | 386 | **2.11** | 1.21 | 166 | 2.45 | 0.77 | 199 | 1.91 | 1.44 | 14 | 1.00 | 0.96 | 7 | 2.29 | 0.76 | 220 | 1.86 | 1.41 |
| ***Total*** | **1164** | **2.23** | **1.08** | **603** | **2.48** | **0.75** | **512** | **1.99** | **1.32** | **35** | **1.43** | **1.04** | **14** | **2.00** | **0.88** | **561** | **1.96** | **1.30** |
| **Age** | | | | | | | | | | | | | | | | | | |
| 6-11 years | 382 | 2.21 | 0.98 | 231 | 2.47 | 0.77 | 140 | 1.82 | 1.13 | 7 | 1.71 | 0.95 | 4 | 2.00 | 0.82 | 151 | 1.82 | 1.11 |
| 12-14 years | 379 | 2.24 | 1.03 | 208 | 2.50 | 0.67 | 159 | 1.95 | 1.28 | 10 | 1.30 | 1.06 | 2 | 2.00 | 1.41 | 171 | 1.91 | 1.27 |
| 15-18 years | 383 | 2.23 | 1.18 | 163 | 2.44 | 0.82 | 195 | 2.14 | 1.39 | 17 | 1.35 | 1.11 | 8 | 2.00 | 0.93 | 220 | 2.07 | 1.37 |
| ***Total*** | **1163** | **2.23** | **1.08** | **603** | **2.48** | **0.75** | **511** | **1.99** | **1.32** | **35** | **1.43** | **1.04** | **14** | **2.00** | **0.88** | **560** | **1.96** | **1.30** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | | | | | | | |
| 0 - 1 year | 314 | 2.21 | 0.93 | 173 | 2.49 | 0.79 | 121 | 1.83 | 0.99 | 6 | 2.17 | 0.98 | 14 | 2.00 | 0.88 | 141 | 1.87 | 0.98 |
| 1 - 2 years | 579 | 2.26 | 1.03 | 313 | 2.52 | 0.73 | 240 | 2.03 | 1.23 | 26 | 1.31 | 1.01 | | | | 266 | 1.96 | 1.23 |
| 2 - 3 years | 263 | 2.17 | 1.35 | 115 | 2.34 | 0.76 | 145 | 2.06 | 1.66 | 3 | 1.00 | 1.00 | | | | 148 | 2.04 | 1.66 |
| ***Total*** | **1156** | **2.23** | **1.08** | **601** | **2.48** | **0.75** | **506** | **1.99** | **1.32** | **35** | **1.43** | **1.04** | **14** | **2.00** | **0.88** | **555** | **1.96** | **1.30** |
| **Transition/Diversion** | | | | | | | | | | | | | | | | | | |
| Transition | 380 | **2.00** | 1.37 | 12 | 2.25 | 1.06 | 331 | 2.05 | 1.40 | 35 | 1.43 | 1.04 | 2 | 2.00 | 1.41 | 368 | 1.99 | 1.38 |
| Diversion | 784 | **2.33** | 0.89 | 591 | 2.48 | 0.75 | 181 | 1.88 | 1.15 | | | | 12 | 2.00 | 0.85 | 193 | 1.89 | 1.14 |
| ***Total*** | **1164** | **2.23** | **1.08** | **603** | **2.48** | **0.75** | **512** | **1.99** | **1.32** | **35** | **1.43** | **1.04** | **14** | **2.00** | **0.88** | **561** | **1.96** | **1.30** |
| **DSM-IV** | | | | | | | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 554 | 2.30 | 1.05 | 311 | 2.51 | 0.68 | 234 | 2.03 | 1.36 | 6 | 1.67 | 0.82 | 3 | 2.67 | 0.58 | 243 | 2.02 | 1.35 |
| Mood, Depressive, Bipolar Disorders | 366 | 2.19 | 1.06 | 184 | 2.46 | 0.80 | 159 | 1.97 | 1.23 | 14 | 1.21 | 0.89 | 9 | 1.89 | 0.93 | 182 | 1.91 | 1.21 |
| PTSD, Anxiety Disorders | 75 | 2.15 | 0.94 | 52 | 2.327 | 0.923 | 22 | 1.73 | 0.88 | | | | 1 | 2.00 | | 23 | 1.74 | 0.86 |
| Other Disorders | 88 | 2.06 | 1.20 | 26 | 2.615 | 0.752 | 60 | 1.87 | 1.27 | 1 | 0.00 | | 1 | 1.00 | | 62 | 1.82 | 1.27 |
| ***Total*** | **1083** | **2.23** | **1.06** | **573** | **2.482** | **0.747** | **475** | **1.97** | **1.29** | **21** | **1.29** | **0.90** | **14** | **2.00** | **0.88** | **510** | **1.95** | **1.27** |

| CANS Functional Outcomes at Baseline | All 4 States | | | Indiana | | | Mississippi | | | Virginia | | | Maryland | | | All but Indiana | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **Juvenile Justice** | | | | | | | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | | | | | | | |
| Male | 778 | 1.06 | 1.11 | 437 | 1.41 | 1.17 | 313 | 0.62 | 0.86 | 21 | 0.71 | 0.72 | 7 | 0.14 | 0.38 | 341 | 0.61 | 0.85 |
| Female | 386 | 0.94 | 1.03 | 166 | 1.39 | 1.17 | 199 | 0.60 | 0.76 | 14 | 0.43 | 0.51 | 7 | 0.71 | 0.95 | 220 | 0.60 | 0.76 |
| ***Total*** | **1164** | **1.02** | **1.09** | **603** | **1.41** | **1.17** | **512** | **0.61** | **0.82** | **35** | **0.60** | **0.65** | **14** | **0.43** | **0.76** | **561** | **0.61** | **0.81** |
| **Age** | | | | | | | | | | | | | | | | | | |
| 6-11 years | 382 | **0.59** | 0.95 | 231 | **0.84** | 1.08 | 140 | **0.21** | 0.53 | 7 | 0.14 | 0.38 | 4 | 0.25 | 0.50 | 151 | **0.21** | 0.52 |
| 12-14 years | 379 | **1.22** | 1.13 | 208 | **1.64** | 1.09 | 159 | **0.71** | 0.97 | 10 | 0.90 | 0.74 | 2 | 0.00 | 0.00 | 171 | **0.71** | 0.95 |
| 15-18 years | 383 | **1.29** | 1.04 | 163 | **1.91** | 1.04 | 195 | **0.86** | 0.77 | 17 | 0.59 | 0.62 | 8 | 0.63 | 0.92 | 220 | **0.83** | 0.76 |
| ***Total*** | **1163** | **1.02** | **1.09** | **603** | **1.41** | **1.17** | **511** | **0.61** | **0.82** | **35** | **0.60** | **0.65** | **14** | **0.43** | **0.76** | **560** | **0.60** | **0.81** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | | | | | | | |
| 0 - 1 year | 314 | **1.19** | 1.18 | 173 | **1.66** | 1.24 | 121 | 0.64 | 0.79 | 6 | 0.83 | 0.98 | 14 | 0.43 | 0.76 | 141 | 0.62 | 0.79 |
| 1 - 2 years | 579 | **1.01** | 1.03 | 313 | **1.32** | 1.12 | 240 | 0.65 | 0.80 | 26 | 0.58 | 0.58 | | | | 266 | 0.64 | 0.78 |
| 2 - 3 years | 263 | **0.85** | 1.06 | 115 | **1.25** | 1.13 | 145 | 0.54 | 0.90 | 3 | 0.33 | 0.58 | | | | 148 | 0.53 | 0.89 |
| ***Total*** | **1156** | **1.02** | **1.09** | **601** | **1.41** | **1.17** | **506** | **0.61** | **0.83** | **35** | **0.60** | **0.65** | **14** | **0.43** | **0.76** | **555** | **0.61** | **0.81** |
| **Transition/Diversion** | | | | | | | | | | | | | | | | | | |
| Transition | 380 | **0.58** | 0.86 | 12 | 1.42 | 1.16 | 331 | **0.55** | 0.86 | 35 | 0.60 | 0.65 | 2 | 0.00 | 0.00 | 368 | **0.55** | 0.84 |
| Diversion | 784 | **1.24** | 1.12 | 591 | 1.41 | 1.17 | 181 | **0.73** | 0.74 | | | | 12 | 0.50 | 0.80 | 193 | **0.72** | 0.74 |
| ***Total*** | **1164** | **1.02** | **1.09** | **603** | **1.41** | **1.17** | **512** | **0.61** | **0.82** | **35** | **0.60** | **0.65** | **14** | **0.43** | **0.76** | **561** | **0.61** | **0.81** |
| **DSM-IV** | | | | | | | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 554 | 1.07 | 1.09 | 311 | 1.43 | 1.16 | 234 | 0.62 | 0.81 | 6 | 0.50 | 0.55 | 3 | 0.00 | 0.00 | 243 | 0.60 | 0.80 |
| Mood, Depressive, Bipolar Disorders | 366 | 0.95 | 1.03 | 184 | 1.32 | 1.16 | 159 | 0.58 | 0.72 | 14 | 0.57 | 0.51 | 9 | 0.67 | 0.87 | 182 | 0.58 | 0.71 |
| PTSD, Anxiety Disorders | 75 | 0.88 | 1.05 | 52 | 1.135 | 1.121 | 22 | 0.32 | 0.57 | | | | 1 | 0.00 | | 23 | 0.30 | 0.56 |
| Other Disorders | 88 | 0.91 | 1.24 | 26 | 1.385 | 1.329 | 60 | 0.73 | 1.16 | 1 | 0.00 | | 1 | 0.00 | | 62 | 0.71 | 1.15 |
| ***Total*** | **1083** | **1.00** | **1.08** | **573** | **1.36** | **1.17** | **475** | **0.60** | **0.83** | **21** | **0.52** | **0.51** | **14** | **0.43** | **0.76** | **510** | **0.60** | **0.81** |
| **Alcohol & Other Drug Use** | | | | | | | | | | | | | | | | | | |

| CANS Functional Outcomes at Baseline | All 4 States | | | Indiana | | | Mississippi | | | Virginia | | | Maryland | | | All but Indiana | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **Gender** | | | | | | | | | | | | | | | | | | |
| Male | 778 | 0.29 | 0.68 | 437 | 0.27 | 0.61 | 313 | 0.33 | 0.78 | 21 | 0.38 | 0.59 | 7 | 0.00 | 0.00 | 341 | 0.33 | 0.77 |
| Female | 386 | 0.35 | 0.73 | 166 | 0.38 | 0.74 | 199 | 0.33 | 0.74 | 14 | 0.21 | 0.43 | 7 | 0.29 | 0.49 | 220 | 0.32 | 0.72 |
| ***Total*** | **1164** | **0.31** | **0.70** | **603** | **0.30** | **0.65** | **512** | **0.33** | **0.77** | **35** | **0.31** | **0.53** | **14** | **0.14** | **0.36** | **561** | **0.33** | **0.75** |
| **Age** | | | | | | | | | | | | | | | | | | |
| 6-11 years | 382 | **0.03** | 0.23 | 231 | **0.03** | 0.20 | 140 | **0.04** | 0.29 | 7 | 0.00 | 0.00 | 4 | 0.00 | 0.00 | 151 | **0.04** | 0.28 |
| 12-14 years | 379 | **0.31** | 0.71 | 208 | **0.33** | 0.67 | 159 | **0.30** | 0.78 | 10 | 0.40 | 0.52 | 2 | 0.00 | 0.00 | 171 | **0.30** | 0.76 |
| 15-18 years | 383 | **0.58** | 0.79 | 163 | **0.64** | 0.86 | 195 | **0.55** | 0.75 | 17 | 0.35 | 0.61 | 8 | 0.25 | 0.46 | 220 | **0.53** | 0.74 |
| ***Total*** | **1163** | **0.31** | **0.70** | **603** | **0.30** | **0.65** | **511** | **0.33** | **0.77** | **35** | **0.31** | **0.53** | **14** | **0.14** | **0.36** | **560** | **0.33** | **0.75** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | | | | | | | |
| 0 - 1 year | 314 | 0.33 | 0.70 | 173 | 0.38 | 0.76 | 121 | 0.29 | 0.64 | 6 | 0.17 | 0.41 | 14 | 0.14 | 0.36 | 141 | 0.27 | 0.61 |
| 1 - 2 years | 579 | 0.31 | 0.65 | 313 | 0.29 | 0.64 | 240 | 0.34 | 0.68 | 26 | 0.35 | 0.56 | | | | 266 | 0.34 | 0.67 |
| 2 - 3 years | 263 | 0.27 | 0.72 | 115 | 0.19 | 0.48 | 145 | 0.32 | 0.87 | 3 | 0.33 | 0.58 | | | | 148 | 0.32 | 0.86 |
| ***Total*** | **1156** | **0.31** | **0.68** | **601** | **0.30** | **0.65** | **506** | **0.32** | **0.73** | **35** | **0.31** | **0.53** | **14** | **0.14** | **0.36** | **555** | **0.32** | **0.71** |
| **Transition/Diversion** | | | | | | | | | | | | | | | | | | |
| Transition | 380 | 0.27 | 0.70 | 12 | 0.08 | 0.29 | 331 | **0.27** | 0.73 | 35 | 0.31 | 0.53 | 2 | 0.00 | 0.00 | 368 | **0.27** | 0.71 |
| Diversion | 784 | 0.33 | 0.70 | 591 | 0.30 | 0.66 | 181 | **0.44** | 0.83 | | | | 12 | 0.17 | 0.39 | 193 | **0.42** | 0.81 |
| ***Total*** | **1164** | **0.31** | **0.70** | **603** | **0.30** | **0.65** | **512** | **0.33** | **0.77** | **35** | **0.31** | **0.53** | **14** | **0.14** | **0.36** | **561** | **0.33** | **0.75** |
| **DSM-IV** | | | | | | | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 554 | **0.23** | 0.64 | 311 | **0.21** | 0.55 | 234 | 0.26 | 0.75 | 6 | 0.33 | 0.52 | 3 | 0.00 | 0.00 | 243 | 0.26 | 0.74 |
| Mood, Depressive, Bipolar Disorders | 366 | **0.40** | 0.76 | 184 | **0.39** | 0.74 | 159 | 0.42 | 0.81 | 14 | 0.36 | 0.63 | 9 | 0.22 | 0.44 | 182 | 0.41 | 0.78 |
| PTSD, Anxiety Disorders | 75 | **0.24** | 0.63 | 52 | **0.308** | 0.729 | 22 | 0.09 | 0.29 | | | | 1 | 0.00 | | 23 | 0.09 | 0.29 |
| Other Disorders | 88 | **0.38** | 0.73 | 26 | **0.385** | 0.697 | 60 | 0.38 | 0.76 | 1 | 0.00 | | 1 | 0.00 | | 62 | 0.37 | 0.75 |
| ***Total*** | **1083** | **0.30** | **0.69** | **573** | **0.28** | **0.64** | **475** | **0.32** | **0.76** | **21** | **0.33** | **0.58** | **14** | **0.14** | **0.36** | **510** | **0.32** | **0.74** |
| **Mental Health** | | | | | | | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | | | | | | | |

| CANS Functional Outcomes at Baseline | All 4 States | | | Indiana | | | Mississippi | | | Virginia | | | Maryland | | | All but Indiana | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| Male | 778 | **1.44** | 0.50 | 437 | 1.74 | 0.34 | 313 | 1.07 | 0.41 | 21 | 1.08 | 0.43 | 7 | 0.95 | 0.34 | 341 | 1.07 | 0.41 |
| Female | 386 | **1.34** | 0.51 | 166 | 1.70 | 0.38 | 199 | 1.07 | 0.41 | 14 | 0.89 | 0.41 | 7 | 1.25 | 0.74 | 220 | 1.06 | 0.42 |
| ***Total*** | **1164** | **1.41** | **0.50** | **603** | **1.73** | **0.35** | **512** | **1.07** | **0.41** | **35** | **1.01** | **0.43** | **14** | **1.10** | **0.58** | **561** | **1.07** | **0.41** |
| **Age** | | | | | | | | | | | | | | | | | | |
| 6-11 years | 382 | **1.55** | 0.46 | 231 | **1.79** | 0.35 | 140 | **1.20** | 0.39 | 7 | 0.98 | 0.22 | 4 | 1.08 | 0.23 | 151 | **1.19** | 0.38 |
| 12-14 years | 379 | **1.41** | 0.50 | 208 | **1.72** | 0.34 | 159 | **1.03** | 0.40 | 10 | 1.10 | 0.32 | 2 | 0.72 | 0.39 | 171 | **1.03** | 0.40 |
| 15-18 years | 383 | **1.28** | 0.50 | 163 | **1.65** | 0.35 | 195 | **1.00** | 0.39 | 17 | 0.92 | 0.52 | 8 | 1.21 | 0.72 | 220 | **1.01** | 0.42 |
| ***Total*** | **1163** | **1.41** | **0.50** | **603** | **1.73** | **0.35** | **511** | **1.07** | **0.41** | **35** | **1.01** | **0.43** | **14** | **1.10** | **0.58** | **560** | **1.07** | **0.42** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | | | | | | | |
| 0 - 1 year | 314 | **1.39** | 0.54 | 173 | 1.72 | 0.38 | 121 | **0.98** | 0.39 | 6 | 0.83 | 0.41 | 14 | 1.10 | 0.58 | 141 | **0.99** | 0.41 |
| 1 - 2 years | 579 | **1.44** | 0.49 | 313 | 1.72 | 0.33 | 240 | **1.12** | 0.43 | 26 | 1.04 | 0.43 | | | | 266 | **1.11** | 0.43 |
| 2 - 3 years | 263 | **1.35** | 0.50 | 115 | 1.73 | 0.35 | 145 | **1.05** | 0.38 | 3 | 1.07 | 0.53 | | | | 148 | **1.05** | 0.38 |
| ***Total*** | **1156** | **1.41** | **0.50** | **601** | **1.72** | **0.35** | **506** | **1.07** | **0.41** | **35** | **1.01** | **0.43** | **14** | **1.10** | **0.58** | **555** | **1.06** | **0.41** |
| **Transition/Diversion** | | | | | | | | | | | | | | | | | | |
| Transition | 380 | **1.08** | 0.44 | 12 | 1.75 | 0.44 | 331 | 1.07 | 0.43 | 35 | 1.01 | 0.43 | 2 | 1.00 | 0.47 | 368 | 1.06 | 0.43 |
| Diversion | 784 | **1.57** | 0.46 | 591 | 1.73 | 0.35 | 181 | 1.07 | 0.38 | | | | 12 | 1.12 | 0.61 | 193 | 1.07 | 0.39 |
| ***Total*** | **1164** | **1.41** | **0.50** | **603** | **1.73** | **0.35** | **512** | **1.07** | **0.41** | **35** | **1.01** | **0.43** | **14** | **1.10** | **0.58** | **561** | **1.07** | **0.41** |
| **DSM-IV** | | | | | | | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 554 | **1.42** | 0.49 | 311 | **1.70** | 0.32 | 234 | 1.07 | 0.43 | 6 | 0.94 | 0.17 | 3 | 0.85 | 0.17 | 243 | 1.06 | 0.43 |
| Mood, Depressive, Bipolar Disorders | 366 | **1.42** | 0.51 | 184 | **1.75** | 0.36 | 159 | 1.08 | 0.39 | 14 | 1.06 | 0.42 | 9 | 1.27 | 0.62 | 182 | 1.08 | 0.41 |
| PTSD, Anxiety Disorders | 75 | **1.59** | 0.51 | 52 | **1.818** | 0.37 | 22 | 1.10 | 0.34 | | | | 1 | 0.22 | | 23 | 1.06 | 0.38 |
| Other Disorders | 88 | **1.26** | 0.55 | 26 | **1.842** | 0.411 | 60 | 1.02 | 0.38 | 1 | 0.11 | | 1 | 1.22 | | 62 | 1.01 | 0.40 |
| ***Total*** | **1083** | **1.42** | **0.51** | **573** | **1.73** | **0.35** | **475** | **1.07** | **0.41** | **21** | **0.98** | **0.41** | **14** | **1.10** | **0.58** | **510** | **1.06** | **0.41** |
| **Social Support** | | | | | | | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | | | | | | | |
| Male | 778 | 1.73 | 0.67 | 437 | 2.05 | 0.54 | 313 | **1.31** | 0.60 | 21 | 1.56 | 0.62 | 7 | 1.43 | 0.53 | 341 | **1.33** | 0.60 |

| CANS Functional Outcomes at Baseline | All 4 States | | | Indiana | | | Mississippi | | | Virginia | | | Maryland | | | All but Indiana | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| Female | 386 | 1.72 | 0.64 | 166 | 2.08 | 0.56 | 199 | **1.44** | 0.56 | 14 | 1.67 | 0.47 | 7 | 1.52 | 0.66 | 220 | **1.45** | 0.56 |
| ***Total*** | **1164** | **1.73** | **0.66** | **603** | **2.05** | **0.55** | **512** | **1.36** | **0.59** | **35** | **1.60** | **0.56** | **14** | **1.48** | **0.58** | **561** | **1.38** | **0.59** |
| **Age** | | | | | | | | | | | | | | | | | | |
| 6-11 years | 382 | **1.82** | 0.64 | 231 | 2.07 | 0.54 | 140 | 1.42 | 0.60 | 7 | 1.52 | 0.57 | 4 | 1.42 | 0.69 | 151 | 1.43 | 0.59 |
| 12-14 years | 379 | **1.74** | 0.65 | 208 | 2.08 | 0.50 | 159 | 1.32 | 0.58 | 10 | 1.60 | 0.56 | 2 | 1.17 | 0.24 | 171 | 1.33 | 0.58 |
| 15-18 years | 383 | **1.65** | 0.67 | 163 | 2.00 | 0.61 | 195 | 1.37 | 0.58 | 17 | 1.59 | 0.57 | 8 | 1.58 | 0.61 | 220 | 1.40 | 0.58 |
| ***Total*** | **1163** | **1.73** | **0.66** | **603** | **2.05** | **0.55** | **511** | **1.36** | **0.59** | **35** | **1.60** | **0.56** | **14** | **1.48** | **0.58** | **560** | **1.38** | **0.59** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | | | | | | | |
| 0 - 1 year | 314 | **1.81** | 0.70 | 173 | **2.13** | 0.61 | 121 | 1.43 | 0.60 | 6 | 1.33 | 0.67 | 14 | 1.48 | 0.58 | 141 | 1.43 | 0.60 |
| 1 - 2 years | 579 | **1.71** | 0.64 | 313 | **2.00** | 0.54 | 240 | 1.33 | 0.57 | 26 | 1.65 | 0.53 | | | | 266 | 1.37 | 0.57 |
| 2 - 3 years | 263 | **1.67** | 0.65 | 115 | **2.08** | 0.46 | 145 | 1.34 | 0.60 | 3 | 1.67 | 0.67 | | | | 148 | 1.35 | 0.60 |
| ***Total*** | **1156** | **1.73** | **0.66** | **601** | **2.05** | **0.55** | **506** | **1.36** | **0.59** | **35** | **1.60** | **0.56** | **14** | **1.48** | **0.58** | **555** | **1.38** | **0.59** |
| **Transition/Diversion** | | | | | | | | | | | | | | | | | | |
| Transition | 380 | **1.39** | 0.63 | 12 | 2.17 | 0.77 | 331 | 1.34 | 0.61 | 35 | 1.60 | 0.56 | 2 | 1.83 | 0.71 | 368 | 1.37 | 0.61 |
| Diversion | 784 | **1.89** | 0.61 | 591 | 2.05 | 0.54 | 181 | 1.41 | 0.55 | | | | 12 | 1.42 | 0.57 | 193 | 1.41 | 0.55 |
| ***Total*** | **1164** | **1.73** | **0.66** | **603** | **2.05** | **0.55** | **512** | **1.36** | **0.59** | **35** | **1.60** | **0.56** | **14** | **1.48** | **0.58** | **561** | **1.38** | **0.59** |
| **DSM-IV** | | | | | | | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 554 | 1.76 | 0.65 | 311 | **2.05** | 0.53 | 234 | 1.38 | 0.61 | 6 | 1.56 | 0.54 | 3 | 1.22 | 0.19 | 243 | 1.38 | 0.60 |
| Mood, Depressive, Bipolar Disorders | 366 | 1.74 | 0.64 | 184 | **2.09** | 0.53 | 159 | 1.35 | 0.50 | 14 | 1.64 | 0.61 | 9 | 1.59 | 0.68 | 182 | 1.38 | 0.53 |
| PTSD, Anxiety Disorders | 75 | 1.76 | 0.66 | 52 | **1.904** | 0.634 | 22 | 1.44 | 0.62 | | | | 1 | 1.00 | | 23 | 1.42 | 0.61 |
| Other Disorders | 88 | 1.62 | 0.72 | 26 | **2.308** | 0.507 | 60 | 1.32 | 0.59 | 1 | 1.33 | | 1 | 1.67 | | 62 | 1.33 | 0.59 |
| ***Total*** | **1083** | **1.74** | **0.65** | **573** | **2.06** | **0.54** | **475** | **1.37** | **0.57** | **21** | **1.60** | **0.56** | **14** | **1.48** | **0.58** | **510** | **1.38** | **0.57** |
| **Family Functioning Outcomes** | | | | | | | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | | | | | | | |
| Male | 777 | 1.10 | 0.65 | 436 | 1.36 | 0.55 | 313 | 0.75 | 0.61 | 21 | 1.11 | 0.65 | 7 | 0.64 | 0.43 | 341 | 0.77 | 0.61 |
| Female | 385 | 1.04 | 0.76 | 165 | 1.36 | 0.53 | 199 | 0.81 | 0.83 | 14 | 0.79 | 0.63 | 7 | 0.68 | 0.61 | 220 | 0.81 | 0.82 |

| CANS Functional Outcomes at Baseline | All 4 States | | | Indiana | | | Mississippi | | | Virginia | | | Maryland | | | All but Indiana | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| ***Total*** | **1162** | **1.08** | **0.69** | **601** | **1.36** | **0.55** | **512** | **0.78** | **0.71** | **35** | **0.98** | **0.66** | **14** | **0.66** | **0.51** | **561** | **0.79** | **0.70** |
| **Age** | | | | | | | | | | | | | | | | | | |
| 6-11 years | 382 | 1.09 | 0.64 | 231 | 1.34 | 0.55 | 140 | 0.70 | 0.59 | 7 | 1.11 | 0.56 | 4 | 0.44 | 0.38 | 151 | 0.72 | 0.59 |
| 12-14 years | 378 | 1.10 | 0.69 | 207 | 1.40 | 0.55 | 159 | 0.72 | 0.66 | 10 | 0.93 | 0.50 | 2 | 1.00 | 0.71 | 171 | 0.73 | 0.65 |
| 15-18 years | 382 | 1.07 | 0.74 | 162 | 1.34 | 0.53 | 195 | 0.87 | 0.82 | 17 | 0.91 | 0.78 | 8 | 0.69 | 0.53 | 220 | 0.86 | 0.80 |
| ***Total*** | **1161** | **1.08** | **0.69** | **601** | **1.36** | **0.55** | **511** | **0.77** | **0.70** | **35** | **0.98** | **0.66** | **14** | **0.66** | **0.51** | **560** | **0.78** | **0.70** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | | | | | | | |
| 0 - 1 year | 314 | 1.08 | 0.67 | 173 | 1.39 | 0.56 | 121 | 0.70 | 0.61 | 6 | 0.67 | 0.58 | 14 | 0.66 | 0.51 | 141 | 0.70 | 0.60 |
| 1 - 2 years | 577 | 1.10 | 0.65 | 311 | 1.36 | 0.55 | 240 | 0.78 | 0.63 | 26 | 1.03 | 0.68 | | | | 266 | 0.80 | 0.64 |
| 2 - 3 years | 263 | 1.04 | 0.77 | 115 | 1.32 | 0.50 | 145 | 0.82 | 0.88 | 3 | 1.17 | 0.63 | | | | 148 | 0.83 | 0.87 |
| ***Total*** | **1154** | **1.08** | **0.69** | **599** | **1.36** | **0.55** | **506** | **0.77** | **0.70** | **35** | **0.98** | **0.66** | **14** | **0.66** | **0.51** | **555** | **0.78** | **0.70** |
| **Transition/Diversion** | | | | | | | | | | | | | | | | | | |
| Transition | 380 | **0.85** | 0.77 | 12 | 1.54 | 0.52 | 331 | 0.82 | 0.78 | 35 | 0.98 | 0.66 | 2 | 0.50 | 0.35 | 368 | **0.83** | 0.77 |
| Diversion | 782 | **1.19** | 0.61 | 589 | 1.35 | 0.55 | 181 | 0.70 | 0.54 | | | | 12 | 0.69 | 0.53 | 193 | **0.70** | 0.54 |
| ***Total*** | **1162** | **1.08** | **0.69** | **601** | **1.36** | **0.55** | **512** | **0.78** | **0.71** | **35** | **0.98** | **0.66** | **14** | **0.66** | **0.51** | **561** | **0.79** | **0.70** |
| **DSM-IV** | | | | | | | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 552 | 1.12 | 0.65 | 309 | 1.39 | 0.56 | 234 | 0.76 | 0.58 | 6 | 0.92 | 0.77 | 3 | 1.00 | 0.43 | 243 | 0.77 | 0.58 |
| Mood, Depressive, Bipolar Disorders | 366 | 1.03 | 0.74 | 184 | 1.28 | 0.51 | 159 | 0.78 | 0.87 | 14 | 0.86 | 0.71 | 9 | 0.64 | 0.52 | 182 | 0.78 | 0.84 |
| PTSD, Anxiety Disorders | 75 | 1.19 | 0.63 | 52 | 1.37 | 0.525 | 22 | 0.82 | 0.66 | | | | 1 | 0.00 | | 23 | 0.78 | 0.67 |

| CANS Functional Outcomes at Baseline | All 4 States | | | Indiana | | | Mississippi | | | Virginia | | | Maryland | | | All but Indiana | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| Other Disorders | 88 | 1.01 | 0.79 | 26 | 1.481 | 0.628 | 60 | 0.83 | 0.77 | 1 | 0.00 | | 1 | 0.50 | | 62 | 0.81 | 0.77 |
| ***Total*** | **1081** | **1.08** | **0.69** | **571** | **1.36** | **0.55** | **475** | **0.78** | **0.71** | **21** | **0.83** | **0.72** | **14** | **0.66** | **0.51** | **510** | **0.78** | **0.71** |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, Jan, 2011.
Notes: It is assumed that the scored from 0 to 3 are evenly spaced to that all CANS item scores are interval variables.
N is the number of children with data on the ID, Enrollment and Record Trail Variables in both Core and CANS files.
T-test was used to compare the statistical difference for the sub-group with two categories.
F-test was used to compare the statistical difference for the sub-group with more than two categories.
*P<0.05. **P<0.01. ***P<0.001.
Blank cells indicate a small sample size (N<15).

## Exhibit B-2: CANS Domain Scores for Each Point of Measurement by Baseline Scores

| INDIANA | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-stats | N | Baseline Mean | 12 Month Mean | T-stats |
| **All CANS Baseline Scores** | | | | | | | | |
| School Functioning | 438 | 2.47 | 2.26 | 5.17*** | 230 | 2.5 | 2.30 | 3.16** |
| Juvenile Justice | 438 | 1.36 | 1.22 | 2.82** | 230 | 1.3 | 1.10 | 2.62** |
| Alcohol & Other Drug Use | 438 | 0.27 | 0.30 | -0.87 | 230 | 0.1 | 0.22 | -2.12* |
| Mental Health | 438 | 1.73 | 1.61 | 6.51*** | 230 | 1.7 | 1.65 | 2.76** |
| Social Support | 438 | 2.08 | 1.96 | 4.59*** | 230 | 2.1 | 1.96 | 3.05** |
| Family Functioning Outcomes | 434 | 1.35 | 1.32 | 1.28 | 230 | 1.4 | 1.34 | 0.86 |
| **Low Needs/Prevention** | | | | | | | | |
| School Functioning | | | | | | | | |
| Juvenile Justice | 150 | 0.00 | 0.49 | -7.08*** | 84 | 0.0 | 0.57 | -6.03*** |
| Alcohol & Other Drug Use | 355 | 0.00 | 0.12 | -5.2*** | 206 | 0.0 | 0.15 | -4.88*** |
| Mental Health | | | | | | | | |
| Social Support | | | | | | | | |
| Family Functioning Outcomes | 71 | 0.60 | 0.93 | -5.04*** | 39 | 0.6 | 1.00 | -5.92*** |
| **Intermediate Needs/Action** | | | | | | | | |
| School Functioning | 36 | 1.00 | 1.69 | -5.56*** | | | | |
| Juvenile Justice | 76 | 1.00 | 1.13 | -1.37 | 43 | 1.0 | 1.07 | -0.53 |
| Alcohol & Other Drug Use | 52 | 1.00 | 0.90 | 0.78 | | | | |
| Mental Health | 308 | 1.59 | 1.53 | 3.42*** | 160 | 1.6 | 1.62 | -1.01 |
| Social Support | 120 | 1.49 | 1.73 | -5.86*** | 62 | 1.5 | 1.84 | -5.67*** |
| Family Functioning Outcomes | 294 | 1.32 | 1.30 | 0.90 | 147 | 1.3 | 1.32 | 0.25 |
| **Immediate/Intensive Action** | | | | | | | | |
| School Functioning | 391 | 2.68 | 2.36 | 8.03*** | 206 | 2.7 | 2.37 | 5.83*** |
| Juvenile Justice | 212 | 2.46 | 1.77 | 10.28*** | 103 | 2.5 | 1.55 | 9.48*** |
| Alcohol & Other Drug Use | 31 | 2.16 | 1.32 | 5*** | | | | |
| Mental Health | 122 | 2.15 | 1.86 | 8.07*** | 65 | 2.2 | 1.76 | 6.84*** |
| Social Support | 313 | 2.34 | 2.05 | 9.79*** | 164 | 2.4 | 2.01 | 8.27*** |
| Family Functioning Outcomes | 69 | 2.26 | 1.82 | 5.92*** | 44 | 2.3 | 1.70 | 4.81*** |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.
Notes: Blank cells indicate a small sample size (N < 15).
T-statistics are reported from the test of equality of means at baseline and 6/12 months.
* P<0.05. **P<0.01. ***P<0.001.

## Exhibit B-3: CANS Domain Scores for Each Point of Measurement by Baseline Scores

| MISSISSIPPI | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-stats | N | Baseline Mean | 12 Month Mean | T-stats |
| **All CANS Baseline Scores** | | | | | | | | |
| School Functioning | 370 | 1.82 | 1.67 | 2.1* | 64 | 1.8 | 1.84 | -0.08 |
| Juvenile Justice | 376 | 0.58 | 0.48 | 3.1** | 64 | 0.6 | 0.38 | 3.01** |
| Alcohol & Other Drug Use | 376 | 0.25 | 0.24 | 0.17 | 64 | 0.2 | 0.31 | -1.14 |
| Mental Health | 377 | 1.08 | 0.90 | 7.55*** | 64 | 1.1 | 0.99 | 2.01* |
| Social Support | 376 | 1.36 | 1.21 | 4.53*** | 64 | 1.3 | 1.21 | 0.54 |
| Family Functioning Outcomes | 376 | 0.74 | 0.75 | -0.27 | 64 | 0.7 | 0.80 | -1.62 |
| **Low Needs/Prevention** | | | | | | | | |
| School Functioning | 37 | 0.00 | 1.49 | -4.25*** | | | | |
| Juvenile Justice | 204 | 0.00 | 0.14 | -5.26*** | 36 | 0.0 | 0.08 | -1.78 |
| Alcohol & Other Drug Use | 309 | 0.00 | 0.12 | -4.67*** | 55 | 0.0 | 0.07 | -1.66 |
| Mental Health | 149 | 0.70 | 0.72 | -0.87 | | | | |
| Social Support | 62 | 0.47 | 0.78 | -4.73*** | | | | |
| Family Functioning Outcomes | 242 | 0.39 | 0.57 | -3.98*** | 43 | 0.4 | 0.62 | -2.68* |
| **Intermediate Needs/Action** | | | | | | | | |
| School Functioning | 84 | 1.00 | 1.38 | -3.22** | | | | |
| Juvenile Justice | 129 | 1.00 | 0.78 | 3.54*** | | | | |
| Alcohol & Other Drug Use | 45 | 1.00 | 0.71 | 2.79** | | | | |
| Mental Health | 220 | 1.29 | 1.02 | 10.25*** | 43 | 1.3 | 1.06 | 4.12*** |
| Social Support | 242 | 1.35 | 1.25 | 3.02** | 43 | 1.3 | 1.22 | 1.15 |
| Family Functioning Outcomes | 122 | 1.28 | 1.05 | 4.87*** | | | | |
| **Immediate/Intensive Action** | | | | | | | | |
| School Functioning | 249 | 2.37 | 1.80 | 8.21*** | 42 | 2.4 | 2.17 | 0.94 |
| Juvenile Justice | 43 | 2.09 | 1.19 | 7.08*** | | | | |
| Alcohol & Other Drug Use | | | | | | | | |
| Mental Health | | | | | | | | |
| Social Support | 72 | 2.13 | 1.44 | 9.22*** | | | | |
| Family Functioning Outcomes | | | | | | | | |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.Notes: Blank cells indicate a small sample size (N < 15).

T-statistics are reported from the test of equality of means at baseline and 6/12 months.

* P<0.05. **P<0.01. ***P<0.001.

## Exhibit B-4: CANS Domain Scores for Each LOS Category by Baseline Scores

| INDIANA | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | | LOS: 1 Year + | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats |
| **All CANS Baseline Scores** | | | | | | | | | | | | |
| School Functioning | 117 | 2.48 | 2.35 | 1.64 | 147 | 2.56 | 2.12 | 5.16*** | 80 | 2.63 | 1.74 | 6.85*** |
| Juvenile Justice | 117 | 1.62 | 1.40 | 2.08* | 147 | 1.51 | 1.36 | 1.59 | 80 | 1.61 | 0.98 | 4.22*** |
| Alcohol & Other Drug Use | 117 | 0.40 | 0.47 | -1.07 | 147 | 0.47 | 0.46 | 0.11 | 80 | 0.31 | 0.20 | 1.53 |
| Mental Health | 117 | 1.71 | 1.53 | 4.58*** | 147 | 1.73 | 1.41 | 6.75*** | 80 | 1.74 | 1.18 | 8.87*** |
| Social Support | 117 | 1.98 | 1.91 | 1.24 | 147 | 2.03 | 1.76 | 4.86*** | 80 | 2.18 | 1.55 | 7.41*** |
| Family Functioning Outcomes | 116 | 1.35 | 1.35 | 0.00 | 144 | 1.37 | 1.35 | 0.39 | 80 | 1.40 | 0.99 | 5.57*** |
| **Low Needs/Prevention** | | | | | | | | | | | | |
| School Functioning | | | | | | | | | | | | |
| Juvenile Justice | | | | | 45 | 0.00 | 0.62 | -5.58*** | | | | |
| Alcohol & Other Drug Use | 85 | 0.00 | 0.16 | -2.86** | 101 | 0.00 | 0.19 | -3.75*** | 65 | 0.00 | 0.05 | -1.76 |
| Mental Health | | | | | | | | | | | | |
| Social Support | | | | | | | | | | | | |
| Family Functioning Outcomes | | | | | | | | | | | | |
| **Intermediate Needs/Action** | | | | | | | | | | | | |
| School Functioning | | | | | | | | | | | | |
| Juvenile Justice | | | | | | | | | | | | |
| Alcohol & Other Drug Use | | | | | | | | | | | | |
| Mental Health | 92 | 1.59 | 1.43 | 3.46*** | 108 | 1.59 | 1.36 | 4.58*** | 51 | 1.58 | 1.16 | 7.67*** |
| Social Support | 38 | 1.48 | 1.72 | -2.43* | 43 | 1.43 | 1.44 | -0.09 | | | | |
| Family Functioning Outcomes | 76 | 1.33 | 1.33 | -0.05 | 96 | 1.33 | 1.34 | -0.19 | 51 | 1.32 | 1.00 | 4.64*** |
| **Immediate/Intensive Action** | | | | | | | | | | | | |
| School Functioning | 106 | 2.68 | 2.46 | 2.86** | 136 | 2.71 | 2.15 | 6.81*** | 74 | 2.78 | 1.74 | 8.5*** |
| Juvenile Justice | 69 | 2.45 | 1.83 | 5.09*** | 80 | 2.50 | 1.80 | 5.91*** | 46 | 2.54 | 1.13 | 10.02*** |
| Alcohol & Other Drug Use | | | | | | | | | | | | |
| Mental Health | | | | | 37 | 2.18 | 1.61 | 5.55*** | | | | |
| Social Support | 76 | 2.31 | 2.06 | 3.57*** | 100 | 2.36 | 1.91 | 6.98*** | 63 | 2.41 | 1.58 | 9.94*** |
| Family Functioning Outcomes | | | | | | | | | | | | |

## Exhibit B-5: CANS Domain Scores for Each LOS Category by Baseline Scores

| MISSISSIPPI | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | | LOS: 1 Year + | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats |
| **All CANS Baseline Scores** | | | | | | | | | | | | |
| School Functioning | 112 | 1.89 | 2.13 | -1.53 | 195 | 1.90 | 1.44 | 4.54*** | 39 | 1.85 | 1.54 | 1.74 |
| Juvenile Justice | 116 | 0.70 | 0.95 | -2.81** | 198 | 0.60 | 0.54 | 1.01 | 39 | 0.56 | 0.49 | 0.60 |
| Alcohol & Other Drug Use | 116 | 0.49 | 0.52 | -0.47 | 197 | 0.28 | 0.24 | 0.93 | 39 | 0.13 | 0.05 | 1.14 |
| Mental Health | 116 | 1.06 | 1.04 | 0.48 | 198 | 1.08 | 0.74 | 8.08*** | 39 | 1.01 | 0.90 | 1.35 |
| Social Support | 115 | 1.38 | 1.38 | 0.00 | 197 | 1.37 | 1.10 | 5.29*** | 39 | 1.25 | 1.13 | 1.12 |
| Family Functioning Outcomes | 115 | 0.80 | 1.05 | -2.55* | 197 | 0.73 | 0.65 | 1.58 | 39 | 0.66 | 0.88 | -1.04 |
| **Low Needs/Prevention** | | | | | | | | | | | | |
| School Functioning | | | | | | | | | | | | |
| Juvenile Justice | 62 | 0.00 | 0.52 | -4.93*** | 107 | 0.00 | 0.28 | -5.01*** | | | | |
| Alcohol & Other Drug Use | 74 | 0.00 | 0.09 | -1.98 | 158 | 0.00 | 0.13 | -3.81*** | 36 | 0.00 | 0.03 | -1 |
| Mental Health | 46 | 0.67 | 0.81 | -1.99 | 79 | 0.68 | 0.65 | 0.46 | | | | |
| Social Support | | | | | | | | | | | | |
| Family Functioning Outcomes | 62 | 0.37 | 0.88 | -3.32** | 127 | 0.37 | 0.59 | -4.5*** | | | | |
| **Intermediate Needs/Action** | | | | | | | | | | | | |
| School Functioning | 30 | 1.00 | 1.90 | -3.41** | 36 | 1.00 | 1.25 | -1.07 | | | | |
| Juvenile Justice | 34 | 1.00 | 1.29 | -1.89 | 68 | 1.00 | 0.81 | 1.89 | | | | |
| Alcohol & Other Drug Use | | | | | | | | | | | | |
| Mental Health | 66 | 1.28 | 1.16 | 2.14* | 115 | 1.31 | 0.80 | 10.05*** | | | | |
| Social Support | 68 | 1.42 | 1.41 | 0.16 | 133 | 1.37 | 1.09 | 5.18*** | | | | |
| Family Functioning Outcomes | 48 | 1.20 | 1.19 | 0.06 | 64 | 1.30 | 0.76 | 8.48*** | | | | |
| **Immediate/Intensive Action** | | | | | | | | | | | | |
| School Functioning | 72 | 2.53 | 2.26 | 1.72 | 142 | 2.36 | 1.52 | 8.76*** | | | | |
| Juvenile Justice | | | | | | | | | | | | |
| Alcohol & Other Drug Use | | | | | | | | | | | | |
| Mental Health | | | | | | | | | | | | |
| Social Support | | | | | 35 | 2.15 | 1.38 | 6.32*** | | | | |

| MISSISSIPPI | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | | LOS: 1 Year + | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats |
| Family Functioning Outcomes | | | | | | | | | | | | |

***Exhibits 4 and 5***: Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.
Notes: T-statistics are reported from the test of equality of means at baseline and disenrollment. Blank cells indicate a small sample size (N < 15).
* P<0.05. **P<0.01. ***P<0.001.

# APPENDIX C: CBCL EXHIBITS

## Exhibit C-1: CBCL Baseline Internalizing and Externalizing Problems by State for Each of the Sub-groups

| CBCL Syndrome Problems at Baseline | All 3 States | | | Kansas | | | Montana | | | South Carolina | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **Internalizing Problem** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 172 | 18.67 | 10.59 | 153 | 18.95 | 10.56 | 4 | 16.75 | 9.81 | 15 | 16.27 | 11.34 |
| Female | 116 | 21.99 | 10.28 | 106 | 21.81 | 10.54 | 4 | 25.25 | 6.55 | 6 | 23.00 | 8.00 |
| **Total** | **288** | **20.01** | **10.57** | **259** | **20.12** | **10.62** | **8** | **21.00** | **8.96** | **21** | **18.19** | **10.76** |
| **Age** | | | | | | | | | | | | |
| < 6 years | 1 | 11.00 | | | | | | | | 1 | 11.00 | |
| 6-11 years | 53 | 18.60 | 9.53 | 40 | 17.85 | 10.01 | 5 | 23.80 | 8.58 | 8 | 19.13 | 7.14 |
| 12-14 years | 39 | 19.56 | 10.00 | 36 | 20.08 | 9.96 | 1 | 17.00 | | 2 | 11.50 | 13.44 |
| 15-18 years | 185 | 20.21 | 10.89 | 173 | 20.30 | 10.79 | 2 | 16.00 | 12.73 | 10 | 19.50 | 13.39 |
| 18 years < | 10 | 26.30 | 11.26 | 10 | 26.30 | 11.26 | | | | | | |
| **Total** | **288** | **20.01** | **10.57** | **259** | **20.12** | **10.62** | **8** | **21.00** | **8.96** | **21** | **18.19** | **10.76** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 90 | 20.10 | 9.78 | 74 | 20.74 | 9.43 | 4 | 20.25 | 9.29 | 12 | 16.08 | 11.81 |
| 1 - 2 years | 160 | 20.48 | 10.99 | 149 | 20.50 | 11.13 | 2 | 16.50 | 13.44 | 9 | 21.00 | 9.06 |
| 2 - 3 years | 38 | 17.82 | 10.60 | 36 | 17.31 | 10.65 | 2 | 27.00 | 2.83 | | | |
| **Total** | **288** | **20.01** | **10.57** | **259** | **20.12** | **10.62** | **8** | **21.00** | **8.96** | **21** | **18.19** | **10.76** |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 214 | 19.53 | 10.83 | 208 | 19.63 | 10.86 | 4 | 19.50 | 8.74 | 2 | 9.00 | 9.90 |
| Diversion | 74 | 21.38 | 9.74 | 51 | 22.12 | 9.44 | 4 | 22.50 | 10.25 | 19 | 19.16 | 10.62 |
| **Total** | **288** | **20.01** | **10.57** | **259** | **20.12** | **10.62** | **8** | **21.00** | **8.96** | **21** | **18.19** | **10.76** |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 87 | 18.70 | 10.72 | 77 | 18.86 | 10.61 | 2 | 31.00 | 2.83 | 8 | 14.13 | 10.97 |
| Mood, Depressive, Bipolar Disorders | 123 | 21.37 | 10.88 | 112 | 21.54 | 10.96 | 6 | 17.67 | 7.58 | 5 | 22.00 | 13.58 |
| PTSD, Anxiety Disorders | 9 | 23.11 | 8.36 | 6 | 24.00 | 8.05 | | | | 3 | 21.33 | 10.50 |
| Other Disorders | 20 | 19.70 | 8.63 | 18 | 20.06 | 8.855 | | | | 2 | 16.50 | 7.78 |
| **Total** | **239** | **20.32** | **10.60** | **213** | **20.51** | **10.63** | **8** | **21.00** | **8.96** | **18** | **17.78** | **11.11** |
| **Externalizing Problem** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 172 | 28.65 | 13.35 | 153 | 28.79 | 13.46 | 4 | 25.25 | 6.99 | 15 | 28.13 | 13.98 |
| Female | 116 | 31.00 | 12.65 | 106 | 30.69 | 12.74 | 4 | 38.25 | 16.05 | 6 | 31.67 | 8.50 |
| **Total** | **288** | **29.60** | **13.10** | **259** | **29.57** | **13.18** | **8** | **31.75** | **13.40** | **21** | **29.14** | **12.56** |
| **Age** | | | | | | | | | | | | |
| < 6 years | 1 | 15.00 | | | | | | | | 1 | 15.00 | |
| 6-11 years | 53 | 29.62 | 11.26 | 40 | 29.23 | 11.91 | 5 | 29.40 | 4.56 | 8 | 31.75 | 11.60 |
| 12-14 years | 39 | 28.69 | 12.09 | 36 | 28.72 | 12.11 | 1 | 28.00 | | 2 | 28.50 | 20.51 |

| CBCL Syndrome Problems at Baseline | All 3 States | | | Kansas | | | Montana | | | South Carolina | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| 15-18 years | 185 | 29.86 | 13.76 | 173 | 29.82 | 13.66 | 2 | 39.50 | 31.82 | 10 | 28.60 | 13.05 |
| 18 years < | 10 | 29.60 | 15.01 | 10 | 29.60 | 15.01 | | | | | | |
| **Total** | **288** | **29.60** | **13.10** | **259** | **29.57** | **13.18** | **8** | **31.75** | **13.40** | **21** | **29.14** | **12.56** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 90 | 30.38 | 11.84 | 74 | 30.82 | 11.92 | 4 | 28.50 | 5.00 | 12 | 28.25 | 13.29 |
| 1 - 2 years | 160 | 29.32 | 13.54 | 149 | 29.34 | 13.70 | 2 | 23.00 | 8.49 | 9 | 30.33 | 12.18 |
| 2 - 3 years | 38 | 28.92 | 14.31 | 36 | 27.92 | 13.56 | 2 | 47.00 | 21.21 | | | |
| **Total** | **288** | **29.60** | **13.10** | **259** | **29.57** | **13.18** | **8** | **31.75** | **13.40** | **21** | **29.14** | **12.56** |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 214 | 29.26 | 13.17 | 208 | 29.17 | 13.11 | 4 | 32.50 | 20.27 | 2 | 32.00 | 8.49 |
| Diversion | 74 | 30.57 | 12.93 | 51 | 31.18 | 13.45 | 4 | 31.00 | 2.58 | 19 | 28.84 | 13.04 |
| **Total** | **288** | **29.60** | **13.10** | **259** | **29.57** | **13.18** | **8** | **31.75** | **13.40** | **21** | **29.14** | **12.56** |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 87 | 29.13 | 12.23 | 77 | 29.55 | 12.27 | 2 | 33.00 | 1.41 | 8 | 24.13 | 12.93 |
| Mood, Depressive, Bipolar Disorders | 123 | 29.41 | 13.54 | 112 | 29.17 | 13.51 | 6 | 31.33 | 15.82 | 5 | 32.60 | 13.81 |
| PTSD, Anxiety Disorders | 9 | 36.00 | 14.14 | 6 | 34.33 | 16.43 | | | | 3 | 39.33 | 10.02 |
| Other Disorders | 20 | 28.35 | 15.79 | 18 | 28.72 | 16.29 | | | | 2 | 25.00 | 14.14 |
| **Total** | **239** | **29.47** | **13.28** | **213** | **29.41** | **13.34** | **8** | **31.75** | **13.40** | **18** | **29.11** | **13.15** |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: N is the number of children with data in both Core and CBCL files, whereas the CBCL file only has all records for a beneficiary who has passed 50% threshold for critical functional variables on at least one of his record trails.
Blank cells are not applicable.
Higher Syndrome scores indicate worsening of functional outcomes.

## Exhibit C-2: CBCL Syndrome Scale Scores for Each Point of Measurement by Baseline Scores

| Syndrome Scale | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-stats | N | Baseline Mean | 12 Month Mean | T-stats |
| **All Children** | | | | | | | | |
| Anxious/Depressed | 185 | 9.12 | 8.15 | -2.89** | 69 | 9.72 | 8.46 | 69 |
| Withdrawn/Depressed | 185 | 6.29 | 5.96 | -1.37 | 69 | 6.75 | 6.65 | 69 |
| Somatic Complaints | 185 | 4.07 | 4.33 | 0.96 | 69 | 4.46 | 4.42 | 69 |
| Social Problems | 185 | 7.85 | 7.51 | -1.19 | 69 | 7.94 | 8.16 | 69 |
| Thought Problems | 185 | 7.56 | 6.57 | -3.11** | 69 | 8.16 | 7.12 | 69 |
| Attention Problems | 185 | 11.21 | 10.85 | -1.15 | 69 | 11.52 | 11.49 | 69 |
| Rule-Breaking Behavior | 185 | 10.54 | 9.39 | -2.86** | 69 | 10.54 | 10.61 | 69 |
| Aggressive Behavior | 185 | 18.75 | 17.46 | -2.05* | 69 | 19.22 | 17.81 | 69 |
| **Internalizing Problem** | 185 | 19.48 | 18.43 | -1.56 | 69 | 20.94 | 19.54 | 69 |
| **Externalizing Problem** | 185 | 29.29 | 26.85 | -2.56* | 69 | 29.75 | 28.42 | 69 |
| **Syndrome Scale Score Sum** | **177** | **81.42** | **75.96** | **-2.42*** | **66** | **84.48** | **80.05** | **66** |
| **Low Impairment Range**[38] | | | | | | | | |
| Anxious/Depressed | 69 | 3.64 | 5.26 | 3.85*** | 21 | 3.48 | 6.43 | 21 |
| Withdrawn/Depressed | 76 | 2.87 | 4.14 | 3.92*** | 27 | 3.15 | 5.44 | 27 |
| Somatic Complaints | 116 | 1.94 | 3.23 | 4.48*** | 43 | 1.95 | 2.70 | 43 |
| Social Problems | 80 | 4.01 | 5.05 | 2.7** | 31 | 4.19 | 6.39 | 31 |
| Thought Problems | 70 | 3.06 | 3.61 | 1.66 | 24 | 3.46 | 4.42 | 24 |
| Attention Problems | 70 | 6.87 | 8.50 | 3.31** | 24 | 7.13 | 10.21 | 24 |
| Rule-Breaking Behavior | 71 | 4.68 | 7.14 | 5.34*** | 26 | 5.00 | 8.08 | 26 |
| Aggressive Behavior | 42 | 7.48 | 12.83 | 4.22*** | | | | |
| **Internalizing Problem** | 63 | 9.08 | 12.75 | 3.77*** | 21 | 10.33 | 15.86 | 21 |
| **Externalizing Problem** | 41 | 12.22 | 19.59 | 4.16*** | | | | |
| **Syndrome Scale Score Sum** | **36** | **39.64** | **59.00** | **4.17*** ** | | | | |
| **Intermediate Impairment Range** | | | | | | | | |
| Anxious/Depressed | 36 | 8.33 | 7.83 | -0.77 | | | | |
| Withdrawn/Depressed | 33 | 6.18 | 5.79 | -0.92 | | | | |
| Somatic Complaints | 19 | 5.11 | 4.32 | -1.01 | | | | |
| Social Problems | 37 | 7.78 | 7.84 | 0.09 | | | | |
| Thought Problems | 30 | 6.37 | 7.83 | 2.12* | | | | |
| Attention Problems | 46 | 11.76 | 10.78 | -1.56 | 17 | 11.59 | 10.47 | 17 |
| Rule-Breaking Behavior | 30 | 9.70 | 8.40 | -1.90 | | | | |
| Aggressive Behavior | 29 | 14.38 | 14.10 | -0.27 | | | | |
| **Internalizing Problem** | 53 | 18.74 | 17.92 | -0.82 | 20 | 19.15 | 18.8 | 20 |
| **Externalizing Problem** | 42 | 23.55 | 25.00 | 1.03 | 23 | 23.56 | 28.91 | 23 |

[38] The low, intermediate, and high impairment range are based on the scoring rules we developed. Since we do not have T-score, we developed a scoring rule based on the raw score to sort children into these ranges, based o different subscale scores. We also used the same scoring rule for boys and girls because the different coding rules by gender were not available to us at the time of analysis.

| Syndrome Scale | 6 Months | | | | 12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | 6 Month Mean | T-stats | N | Baseline Mean | 12 Month Mean | T-stats |
| **Syndrome Scale Score Sum** | **35** | **67.39** | **68.51** | **0.30** | **16** | **64.59** | **68.40** | **16** |
| **High Impairment Range** | | | | | | | | |
| Anxious/Depressed | 80 | 14.20 | 10.78 | -6.95*** | 35 | 13.94 | 9.89 | 35 |
| Withdrawn/Depressed | 76 | 9.75 | 7.84 | -5.12*** | 32 | 9.91 | 7.94 | 32 |
| Somatic Complaints | 50 | 8.62 | 6.88 | -2.99** | 21 | 9.38 | 8.10 | 21 |
| Social Problems | 68 | 12.40 | 10.24 | -4.73*** | 24 | 12.96 | 11.29 | 24 |
| Thought Problems | 85 | 11.69 | 8.56 | -6.34*** | 33 | 12.24 | 9.09 | 33 |
| Attention Problems | 69 | 15.25 | 13.29 | -4.72*** | 28 | 15.25 | 13.21 | 28 |
| Rule-Breaking Behavior | 84 | 15.79 | 11.64 | -7.19*** | 31 | 15.35 | 12.94 | 31 |
| Aggressive Behavior | 114 | 24.02 | 20.03 | -5.38*** | 45 | 23.53 | 19.69 | 45 |
| **Internalizing Problem** | 69 | 29.54 | 24.01 | -4.89*** | 28 | 30.18 | 22.82 | 28 |
| **Externalizing Problem** | 102 | 38.51 | 30.54 | -6.71*** | 36 | 38.47 | 30.67 | 36 |
| **Syndrome Scale Score Sum** | **106** | **100.24** | **84.17** | **-6.07*** ** | **42** | **100.81** | **85.77** | **42** |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home- and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: Blank cells indicate a small sample size (N < 15).
T-statistics are reported from the test of equality of means at baseline and 6/12 months.
Higher syndrome scores indicate worsening of functional outcomes.
* P<0.05. **P<0.01. ***P<0.001.

## Exhibit C-3: CBCL Syndrome Scale Scores for Each Point of Measurement by Baseline Scores

| Syndrome Score | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats |
| **All children** | | | | | | | | |
| Anxious/Depressed | 61 | 10.67 | 9.30 | -2.08* | 46 | 10.46 | 7.37 | -3.51** |
| Withdrawn/Depressed | 61 | 6.33 | 6.07 | -0.60 | 46 | 6.50 | 5.11 | -2.54* |
| Somatic Complaints | 61 | 4.98 | 4.31 | -1.29 | 46 | 4.59 | 3.63 | -1.63 |
| Social Problems | 61 | 8.49 | 8.30 | -0.38 | 46 | 7.87 | 6.15 | -3.06** |
| Thought Problems | 61 | 8.39 | 7.95 | -0.60 | 46 | 7.41 | 5.59 | -2.7** |
| Attention Problems | 61 | 11.85 | 11.69 | -0.26 | 46 | 11.30 | 9.76 | -2.53* |
| Rule-Breaking Behavior | 61 | 11.85 | 12.75 | 1.01 | 46 | 12.93 | 11.20 | -1.61 |
| Aggressive Behavior | 61 | 20.08 | 20.75 | 0.51 | 46 | 20.04 | 16.13 | -2.69* |
| **Internalizing Problem** | 61 | 21.98 | 19.67 | -1.85 | 46 | 21.54 | 16.11 | -3.34** |
| **Externalizing Problem** | 61 | 31.93 | 33.51 | 0.75 | 46 | 32.98 | 27.33 | -2.37* |
| **Syndrome Scale Score Sum** | **59** | **87.14** | **85.17** | **-0.40** | **46** | **85.78** | **70.50** | **-3**** |
| **Low Impairment Range**[39] | | | | | | | | |
| Anxious/Depressed | 18 | 2.94 | 4.72 | 2.12* | | | | |
| Withdrawn/Depressed | 25 | 2.92 | 4.68 | 3.3** | 18 | 3.44 | 4.17 | 1.02 |
| Somatic Complaints | 32 | 1.91 | 2.81 | 1.82 | 27 | 2.48 | 2.81 | 0.62 |
| Social Problems | 16 | 2.94 | 4.81 | 2.08 | 16 | 3.63 | 3.44 | -0.30 |
| Thought Problems | 21 | 3.10 | 4.71 | 2.26* | 19 | 2.84 | 3.74 | 1.40 |
| Attention Problems | 23 | 7.35 | 9.26 | 2.12* | 18 | 6.78 | 6.50 | -0.28 |
| Rule-Breaking Behavior | 17 | 5.29 | 12.18 | 6.07*** | | | | |
| Aggressive Behavior | | | | | | | | |
| **Internalizing Problem** | 19 | 8.74 | 12.58 | 2.41* | | | | |
| **Externalizing Problem** | 15 | 14.13 | 31.93 | 6.2*** | | | | |
| **Syndrome Scale Score Sum** | | | | | | | | |
| **Intermediate Impairment Range** | | | | | | | | |
| Anxious/Depressed | | | | | | | | |
| Withdrawn/Depressed | | | | | | | | |
| Somatic Complaints | | | | | | | | |
| Social Problems | | | | | | | | |
| Thought Problems | | | | | | | | |
| Attention Problems | 17 | 12.12 | 11.12 | -0.76 | | | | |
| Rule-Breaking Behavior | | | | | | | | |
| Aggressive Behavior | | | | | | | | |
| **Internalizing Problem** | | | | | | | | |
| **Externalizing Problem** | | | | | | | | |

[39] The low, intermediate, and high impairment range are based on the scoring rules we developed. Since we do not have T-score, we developed a scoring rule based on the raw score to sort children into these ranges, based o different subscale scores. We also used the same scoring rule for boys and girls because the different coding rules by gender were not available to us at the time of analysis.

| Syndrome Score | LOS: 3-6 Months | | | | LOS: 7-12 Months | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Baseline Mean | Disenrollment Mean | T-stats | N | Baseline Mean | Disenrollment Mean | T-stats |
| **Syndrome Scale Score Sum** | | | | | | | | |
| **High Impairment Range** | | | | | | | | |
| Anxious/Depressed | 32 | 16.00 | 11.97 | -5.03*** | 26 | 14.19 | 8.92 | -3.95*** |
| Withdrawn/Depressed | 22 | 10.36 | 7.91 | -3.45** | 16 | 10.19 | 6.88 | -3.36** |
| Somatic Complaints | 24 | 9.08 | 5.79 | -4.16*** | 16 | 8.06 | 4.38 | -3.36** |
| Social Problems | 31 | 11.77 | 10.71 | -1.31 | 18 | 11.89 | 8.44 | -3.14** |
| Thought Problems | 31 | 12.52 | 10.26 | -1.75 | 22 | 11.59 | 6.91 | -5.16*** |
| Attention Problems | 21 | 16.57 | 14.81 | -1.88 | 18 | 15.39 | 12.44 | -2.97** |
| Rule-Breaking Behavior | 31 | 16.10 | 14.39 | -1.48 | 27 | 17.74 | 13.26 | -3.34** |
| Aggressive Behavior | 38 | 26.00 | 23.11 | -1.86 | 29 | 25.72 | 19.69 | -3.09** |
| **Internalizing Problem** | 32 | 31.00 | 24.59 | -4.22*** | 21 | 30.00 | 19.52 | -3.72** |
| **Externalizing Problem** | 41 | 39.07 | 35.05 | -1.81 | 30 | 41.80 | 32.30 | -3.14** |
| **Syndrome Scale Score Sum** | **39** | **105.33** | **91.21** | **-2.44*** | **29** | **105.66** | **84.38** | **-3.18**** |

Source. IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.
Notes: Blank cells indicate a small sample size (N < 15).
T-statistics are reported from the test of equality of means at baseline and 6/12 months.
* P<0.05. **P<0.01. ***P<0.001.

# APPENDIX D: CAFAS EXHIBITS

## Exhibit D-1: CAFAS Baseline Functional Outcome Scores by State

| CAFAS Functional Outcomes at Baseline | All 3 States | | | Alaska | | | Georgia | | | Kansas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **Self-harmful Behavior** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 171 | 8.89 | 11.03 | 10 | 10.00 | 13.33 | 6 | 6.67 | 8.16 | 155 | 8.90 | 11.02 |
| Female | 115 | 10.52 | 10.91 | 4 | 12.50 | 15.00 | 5 | 6.00 | 8.94 | 106 | 10.66 | 10.89 |
| *Total* | 286 | 9.55 | 10.99 | 14 | 10.71 | 13.28 | 11 | 6.36 | 8.09 | 261 | 9.62 | 10.98 |
| **Age** | | | | | | | | | | | | |
| < 6 years | 1 | 0.00 | | 1 | 0.00 | | | | | | | |
| 6-11 years | 47 | 6.38 | 9.19 | 2 | 0.00 | 0.00 | 4 | 2.50 | 5.00 | 41 | 7.07 | 9.55 |
| 12-14 years | 69 | 8.12 | 10.04 | 4 | 5.00 | 10.00 | 2 | 5.00 | 7.07 | 63 | 8.41 | 10.19 |
| 15-18 years | 159 | 10.50 | 11.52 | 7 | 18.57 | 13.45 | 5 | 10.00 | 10.00 | 147 | 10.14 | 11.41 |
| 18 years < | 10 | 20.00 | 9.43 | | | | | | | 10 | 20.00 | 9.43 |
| *Total* | 286 | 9.55 | 10.99 | 14 | 10.71 | 13.28 | 11 | 6.36 | 8.09 | 261 | 9.62 | 10.98 |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 87 | 11.03 | 11.62 | 7 | 14.29 | 13.97 | 5 | 6.00 | 8.94 | 75 | 11.07 | 11.58 |
| 1 - 2 years | 158 | 9.18 | 10.94 | 7 | 7.14 | 12.54 | 1 | 10.00 | | 150 | 9.27 | 10.94 |
| 2 - 3 years | 36 | 8.06 | 9.80 | | | | | | | 36 | 8.06 | 9.80 |
| *Total* | 281 | 9.61 | 11.03 | 14 | 10.71 | 13.28 | 6 | 6.67 | 8.16 | 261 | 9.62 | 10.98 |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 216 | 8.70 | 10.53 | 3 | 10.00 | 17.32 | 5 | 6.00 | 8.94 | 208 | 8.75 | 10.51 |
| Diversion | 70 | 12.14 | 12.03 | 11 | 10.91 | 13.00 | 6 | 6.67 | 8.16 | 53 | 13.02 | 12.18 |
| *Total* | 286 | 9.55 | 10.99 | 14 | 10.71 | 13.28 | 11 | 6.36 | 8.09 | 261 | 9.62 | 10.98 |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 85 | 7.65 | 10.43 | 3 | 16.67 | 15.28 | 4 | 2.50 | 5.00 | 78 | 7.56 | 10.34 |
| Mood, Depressive, Bipolar Disorders | 116 | 10.69 | 11.01 | 2 | 10.00 | 14.14 | 2 | 15.00 | 7.07 | 112 | 10.63 | 11.09 |
| PTSD, Anxiety Disorders | 10 | 11.00 | 11.97 | 4 | 15.00 | 17.32 | | | | 6 | 8.33 | 7.53 |
| Other Disorders | 21 | 9.52 | 10.71 | 3 | 6.67 | 11.55 | | | | 18 | 10.00 | 10.85 |
| *Total* | 232 | 9.48 | 10.84 | 12 | 12.5 | 13.57 | 6 | 6.67 | 8.16 | 214 | 9.39 | 10.75 |
| **Behavior Towards Others** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 171 | 21.87 | 6.60 | 10 | 22.00 | 6.32 | 6 | 28.33 | 4.08 | 155 | 21.61 | 6.59 |
| Female | 115 | 19.91 | 8.00 | 4 | 20.00 | 0.00 | 5 | 22.00 | 4.47 | 106 | 19.81 | 8.28 |

| CAFAS Functional Outcomes at Baseline | All 3 States | | | Alaska | | | Georgia | | | Kansas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| *Total* | 286 | 21.08 | 7.25 | 14 | 21.43 | 5.35 | 11 | 25.45 | 5.22 | 261 | 20.88 | 7.36 |
| **Age** | | | | | | | | | | | | |
| < 6 years | 1 | 20.00 | | 1 | 20.00 | | | | | | | |
| 6-11 years | 47 | 22.34 | 6.66 | 2 | 15.00 | 7.07 | 4 | 27.50 | 5.00 | 41 | 22.20 | 6.52 |
| 12-14 years | 69 | 23.04 | 6.92 | 4 | 22.50 | 5.00 | 2 | 30.00 | 0.00 | 63 | 22.86 | 7.05 |
| 15-18 years | 159 | 19.62 | 7.37 | 7 | 22.86 | 4.88 | 5 | 22.00 | 4.47 | 147 | 19.39 | 7.51 |
| 18 years < | 10 | 25.00 | 5.27 | | | | | | | 10 | 25.00 | 5.27 |
| *Total* | 286 | 21.08 | 7.25 | 14 | 21.43 | 5.35 | 11 | 25.45 | 5.22 | 261 | 20.88 | 7.36 |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 87 | 21.03 | 7.16 | 7 | 24.29 | 5.35 | 5 | 24.00 | 5.48 | 75 | 20.53 | 7.33 |
| 1 - 2 years | 158 | 20.89 | 6.99 | 7 | 18.57 | 3.78 | 1 | 30.00 | | 150 | 20.93 | 7.08 |
| 2 - 3 years | 36 | 21.39 | 8.67 | | | | | | | 36 | 21.39 | 8.67 |
| *Total* | 281 | 21.00 | 7.25 | 14 | 21.43 | 5.35 | 6 | 25.00 | 5.48 | 261 | 20.88 | 7.36 |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 216 | 20.93 | 7.66 | 3 | 23.33 | 5.77 | 5 | 26.00 | 5.48 | 208 | 20.77 | 7.70 |
| Diversion | 70 | 21.57 | 5.81 | 11 | 20.91 | 5.39 | 6 | 25.00 | 5.48 | 53 | 21.32 | 5.90 |
| *Total* | 286 | 21.08 | 7.25 | 14 | 21.43 | 5.35 | 11 | 25.45 | 5.22 | 261 | 20.88 | 7.36 |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 85 | 22.00 | 7.20 | 3 | 23.33 | 5.77 | 4 | 30.00 | 0.00 | 78 | 21.54 | 7.22 |
| Mood, Depressive, Bipolar Disorders | 116 | 20.86 | 7.41 | 2 | 20.00 | 0.00 | 2 | 25.00 | 7.07 | 112 | 20.80 | 7.49 |
| PTSD, Anxiety Disorders | 10 | 18.00 | 7.89 | 4 | 20.00 | 8.16 | | | | 6 | 16.67 | 8.16 |
| Other Disorders | 21 | 20.48 | 7.40 | 3 | 20.00 | 0 | | | | 18 | 20.56 | 8.02 |
| *Total* | 232 | 21.12 | 7.36 | 12 | 20.83 | 5.149 | 6 | 28.33 | 4.08 | 214 | 20.93 | 7.45 |
| **Moods/Emotions** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 171 | 19.42 | 7.17 | 10 | 23.00 | 4.83 | 6 | 23.33 | 5.16 | 155 | 19.03 | 7.28 |
| Female | 115 | 20.78 | 7.03 | 4 | 22.50 | 5.00 | 5 | 18.00 | 4.47 | 106 | 20.85 | 7.19 |
| *Total* | 286 | 19.97 | 7.13 | 14 | 22.86 | 4.69 | 11 | 20.91 | 5.39 | 261 | 19.77 | 7.28 |
| **Age** | | | | | | | | | | | | |
| < 6 years | 1 | 20.00 | | 1 | 20.00 | | | | | | | |
| 6-11 years | 47 | 20.00 | 6.26 | 2 | 20.00 | 0.00 | 4 | 22.50 | 9.57 | 41 | 19.76 | 6.12 |
| 12-14 years | 69 | 18.99 | 7.31 | 4 | 20.00 | 0.00 | 2 | 20.00 | 0.00 | 63 | 18.89 | 7.64 |
| 15-18 years | 159 | 20.13 | 7.38 | 7 | 25.71 | 5.35 | 5 | 20.00 | 0.00 | 147 | 19.86 | 7.49 |
| 18 years < | 10 | 24.00 | 5.16 | | | | | | | 10 | 24.00 | 5.16 |

| CAFAS Functional Outcomes at Baseline | All 3 States | | | Alaska | | | Georgia | | | Kansas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| *Total* | 286 | 19.97 | 7.13 | 14 | 22.86 | 4.69 | 11 | 20.91 | 5.39 | 261 | 19.77 | 7.28 |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 87 | 20.57 | 6.35 | 7 | 22.86 | 4.88 | 5 | 18.00 | 4.47 | 75 | 20.53 | 6.55 |
| 1 - 2 years | 158 | 19.49 | 7.72 | 7 | 22.86 | 4.88 | 1 | 30.00 | | 150 | 19.27 | 7.78 |
| 2 - 3 years | 36 | 20.28 | 6.54 | | | | | | | 36 | 20.28 | 6.54 |
| *Total* | 281 | 19.93 | 7.17 | 14 | 22.86 | 4.69 | 6 | 20.00 | 6.32 | 261 | 19.77 | 7.28 |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 216 | 19.44 | 7.45 | 3 | 26.67 | 5.77 | 5 | 22.00 | 4.47 | 208 | 19.28 | 7.48 |
| Diversion | 70 | 21.57 | 5.81 | 11 | 21.82 | 4.05 | 6 | 20.00 | 6.32 | 53 | 21.70 | 6.12 |
| *Total* | 286 | 19.97 | 7.13 | 14 | 22.86 | 4.69 | 11 | 20.91 | 5.39 | 261 | 19.77 | 7.28 |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 85 | 19.53 | 7.38 | 3 | 23.33 | 5.77 | 4 | 25.00 | 5.77 | 78 | 19.10 | 7.42 |
| Mood, Depressive, Bipolar Disorders | 116 | 20.17 | 6.72 | 2 | 20.00 | 0.00 | 2 | 20.00 | 0.00 | 112 | 20.18 | 6.84 |
| PTSD, Anxiety Disorders | 10 | 21.00 | 5.68 | 4 | 22.50 | 5.00 | | | | 6 | 20.00 | 6.32 |
| Other Disorders | 21 | 22.38 | 6.25 | 3 | 26.67 | 5.774 | | | | 18 | 21.67 | 6.18 |
| *Total* | 232 | 20.17 | 6.90 | 12 | 23.33 | 4.924 | 6 | 23.33 | 5.16 | 214 | 19.91 | 6.99 |
| **Thinking** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 171 | 8.48 | 9.76 | 10 | 10.00 | 10.54 | 6 | 18.33 | 9.83 | 155 | 8.00 | 9.56 |
| Female | 115 | 7.83 | 9.80 | 4 | 17.50 | 12.58 | 5 | 12.00 | 8.37 | 106 | 7.26 | 9.61 |
| *Total* | 286 | 8.22 | 9.77 | 14 | 12.14 | 11.22 | 11 | 15.45 | 9.34 | 261 | 7.70 | 9.57 |
| **Age** | | | | | | | | | | | | |
| < 6 years | 1 | 0.00 | | 1 | 0.00 | | | | | | | |
| 6-11 years | 47 | 8.72 | 9.92 | 2 | 20.00 | 0.00 | 4 | 17.50 | 12.58 | 41 | 7.32 | 9.23 |
| 12-14 years | 69 | 7.68 | 9.57 | 4 | 5.00 | 10.00 | 2 | 20.00 | 0.00 | 63 | 7.46 | 9.50 |
| 15-18 years | 159 | 8.05 | 9.71 | 7 | 15.71 | 11.34 | 5 | 12.00 | 8.37 | 147 | 7.55 | 9.55 |
| 18 years < | 10 | 13.00 | 11.60 | | | | | | | 10 | 13.00 | 11.60 |
| *Total* | 286 | 8.22 | 9.77 | 14 | 12.14 | 11.22 | 11 | 15.45 | 9.34 | 261 | 7.70 | 9.57 |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 87 | 9.54 | 10.44 | 7 | 11.43 | 10.69 | 5 | 12.00 | 8.37 | 75 | 9.20 | 10.62 |
| 1 - 2 years | 158 | 7.41 | 9.32 | 7 | 12.86 | 12.54 | 1 | 20.00 | | 150 | 7.07 | 9.09 |
| 2 - 3 years | 36 | 7.22 | 9.14 | | | | | | | 36 | 7.22 | 9.14 |
| *Total* | 281 | 8.04 | 9.68 | 14 | 12.14 | 11.22 | 6 | 13.33 | 8.16 | 261 | 7.70 | 9.57 |
| **Transition/Diversion** | | | | | | | | | | | | |

| CAFAS Functional Outcomes at Baseline | All 3 States | | | Alaska | | | Georgia | | | Kansas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| Transition | 216 | 7.82 | 9.71 | 3 | 6.67 | 11.55 | 5 | 16.00 | 11.40 | 208 | 7.64 | 9.62 |
| Diversion | 70 | 9.43 | 9.91 | 11 | 13.64 | 11.20 | 6 | 15.00 | 8.37 | 53 | 7.92 | 9.48 |
| *Total* | 286 | 8.22 | 9.77 | 14 | 12.14 | 11.22 | 11 | 15.45 | 9.34 | 261 | 7.70 | 9.57 |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 85 | 7.88 | 9.40 | 3 | 23.33 | 5.77 | 4 | 17.50 | 12.58 | 78 | 6.79 | 8.60 |
| Mood, Depressive, Bipolar Disorders | 116 | 7.59 | 9.66 | 2 | 10.00 | 14.14 | 2 | 15.00 | 7.07 | 112 | 7.41 | 9.66 |
| PTSD, Anxiety Disorders | 10 | 10.00 | 9.43 | 4 | 15.00 | 10.00 | | | | 6 | 6.67 | 8.16 |
| Other Disorders | 21 | 12.38 | 11.79 | 3 | 6.67 | 11.55 | | | | 18 | 13.33 | 11.88 |
| *Total* | 232 | 8.23 | 9.80 | 12 | 14.167 | 10.84 | 6 | 16.67 | 10.33 | 214 | 7.66 | 9.55 |
| **Community** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 171 | 13.33 | 11.48 | 10 | 13.00 | 11.60 | 6 | 15.00 | 13.78 | 155 | 13.29 | 11.46 |
| Female | 115 | 12.96 | 11.39 | 4 | 5.00 | 10.00 | 5 | 14.00 | 8.94 | 106 | 13.21 | 11.51 |
| *Total* | 286 | 13.18 | 11.43 | 14 | 10.71 | 11.41 | 11 | 14.55 | 11.28 | 261 | 13.26 | 11.46 |
| **Age** | | | | | | | | | | | | |
| < 6 years | 1 | 10.00 | | 1 | 10.00 | | | | | | | |
| 6-11 years | 47 | 6.60 | 9.84 | 2 | 0.00 | 0.00 | 4 | 12.50 | 15.00 | 41 | 6.34 | 9.42 |
| 12-14 years | 69 | 12.32 | 11.13 | 4 | 12.50 | 9.57 | 2 | 5.00 | 7.07 | 63 | 12.54 | 11.35 |
| 15-18 years | 159 | 15.35 | 11.29 | 7 | 12.86 | 13.80 | 5 | 20.00 | 7.07 | 147 | 15.31 | 11.31 |
| 18 years < | 10 | 16.00 | 11.74 | | | | | | | 10 | 16.00 | 11.74 |
| *Total* | 286 | 13.18 | 11.43 | 14 | 10.71 | 11.41 | 11 | 14.55 | 11.28 | 261 | 13.26 | 11.46 |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 87 | 14.14 | 11.77 | 7 | 11.43 | 12.15 | 5 | 10.00 | 10.00 | 75 | 14.67 | 11.89 |
| 1 - 2 years | 158 | 13.04 | 11.16 | 7 | 10.00 | 11.55 | 1 | 20.00 | | 150 | 13.13 | 11.18 |
| 2 - 3 years | 36 | 10.83 | 11.56 | | | | | | | 36 | 10.83 | 11.56 |
| *Total* | 281 | 13.10 | 11.40 | 14 | 10.71 | 11.41 | 6 | 11.67 | 9.83 | 261 | 13.26 | 11.46 |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 216 | 12.82 | 11.57 | 3 | 10.00 | 17.32 | 5 | 16.00 | 11.40 | 208 | 12.79 | 11.54 |
| Diversion | 70 | 14.29 | 10.98 | 11 | 10.91 | 10.44 | 6 | 13.33 | 12.11 | 53 | 15.09 | 11.03 |
| *Total* | 286 | 13.18 | 11.43 | 14 | 10.71 | 11.41 | 11 | 14.55 | 11.28 | 261 | 13.26 | 11.46 |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 85 | 12.24 | 11.38 | 3 | 6.67 | 11.55 | 4 | 17.50 | 12.58 | 78 | 12.18 | 11.36 |
| Mood, Depressive, Bipolar Disorders | 116 | 13.10 | 11.53 | 2 | 0.00 | 0.00 | 2 | 10.00 | 14.14 | 112 | 13.39 | 11.51 |

| CAFAS Functional Outcomes at Baseline | All 3 States | | | Alaska | | | Georgia | | | Kansas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| PTSD, Anxiety Disorders | 10 | 16.00 | 13.50 | 4 | 12.50 | 12.58 | | | | 6 | 18.33 | 14.72 |
| Other Disorders | 21 | 12.86 | 11.46 | 3 | 16.67 | 15.28 | | | | 18 | 12.22 | 11.14 |
| *Total* | 232 | 12.89 | 11.50 | 12 | 10 | 12.06 | 6 | 15.00 | 12.25 | 214 | 12.99 | 11.48 |
| **School/Work Performance** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 171 | 22.34 | 9.84 | 10 | 21.00 | 9.94 | 6 | 26.67 | 5.16 | 155 | 22.26 | 9.97 |
| Female | 115 | 19.04 | 11.55 | 4 | 25.00 | 10.00 | 5 | 24.00 | 5.48 | 106 | 18.58 | 11.75 |
| *Total* | 286 | 21.01 | 10.66 | 14 | 22.14 | 9.75 | 11 | 25.45 | 5.22 | 261 | 20.77 | 10.86 |
| **Age** | | | | | | | | | | | | |
| < 6 years | 1 | 20.00 | | 1 | 20.00 | | | | | | | |
| 6-11 years | 47 | 23.62 | 8.70 | 2 | 15.00 | 21.21 | 4 | 27.50 | 5.00 | 41 | 23.66 | 8.29 |
| 12-14 years | 69 | 20.87 | 10.95 | 4 | 20.00 | 8.16 | 2 | 25.00 | 7.07 | 63 | 20.79 | 11.26 |
| 15-18 years | 159 | 20.19 | 10.94 | 7 | 25.71 | 7.87 | 5 | 24.00 | 5.48 | 147 | 19.80 | 11.13 |
| 18 years < | 10 | 23.00 | 12.52 | | | | | | | 10 | 23.00 | 12.52 |
| *Total* | 286 | 21.01 | 10.66 | 14 | 22.14 | 9.75 | 11 | 25.45 | 5.22 | 261 | 20.77 | 10.86 |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 87 | 22.64 | 9.70 | 7 | 21.43 | 9.00 | 5 | 26.00 | 5.48 | 75 | 22.53 | 10.01 |
| 1 - 2 years | 158 | 19.75 | 11.23 | 7 | 22.86 | 11.13 | 1 | 30.00 | | 150 | 19.53 | 11.25 |
| 2 - 3 years | 36 | 22.22 | 10.45 | | | | | | | 36 | 22.22 | 10.45 |
| *Total* | 281 | 20.96 | 10.73 | 14 | 22.14 | 9.75 | 6 | 26.67 | 5.16 | 261 | 20.77 | 10.86 |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 216 | 19.91 | 10.87 | 3 | 20.00 | 10.00 | 5 | 24.00 | 5.48 | 208 | 19.81 | 10.99 |
| Diversion | 70 | 24.43 | 9.27 | 11 | 22.73 | 10.09 | 6 | 26.67 | 5.16 | 53 | 24.53 | 9.52 |
| ***Total*** | **286** | **21.01** | **10.66** | **14** | **22.14** | **9.75** | **11** | **25.45** | **5.22** | **261** | **20.77** | **10.86** |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 85 | 22.59 | 9.78 | 3 | 30.00 | 0.00 | 4 | 30.00 | 0.00 | 78 | 21.92 | 9.94 |
| Mood, Depressive, Bipolar Disorders | 116 | 20.78 | 10.81 | 2 | 10.00 | 0.00 | 2 | 20.00 | 0.00 | 112 | 20.98 | 10.90 |
| PTSD, Anxiety Disorders | 10 | 17.00 | 11.60 | 4 | 17.50 | 12.58 | | | | 6 | 16.67 | 12.11 |
| Other Disorders | 21 | 21.43 | 12.36 | 3 | 30 | 0 | | | | 18 | 20.00 | 12.83 |
| ***Total*** | **232** | **21.34** | **10.63** | **12** | **22.5** | **10.55** | **6** | **26.67** | **5.16** | **214** | **21.12** | **10.73** |
| **Substance Abuse** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 170 | 3.59 | 8.54 | 9 | 5.56 | 11.30 | 6 | 0.00 | 0.00 | 155 | 3.61 | 8.52 |
| Female | 115 | 5.30 | 8.72 | 4 | 0.00 | 0.00 | 5 | 0.00 | 0.00 | 106 | 5.75 | 8.94 |
| ***Total*** | **285** | **4.28** | **8.64** | **13** | **3.85** | **9.61** | **11** | **0.00** | **0.00** | **261** | **4.48** | **8.74** |
| **Age** | | | | | | | | | | | | |
| < 6 years | | | | | | | | | | | | |

| CAFAS Functional Outcomes at Baseline | All 3 States | | | Alaska | | | Georgia | | | Kansas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| 6-11 years | 47 | 0.00 | 0.00 | 2 | 0.00 | 0.00 | 4 | 0.00 | 0.00 | 41 | 0.00 | 0.00 |
| 12-14 years | 69 | 2.46 | 6.51 | 4 | 5.00 | 10.00 | 2 | 0.00 | 0.00 | 63 | 2.38 | 6.40 |
| 15-18 years | 159 | 5.79 | 9.64 | 7 | 4.29 | 11.34 | 5 | 0.00 | 0.00 | 147 | 6.05 | 9.69 |
| 18 years < | 10 | 13.00 | 12.52 | | | | | | | 10 | 13.00 | 12.52 |
| ***Total*** | **285** | **4.28** | **8.64** | **13** | **3.85** | **9.61** | **11** | **0.00** | **0.00** | **261** | **4.48** | **8.74** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 87 | 4.48 | 8.46 | 7 | 0.00 | 0.00 | 5 | 0.00 | 0.00 | 75 | 5.20 | 8.91 |
| 1 - 2 years | 157 | 4.52 | 8.95 | 6 | 8.33 | 13.29 | 1 | 0.00 | | 150 | 4.40 | 8.78 |
| 2 - 3 years | 36 | 3.33 | 8.28 | | | | | | | 36 | 3.33 | 8.28 |
| ***Total*** | **280** | **4.36** | **8.69** | **13** | **3.85** | **9.61** | **6** | **0.00** | **0.00** | **261** | **4.48** | **8.74** |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 216 | 3.43 | 7.85 | 3 | 0.00 | 0.00 | 5 | 0.00 | 0.00 | 208 | 3.56 | 7.98 |
| Diversion | 69 | 6.96 | 10.33 | 10 | 5.00 | 10.80 | 6 | 0.00 | 0.00 | 53 | 8.11 | 10.57 |
| ***Total*** | **285** | **4.28** | **8.64** | **13** | **3.85** | **9.61** | **11** | **0.00** | **0.00** | **261** | **4.48** | **8.74** |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 85 | 3.41 | 7.95 | 3 | 0.00 | 0.00 | 4 | 0.00 | 0.00 | 78 | 3.72 | 8.24 |
| Mood, Depressive, Bipolar Disorders | 116 | 4.05 | 8.34 | 2 | 0.00 | 0.00 | 2 | 0.00 | 0.00 | 112 | 4.20 | 8.45 |
| PTSD, Anxiety Disorders | 9 | 4.44 | 8.82 | 3 | 0.00 | 0.00 | | | | 6 | 6.67 | 10.33 |
| Other Disorders | 21 | 3.81 | 8.65 | 3 | 10.00 | 17.32 | | | | 18 | 2.78 | 6.69 |
| ***Total*** | **231** | **3.81** | **8.20** | **11** | **2.73** | **9.05** | **6** | **0.00** | **0.00** | **214** | **3.97** | **8.26** |
| **Home Role Performance** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 171 | 25.73 | 7.59 | 10 | 25.00 | 5.27 | 6 | 30.00 | 0.00 | 155 | 25.61 | 7.82 |
| Female | 115 | 25.91 | 7.82 | 4 | 20.00 | 11.55 | 5 | 28.00 | 4.47 | 106 | 26.04 | 7.77 |
| ***Total*** | **286** | **25.80** | **7.67** | **14** | **23.57** | **7.45** | **11** | **29.09** | **3.02** | **261** | **25.79** | **7.79** |
| **Age** | | | | | | | | | | | | |
| < 6 years | 1 | 20.00 | | 1 | 20.00 | | | | | | | |
| 6-11 years | 47 | 24.68 | 8.30 | 2 | 15.00 | 7.07 | 4 | 30.00 | 0.00 | 41 | 24.63 | 8.40 |
| 12-14 years | 69 | 26.23 | 7.30 | 4 | 25.00 | 10.00 | 2 | 30.00 | 0.00 | 63 | 26.19 | 7.28 |
| 15-18 years | 159 | 25.85 | 7.74 | 7 | 25.71 | 5.35 | 5 | 28.00 | 4.47 | 147 | 25.78 | 7.93 |
| 18 years < | 10 | 28.00 | 6.32 | | | | | | | 10 | 28.00 | 6.32 |
| ***Total*** | **286** | **25.80** | **7.67** | **14** | **23.57** | **7.45** | **11** | **29.09** | **3.02** | **261** | **25.79** | **7.79** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 87 | 26.78 | 6.56 | 7 | 22.86 | 7.56 | 5 | 28.00 | 4.47 | 75 | 27.07 | 6.53 |
| 1 - 2 years | 158 | 25.06 | 8.43 | 7 | 24.29 | 7.87 | 1 | 30.00 | | 150 | 25.07 | 8.49 |
| 2 - 3 years | 36 | 26.11 | 6.88 | | | | | | | 36 | 26.11 | 6.88 |
| ***Total*** | **281** | **25.73** | **7.72** | **14** | **23.57** | **7.45** | **6** | **28.33** | **4.08** | **261** | **25.79** | **7.79** |

| CAFAS Functional Outcomes at Baseline | All 3 States | | | Alaska | | | Georgia | | | Kansas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 216 | 25.42 | 8.17 | 3 | 20.00 | 10.00 | 5 | 30.00 | 0.00 | 208 | 25.38 | 8.21 |
| Diversion | 70 | 27.00 | 5.74 | 11 | 24.55 | 6.88 | 6 | 28.33 | 4.08 | 53 | 27.36 | 5.60 |
| ***Total*** | **286** | **25.80** | **7.67** | **14** | **23.57** | **7.45** | **11** | **29.09** | **3.02** | **261** | **25.79** | **7.79** |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 85 | 24.94 | 8.81 | 3 | 23.33 | 11.55 | 4 | 30.00 | 0.00 | 78 | 24.74 | 8.93 |
| Mood, Depressive, Bipolar Disorders | 116 | 26.55 | 6.47 | 2 | 15.00 | 7.07 | 2 | 30.00 | 0.00 | 112 | 26.70 | 6.35 |
| PTSD, Anxiety Disorders | 10 | 22.00 | 10.33 | 4 | 22.50 | 5.00 | | | | 6 | 21.67 | 13.29 |
| Other Disorders | 21 | 25.24 | 8.73 | 3 | 26.67 | 5.77 | | | | 18 | 25.00 | 9.24 |
| ***Total*** | **232** | **25.65** | **7.81** | **12** | **22.5** | **7.538** | **6** | **30.00** | **0.00** | **214** | **25.70** | **7.89** |
| **Family/Social Support** | | | | | | | | | | | | |
| **Gender** | | | | | | | | | | | | |
| Male | 161 | 4.78 | 8.95 | | | | 6 | 21.67 | 7.53 | 155 | 4.13 | 8.36 |
| Female | 111 | 4.95 | 8.41 | | | | 5 | 8.00 | 4.47 | 106 | 4.81 | 8.53 |
| ***Total*** | **272** | **4.85** | **8.72** | | | | **11** | **15.45** | **9.34** | **261** | **4.41** | **8.42** |
| **Age** | | | | | | | | | | | | |
| < 6 years | | | | | | | | | | | | |
| 6-11 years | 45 | 6.00 | 10.53 | | | | 4 | 17.50 | 12.58 | 41 | 4.88 | 9.78 |
| 12-14 years | 65 | 6.15 | 9.47 | | | | 2 | 20.00 | 14.14 | 63 | 5.71 | 9.11 |
| 15-18 years | 152 | 3.62 | 7.15 | | | | 5 | 12.00 | 4.47 | 147 | 3.33 | 7.05 |
| 18 years < | 10 | 10.00 | 13.33 | | | | | | | 10 | 10.00 | 13.33 |
| ***Total*** | **272** | **4.85** | **8.72** | | | | **11** | **15.45** | **9.34** | **261** | **4.41** | **8.42** |
| **Program Maturity at Enrollment** | | | | | | | | | | | | |
| 0 - 1 year | 80 | 6.50 | 9.01 | | | | 5 | 10.00 | 7.07 | 75 | 6.27 | 9.12 |
| 1 - 2 years | 151 | 3.97 | 8.17 | | | | 1 | 20.00 | | 150 | 3.87 | 8.09 |
| 2 - 3 years | 36 | 2.78 | 7.79 | | | | | | | 36 | 2.78 | 7.79 |
| ***Total*** | **267** | **4.57** | **8.46** | | | | **6** | **11.67** | **7.53** | **261** | **4.41** | **8.42** |
| **Transition/Diversion** | | | | | | | | | | | | |
| Transition | 213 | 4.23 | 8.35 | | | | 5 | 18.00 | 10.95 | 208 | 3.89 | 8.03 |
| Diversion | 59 | 7.12 | 9.66 | | | | 6 | 13.33 | 8.16 | 53 | 6.42 | 9.63 |
| ***Total*** | **272** | **4.85** | **8.72** | | | | **11** | **15.45** | **9.34** | **261** | **4.41** | **8.42** |
| **DSM-IV** | | | | | | | | | | | | |
| ADD/ADHD, Oppositional Defiant Disorder | 82 | 4.76 | 9.06 | | | | 4 | 20.00 | 8.16 | 78 | 3.97 | 8.43 |
| Mood, Depressive, Bipolar Disorders | 114 | 5.96 | 9.57 | | | | 2 | 20.00 | 14.14 | 112 | 5.71 | 9.37 |
| PTSD, Anxiety Disorders | 6 | 1.67 | 4.08 | | | | | | | 6 | 1.67 | 4.08 |

| CAFAS Functional Outcomes at Baseline | All 3 States | | | Alaska | | | Georgia | | | Kansas | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| Other Disorders | 18 | 2.78 | 6.69 | | | | | | | 18 | 2.78 | 6.69 |
| ***Total*** | **220** | **5.14** | **9.09** | | | | **6** | **20.00** | **8.94** | **214** | **4.72** | **8.76** |

Source. IMPAQ International, LLC and Westat National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January, 2011.
Notes: Total score is aggregated from 8 CAFAS subscale scores and ranges from 0 to 240 points.
The score from Family/Social Support subscale is not included.
The higher the total/sub-scale score, the lower the functional status.
Total number of severe impairments is the count of CAFAS subscales on which the score is 30.
Levels of impairment on the CAFAS subscales are scored as severe (30), moderate (20), mild (10) and no/minimal (0) Impairment.
N is the number of children with data on the ID, Enrollment and Record Trail Variables in both Core and CAFAS files.
Data on Family/Social Support Subscale are not available for children from Alaska.
Blank cells under N and Mean columns indicate that there are no children fitting that particular profile. Blank cells under SD indicate that standard deviation is not available either because there were no children in the relevant category or there was only one child.
Blank cells under the Family/Social Support domain for Alaska indicate that no data on this domain was provided by Alaska.

# APPENDIX E: YSS EXHIBITS

## Exhibit E-1: Percentage of Positive Responses at Disenrollment by State (YSS)

| YSS | All (N=145~149) | | IN (N=50) | | MS (N=87) | | KS (N=8~12) | |
|---|---|---|---|---|---|---|---|---|
| | N[1] | % | N[1] | % | N[1] | % | N[1] | % |
| **Access to Care** | 118 | 79.7% | 39 | 78.0% | 70 | 80.5% | 9 | 81.8% |
| **Participation in Treatment** | 103 | 69.1% | 37 | 74.0% | 58 | 66.7% | 8 | 66.7% |
| **Cultural Sensitivity** | 131 | 87.9% | 44 | 88.0% | 77 | 88.5% | 10 | 83.3% |
| **Appropriateness** | 107 | 71.8% | 36 | 72.0% | 62 | 71.3% | 9 | 75.0% |
| **Outcome** | 101 | 69.7% | 36 | 72.0% | 59 | 67.8% | 6 | 75.0% |

## Exhibit E-2: Percentage of Positive Responses at Disenrollment by State (YSS-F)

| YSS-F | All (N=366~380) | | IN (N=127~128) | | MS (N=205) | | KS (N=34~47) | |
|---|---|---|---|---|---|---|---|---|
| | N[1] | % | N[1] | % | N[1] | % | N[1] | % |
| **Access to Care** | 310 | 81.6% | 105 | 82.0% | 171 | 83.4% | 34 | 72.3% |
| **Participation in Treatment** | 314 | 82.6% | 117 | 91.4% | 152 | 74.1% | 45 | 95.7% |
| **Cultural Sensitivity** | 343 | 90.5% | 121 | 94.5% | 183 | 89.3% | 39 | 84.8% |
| **Appropriateness** | 254 | 66.8% | 92 | 71.9% | 133 | 64.9% | 29 | 61.7% |
| **Outcome** | 180 | 49.2% | 58 | 45.7% | 111 | 54.1% | 11 | 32.4% |

Source for all tables in Appendix D: IMPAQ International, LLC and Westat. National Evaluation of the Medicaid Demonstration Home-and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Minimum Data Set, January 2011.

Notes for Exhibits 1 and 2: The percentage (%) for each domain is the proportion of observations with domain scores > 3.5 among non-missing observations.

$N^1$ for each survey is the number of respondents agreeing on each domain for the survey.

South Carolina has one observation of a disenrollment in the YSS and YSS-F dataset. It is not reported in this table.

## Exhibit E-3: Percentage of Positive Responses by Gender: YSS

| YSS | Boys (N=87) | | Girls (N=61) | | Test |
|---|---|---|---|---|---|
| | N[1] | % | N[1] | % | Stats |
| **Access to Care** | 65 | 74.71% | 53 | 86.89% | 3.29 |
| **Participation in Treatment** | 69 | 79.31% | 43 | 70.49% | 1.51 |
| **Cultural Sensitivity** | 76 | 87.36% | 57 | 93.44% | 1.46 |
| **Appropriateness** | 71 | 81.61% | 51 | 83.61% | 0.10 |
| **Outcome** | 66 | 75.86% | 45 | 73.77% | 0.08 |

## Exhibit E-4: Percentage of Positive Responses by Gender: YSS-F

| YSS-F | Boys (N=281) | | Girls (N=143) | | Test |
|---|---|---|---|---|---|
| | N[1] | % | N[1] | % | Stats |
| **Access to Care** | 255 | 90.75% | 132 | 92.31% | 0.29 |
| **Participation in Treatment** | 250 | 88.97% | 121 | 84.62% | 1.64 |
| **Cultural Sensitivity** | 276 | 98.22% | 137 | 95.80% | 2.19 |
| **Appropriateness** | 237 | 84.34% | 123 | 86.01% | 0.21 |
| **Outcome** | 161 | 57.30% | 89 | 62.24% | 0.96 |

Notes for Exhibits 3 and 4:
N is the number of non-missing observations for each gender.
The percentage (%) for each domain is the proportion of observations with scores > 3.5 among non-missing observations.
$N^1$ is the number of respondents with positive responses on each domain for the gender.
*P<0.05. **P<0.01. ***P<0.001.

## Exhibit E-5: Percentage of Positive Responses by Age: YSS-F

| YSS-F | 6-11yr (N=125) | | 12-14yr (N=154) | | 15-18yr (N=145) | | Test |
|---|---|---|---|---|---|---|---|
| | N[1] | % | N[1] | % | N[1] | % | Stats |
| **Access to Care** | 114 | 91.20% | 140 | 90.91% | 133 | 91.72% | 0.06 |
| **Participation in Treatment** | 113 | 90.40% | 134 | 87.01% | 124 | 85.52% | 1.52 |
| **Cultural Sensitivity** | 121 | 96.80% | 150 | 97.40% | 142 | 97.93% | 0.34 |
| **Appropriateness** | 102 | 81.60% | 133 | 86.36% | 125 | 86.21% | 1.51 |
| **Outcome** | 74 | 59.20% | 94 | 61.04% | 82 | 56.55% | 0.63 |

Notes. N is the number of non-missing observations for each age group. The percentage (%) for each domain is the proportion of observations with scores > 3.5 among non-missing observations. N[1] is the number of respondents with positive responses on each domain for the age group.
* P<0.05. **P<0.01. ***P<0.001.

## Exhibit E-6: Percentage of Positive Responses by Transition/Diversion: YSS

| YSS | Transition (N=53) | | Diversion (N=95) | | Test |
|---|---|---|---|---|---|
| | N[1] | % | N[1] | % | Stats |
| **Access to Care** | 43 | 81.13% | 75 | 78.95% | 0.10 |
| **Participation in Treatment** | 37 | 69.81% | 75 | 78.95% | 1.54 |
| **Cultural Sensitivity** | 46 | 86.79% | 87 | 91.58% | 0.86 |
| **Appropriateness** | 42 | 79.25% | 80 | 84.21% | 0.58 |
| **Outcome** | 40 | 75.47% | 71 | 74.74% | 0.01 |

## Exhibit E-7: Percentage of Positive Responses by Transition/Diversion: YSS-F

| YSS-F | Transition (N=173) | | Diversion (N=251) | | Test |
|---|---|---|---|---|---|
| | N[1] | % | N[1] | % | Stats |
| **Access to Care** | 157 | 90.75% | 230 | 91.63% | 0.10 |
| **Participation in Treatment** | 148 | 85.55% | 223 | 88.84% | 1.02 |
| **Cultural Sensitivity** | 165 | 95.38% | 248 | 98.80% | 4.77* |
| **Appropriateness** | 143 | 82.66% | 217 | 86.45% | 1.15 |
| **Outcome** | 102 | 58.96% | 148 | 58.96% | 0.00 |

Notes for Exhibits 6 and 7:
N is the number of non-missing observations for each of transition/diversion group.
The percentage (%) for each domain is the proportion of observations with scores > 3.5 among non-missing observations.
N[1] is the number of respondents with positive responses on each domain for the group.
*P<0.05. **P<0.01. ***P<0.001.