MULTISYSTEMIC THERAPY IN MARYLAND: FY 2013 IMPLEMENTATION REPORT

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Table of Contents

Introduction 3
Purpose of this Report 3
What is Multisystemic Therapy? 3
MST Implementation Support 4
Assessing MST Utilization and Outcomes 5
Utilization data 5
Fidelity data 5
Outcomes data 5
Where was MST Offered in Maryland? 6
Referrals to MST 7
Characteristics of Referred Youth 7
Referred Youth Who Did Not Start MST 8
Waitlisted Youth 10
Admissions to MST 10
Global Admission Length (Initial Case Processing) 10
Utilization 11
Characteristics of Admitted Youth 12
MST Model Fidelity 14
MST Discharges & Outcomes 15
Case Progress at Discharge 16
Length of Stay 16
Instrumental Outcomes at Discharge 17
Ultimate Outcomes at Discharge 18
Longitudinal Outcomes 19
Cost Analysis 21
FY13 MST Implementation in Maryland: Successes & Challenges 22
Utilization 22
Fidelity 22
Outcomes 22
References 23

EXECUTIVE SUMMARY

Multisystemic Therapy (MST) is one of five prioritized evidence-based practices chosen by Maryland's Children's Cabinet with the goals of reducing costly out-of-home placements and providing empirically supported community-based practices that address key outcomes (e.g., long-term rates of re-arrest, school attendance, etc.). Since 2007, The Institute for Innovation & Implementation has helped to facilitate MST implementation in Maryland and continues to provide technical assistance and data reporting to providers and stakeholders.

FY13 Data Highlights

Utilization

- In FY13, MST was available in five jurisdictions throughout Maryland. Based on FY13 funding capacity, Maryland could serve an estimated 180 youth in MST annually.
- 252 youth were referred to MST in FY13. The majority of referrals were provided by the Department of Juvenile Services (DJS; 73%). Of those youth referred, 63% started treatment, which was a slight increase from FY12 (61%). Issues regarding youth/family availability and consent were the primary reasons youth did not start MST.
- The majority of youth admitted to MST were African American (71%) and male (75%), and the average age of youth admitted to MST was 15.8 years old. Most youth (88%) were involved with DJS upon admission to MST, and these youth had considerable delinquency histories—on average, youth had four prior referrals to DJS. In addition, nearly two-fifths (39%) of youth admitted to MST had been previously involved with the child welfare system.
- The average statewide utilization of MST slots was 82%.

Fidelity

- Eighty percent of youth and families with completed Therapist Adherence Measure (TAM-R) forms were treated by a therapist with an average adherence score above the .61 target.

Outcomes

- 138 youth were discharged from MST with the opportunity for a full course of treatment in FY13, and **82%** of these youth completed treatment—a higher percentage than any of the past five years.
- Of youth who completed MST in FY13, at the time of discharge: **98%** were living at home; **93%** were in school/working; and **93%** had no new arrests.
- Of youth who completed MST in FY12, as of one year post-discharge: **43%** did not have a new arrest; **73%** did not have a new conviction; and **81%** had not been incarcerated. Additionally, **78%** had not been placed in a new residential placement with DJS.
- Only **5%** of youth who completed MST in FY12 had any new involvement with the child welfare system within one year.

Costs

- In FY13, the average per diem cost of MST was $110; this compares to an average per diem cost of $210 for group homes, $274 for staff-secure facilities, and $531 for hardware-secure facilities for DJS-involved youth.

Introduction

Purpose of this Report

Multisystemic Therapy (MST) is a widely-recognized evidence-based practice (EBP), designed to help youth with behavior problems and implemented in their homes and community settings. In 2007, Maryland's Governor's Office of Children (GOC), on behalf of the Children's Cabinet, and the Department of Juvenile Services (DJS) worked collaboratively to increase the availability of MST to youth and families in Maryland. Maryland's stakeholders selected MST with the goals of serving youth in their homes, thereby reducing the use of out-of-home placements while improving outcomes for youth and families across the State.

The Institute for Innovation & Implementation (The Institute) collects and analyzes data for a variety of EBPs implemented throughout Maryland. This report provides a summary of MST implementation across the State for fiscal year (FY) 2013. In addition to utilization and fidelity indicators, both short- and long-term outcomes for participating youth are examined.

What is an EBP?

An **evidence-based practice (EBP)** is the integration of the best available research with clinical expertise in the context of youth and family characteristics, culture, and preferences. The effectiveness of an EBP to help children and families reach desirable outcomes is measured by three vital components (American Psychological Association [APA], 2002; APA Presidential Task Force on Evidence-Based Practice (2006); U.S. Department of Health & Human Services, 1999):

1) Extent of scientific support of the intervention's effects, particularly from at least two rigorously designed studies;
2) Clinical opinion, observation, and consensus among recognized experts (for the target population); and
3) Degree of fit with the needs, context, culture, and values of families, communities, and neighborhoods.

What is Multisystemic Therapy?

MST is an intensive, family-based treatment program that "focuses on addressing all environmental systems that impact chronic and violent juvenile offenders—their homes and families, schools and teachers, neighborhoods and friends. MST recognizes that each system plays a critical role in a youth's world and each system requires attention when effective change is needed to improve the quality of life for youth and their families" (MST Services, n.d.). The program serves high-risk youth between the ages of 12 and 17, and their families.

MST therapists typically work with families in their homes and community settings in multiple sessions each week over a period of 4 to 6 months (Henggeler, 1999). Throughout the intervention, a therapist is available to the family 24 hours a day, seven days a week to provide additional support as needed. MST therapists are trained to utilize community supports, build skills, and strengthen the family system to cope with the multiple factors known to be related to poor outcomes for youth. Specific treatment techniques are integrated from empirically-supported therapies, including cognitive behavioral and family therapies. With the majority of MST treatment focused on parents/caregivers, the ultimate aim of MST is to provide frequent, intensive therapy in the family context to facilitate lasting positive changes in the home environment (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 2009).

The goals of MST include reducing anti-social behavior, and thereby risk of out-of-home placements, by improving youth and family functioning while maximizing community-based resources and supports. Ample research has demonstrated that MST is an effective model with juvenile offenders, and a viable alternative to out-of-home placement (e.g., Henggeler et al., 1997; Timmons-Mitchell et al., 2006). For additional information on MST, please go to www.mstservices.com.

MST Implementation Support

To ensure high-quality implementation, MST Services, the national MST purveyor, provides continual training and coaching to its providers. They also provide quality improvement support through the Multisystemic Therapy Institute (MSTI), using tools that assess adherence to the model of therapists, supervisors, experts, and organizations, and quality assurance standards (e.g., performance targets), which are referenced throughout this report. As a MST Network Partner, The Institute utilizes MSTI tools and guidance to facilitate implementation of MST across Maryland. In addition to monitoring MST utilization, fidelity, and outcomes throughout Maryland, The Institute facilitates provider and stakeholder collaborative meetings and works with MST experts to ensure the most effective implementation of the model.

What MST has meant to families in Maryland: Michael's Story

Michael is on probation for property destruction and an assault incident involving his father. In addition to this high level of conflict with his father, Michael was also experiencing problems associated with substance use, truancy, and poor school performance at the time he was referred to MST.

After exploring the relationship between Michael and his father, the therapist worked with the family to increase parent/child bonding and to increase the home-school link. With time, his father has become more involved and invested in Michael's life, and conflict has decreased. As his mother and father have aligned their approaches to parenting, supervision and monitoring of Michael have also increased.

Michael's two most recent urinalysis screening results were negative. He is being encouraged to enroll in summer school, and his parents are monitoring his school attendance and holding him accountable for his school performance. When Michael successfully completes summer school, termination of his probation will be requested.

Assessing MST Utilization and Outcomes

The data presented in this report are drawn primarily from youth-level data routinely submitted by Maryland MST providers. Additional data are provided by DJS, the Department of Public Safety and Correctional Services (DPSCS), and the Department of Human Resources (DHR). Taken together, these data fall into three main categories—utilization, fidelity, and outcomes.

- ***Utilization data*** include demographic information, delinquency history, child welfare system history, and details of the case processing (e.g., referral sources, reasons for not starting treatment, etc.). As a whole, utilization data indicate the "who, when, and why" for youth referred to and served by MST.
- ***Fidelity data*** measure the degree to which MST has been delivered as intended by the program developers.[1]
- ***Outcomes data*** allow us to assess whether MST has achieved the desired results for youth and families (Table 1). MST focuses on individual, family, peer, school, and neighborhood factors that place youth at an increased risk for offending, while also building supports and protective factors. As such, the outcomes of particular interest in MST include reducing the frequency and number of days spent in out-of-home placements, reducing delinquent behaviors, and improving family functioning (Henggeler, Schoenwald, Bourduin, Rowland, & Cunningham, 1998).

Table 1. MST Outcome Data—Types and Sources

Type	Indicator	Source
Case Progress	➢ Treatment completion ➢ Reason for non-completion (if applicable)	MST Providers
Instrumental Outcomes at Discharge	➢ Improvements in parenting skills ➢ Improvements in family relations ➢ Improvements in family social supports ➢ Youth educational/vocational success ➢ Evidence of youth pro-social activities ➢ Sustained positive changes by the youth	MST Providers
Ultimate Outcomes at Discharge	➢ Whether the youth was living at home ➢ Whether the youth was in school or working ➢ Whether the youth had any new arrests	MST Providers
Longitudinal Outcomes	➢ Involvement in the juvenile and/or criminal justice systems (e.g., DJS referral/arrest, adjudication/conviction, and commitment/incarceration) ➢ Involvement in the child welfare system (e.g., services and placements)	DJS DPSCS DHR

Descriptive and bivariate analyses (e.g., chi-square, t-test) are used to assess statewide utilization, fidelity, and outcomes data from FY13. Where possible, data are presented and comparisons are drawn for previous fiscal years. Please refer to Appendix 1 for FY13 descriptive data presented by funding source, provider, and jurisdiction.

[1] Fidelity data are collected through MSTI.

Where was MST Offered in Maryland?

During FY13, MST was implemented in five jurisdictions[2] in Maryland, including Baltimore, Frederick, Montgomery, Prince George's, and Washington Counties. Three providers—Community Counseling & Mentoring Services, Inc., Community Solutions Inc., and Way Station, Inc.—administered MST for an estimated annual capacity to serve 180 youth.[3] Across the State, MST was funded by DJS, the Department of Social Services (DSS), and the Children's Cabinet Interagency Fund (CCIF); funding sources varied by jurisdiction (see Table 2). Notably, a fourth provider, which administered MST in Baltimore City, Harford County, and Howard County, was no longer providing this service at the start of FY13, resulting in a sharp decline in annual capacity since FY12. This program's closure likely impacts other trends presented in this report.

Figure 1. MST Availability in Maryland, FY13

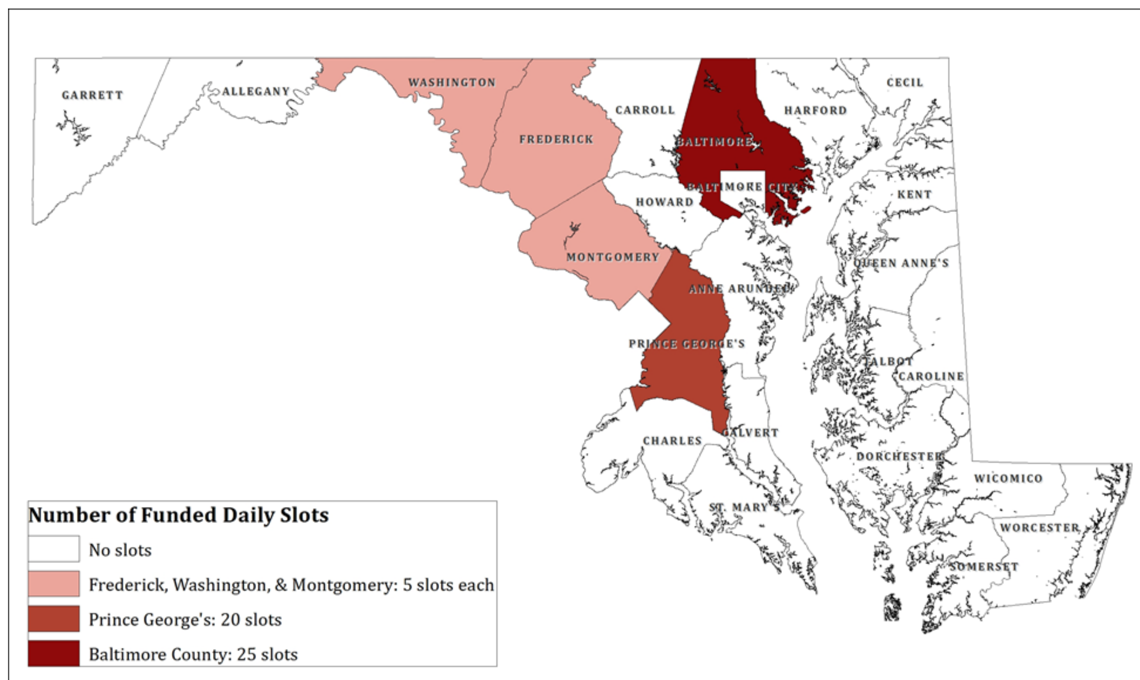


Table 2. MST Provision & Funding Sources in Maryland, FY13

Region (DJS)	Jurisdiction(s) Served	Provider	Funding Source	# Funded Daily Slots
Central	Baltimore County	Community Solutions Inc.	DJS DSS	20 5
Metro	Montgomery	Community Counseling & Mentoring Services, Inc.	DJS	5
	Prince George's	Community Counseling & Mentoring Services, Inc.	DJS CCIF	15 5
Western	Frederick, Washington	Way Station, Inc.	DJS	10

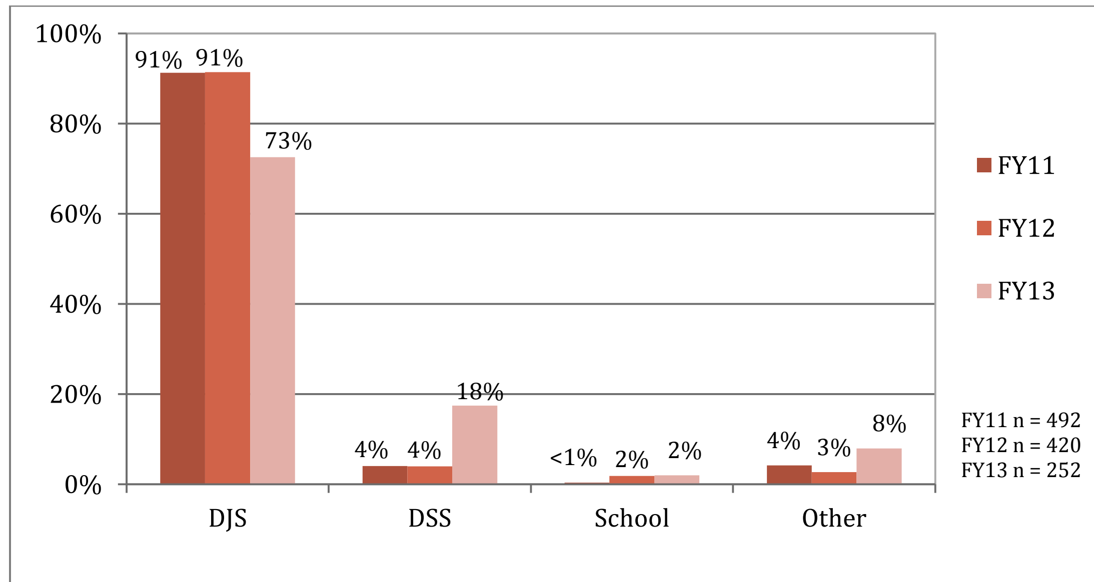
[2] Jurisdictions in Maryland refer to all Counties as well as Baltimore City.

[3] The estimated annual capacity is based on the average number of slots funded by DJS, DSS and CCIF during FY13 (n=60). It assumes that each youth will remain in MST for an average length of stay of 120 days (the targeted rage is 90 to 150 days), and that three youth can be served in each slot during the course of the year.

Referrals to MST

Maryland youth may be referred to MST from a variety of sources. In FY13, the majority of the 252 referrals were made by DJS (73%), followed by DSS (18%), other sources (8%),[4] and schools (2%; Figure 2). Though DJS has been the principal referral source in Maryland over the past several years, growing shares of youth were referred by DSS and other sources in FY13.

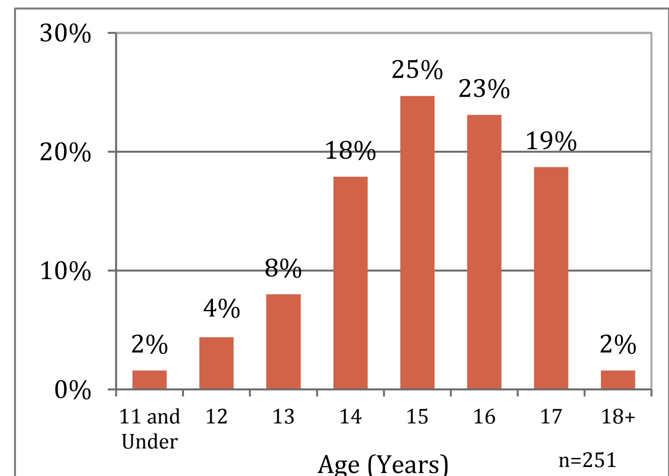
Figure 2. MST Referral Sources, Percentage of Total Youth Referred, FY11-FY13



Characteristics of Referred Youth

MST can serve male and female youth from diverse racial and ethnic backgrounds between the ages of 12 and 17 years old. In FY13, most of the referred youth met the age criteria, and they tended to be older adolescents. Approximately two-thirds (67%) of the referred youth were between the ages of 15 and 17 years old (Figure 3). The average age at referral was 15.6 years old, slightly younger than the mean age of 16.0 years in FY12 (Table 3).

Figure 3. Ages of Youth Referred to MST, FY13



In FY13, 71% of referred youth were male and 29% were female. There has been an increase in the share of referrals for female youth since FY11, when they represented 21% of the referral population. The racial/ethnic characteristics of youth have remained relatively stable over time. In FY13, 77% of referred youth were African American/Black, followed by 16% Caucasian/White; only a small share was Hispanic/Latino (6%) or another minority race/ethnicity (1%).

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[4] Other sources include parents/families (5%), other programs operated by the MST provider (2%), and other (2%).

Table 3. Demographic Characteristics of Youth Referred to MST, FY11-FY13

	FY11	FY12	FY13*
Total Number of Youth	492	420	252
Male	389 (79%)	329 (78%)	178 (71%)
Female	103 (21%)	91 (22%)	73 (29%)
African American/Black	392 (80%)	331 (79%)	193 (77%)
Caucasian/White	73 (15%)	60 (14%)	40 (16%)
Hispanic/Latino	18 (4%)	25 (6%)	16 (6%)
Other	9 (2%)	4 (1%)	3 (1%)
Average Age (s.d.)	15.8 (1.4)	16.0 (1.3)	15.6 (1.5)

*Gender was not reported for one youth during FY13.

Referred Youth Who Did Not Start MST

Not all youth referred to MST start treatment. In some cases, the MST provider may determine that the youth and/or family are not eligible for MST treatment, and in other cases, the youth/family may be eligible but choose not to start for another reason. Figure 4 lists the reasons for not starting MST, which are indicated by the providers. These reasons are closely monitored over time as they offer important information about how to improve the referral process, including how to increase appropriate referrals and decrease barriers to treatment engagement. Ultimately, utilization is highly dependent on a sufficient flow of referrals for eligible youth and families who could benefit from MST.

Figure 4. Reasons for Not Starting MST

Youth may not start MST due to exclusionary factors that make them **ineligible** for participation, including:

- *Age appropriateness;*
- *Youth is living independently;*
- *Primary concerns related to suicidal, homicidal, psychotic, or severe psychiatric behaviors;*
- *Juvenile sex offender;*
- *Pervasive developmental delays; or*
- *Unavailable (AWOL, detained).*

Youth may not start MST despite being **eligible** because:

- *The referral/funding source rescinded the referral;*
- *The youth and/or parent/ guardian do not voluntarily consent;*
- *The family cannot be contacted;*
- *The family is outside of the service area; or*
- *The youth/family already received MST.*

Thirty-seven percent of youth referred in FY13 did not start MST; this percentage has remained relatively constant over the past three fiscal years (38% in both FY11 and FY12). Figure 5 shows the reasons that youth did not start treatment (n=91). The most frequent reason was *youth/parent/custodian do not voluntarily consent* (28%), followed by *youth is unavailable* (15%) and *primary concerns related to suicidal, homicidal, psychotic, or severe psychiatric behaviors* (14%).

Figure 5. Reasons for Not Starting MST (% of Youth who Did Not Start), FY13

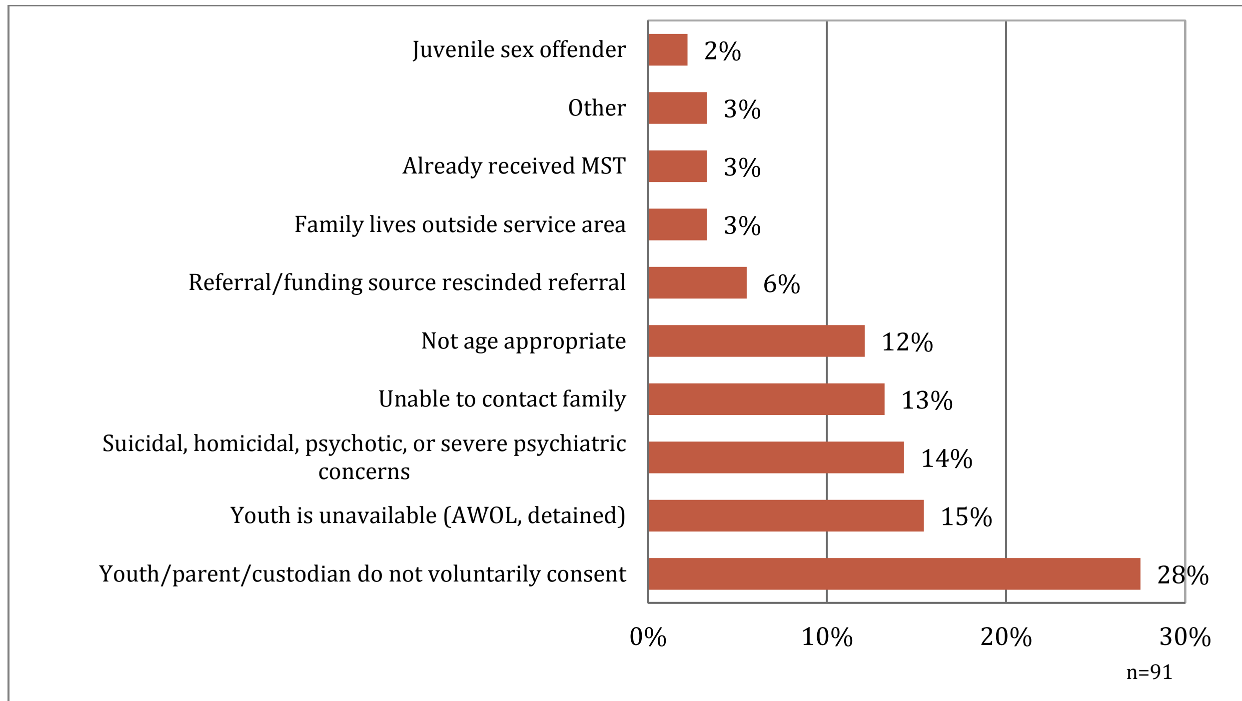
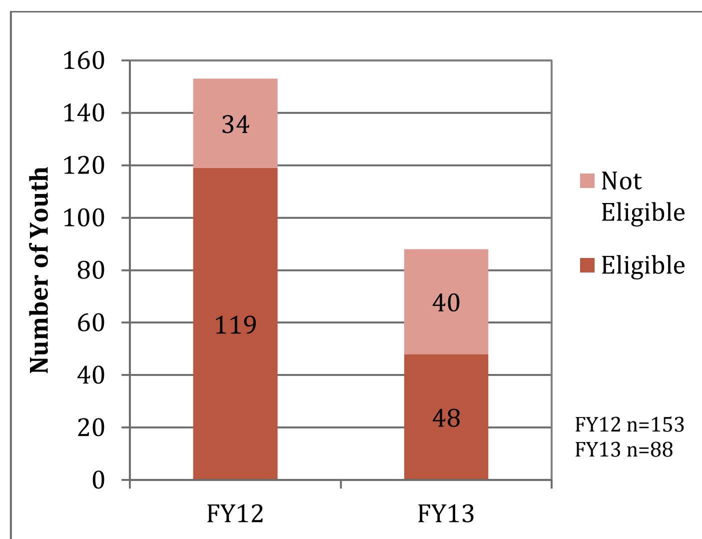


Figure 6. Eligibility of Youth/Families who Did Not Start MST, FY12-FY13

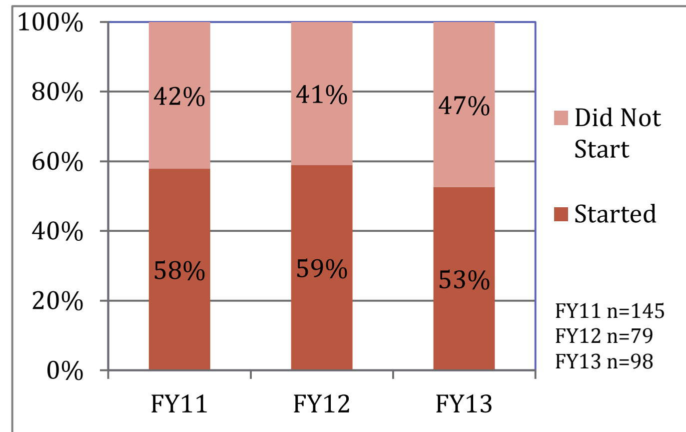


Although more than half (53%; n=48) of the youth who did not start MST in FY13 were eligible to receive services, this represents a marked decline from FY12, when 78% (n=119) of non-admitted youth were in fact eligible for treatment (Figure 6). This decrease can be attributed, in part, to a reduction in the share of referrals not admitted because the family could not be contacted (29% in FY12; 13% in FY13). In addition, the percentage of referrals who did not start because the referral/funding source rescinded the referral dropped from 16% in FY12 to just 6% in FY13. The number of referrals not accepted for treatment because of "primary concerns related to suicidal, homicidal, psychotic, or severe psychiatric problems" increased from 1% in FY12 to 14% in FY13; this reason accounted for one-third (33%) of ineligible referrals in FY13. Taken as a whole, these findings suggest youth and family engagement to start treatment has begun to improve but that further steps may be needed to improve communication between providers and referring agencies to ensure that appropriate referrals are received.

Waitlisted Youth

In FY13, 98 youth were placed on the waitlist—up from 79 in FY12. The characteristics of these youth were mostly similar to those referred, with 68% male (compared to 71% of referred youth) and an average age of 15.5 years old (compared to 15.6 years old for referred youth); however, a higher proportion of youth on the waitlist identified as African American/Black (87%) relative to the referral population (77%). Further, the percentage of youth who were placed on the waitlist and ultimately did not start MST increased this year, from 41% in FY12 to 47% in FY13 (Figure 7). Note that youth can be waitlisted even when the program is not fully utilized due to reductions in available therapists (i.e., slots).

Figure 7 Percentage of Youth Admitted to MST from the Waitlist, FY11-FY13



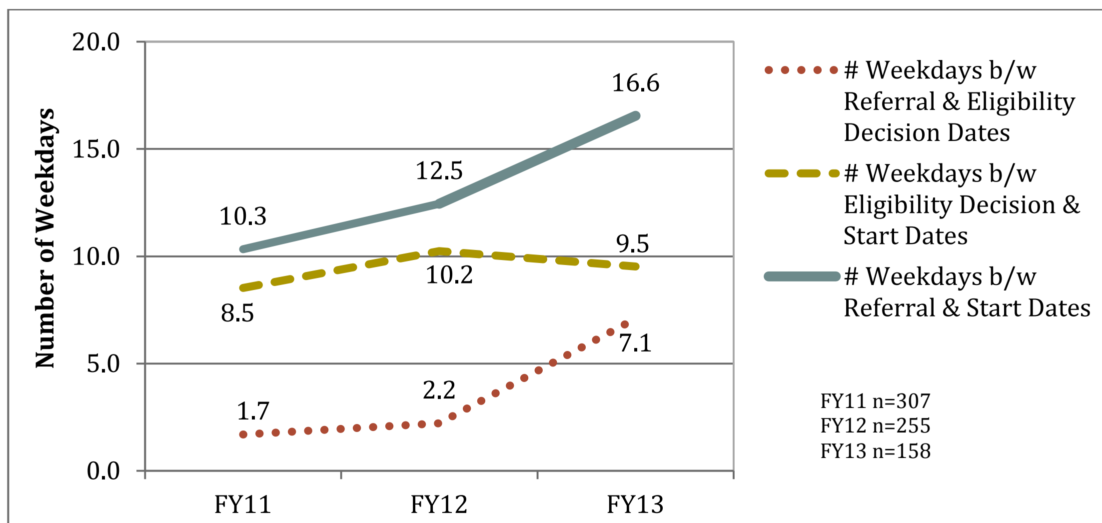
Admissions to MST

Global Admission Length (Initial Case Processing)

Once a youth is referred to MST, it is critical that an eligibility decision is made in a timely manner, and that treatment starts soon thereafter. MST providers report referral, eligibility decision, and start dates, so this process can be closely monitored. The number of days between the referral and start dates is referred to as the *global admission length*.

The average global admission length has increased over the past three years (Figure 8), from 10.3 weekdays in FY11 to 16.6 weekdays in FY13. This upsurge is largely driven by an increased average number of weekdays between referral and eligibility decision dates. In FY13, providers generally made an eligibility decision within seven weekdays of receiving the referral, and youth typically started treatment within approximately 10 weekdays of this decision.

Figure 8. Global Admission Length, FY11-FY13*



*GAL includes any time youth spent on the waitlist.

There were a number of statistical differences in the global admission length by subgroups of youth (see Table 4; only significant differences shown), as well as differences across agencies and jurisdictions (Appendix 1). Notably, youth without any prior referrals to DJS waited nearly twice as long to start services as youth who had been previously referred to DJS. The delay in the start of services for these youth appears to be a function of funding source, as CCIF funded 11 of the 19 youth (58%) without prior DJS referrals while only funding five of the 139 previously DJS-referred youth (6%).

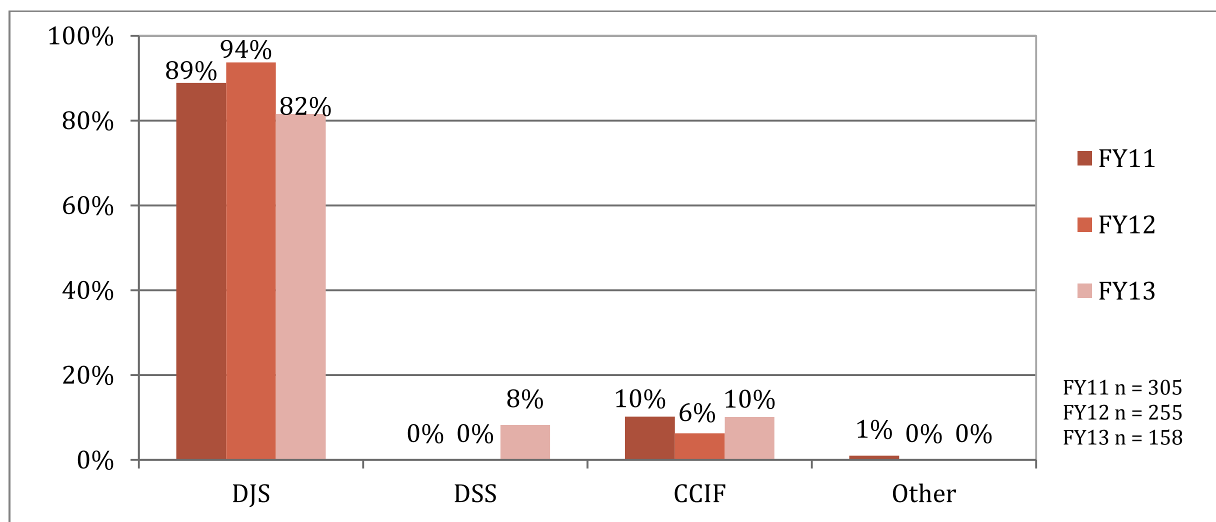
Table 4. Statistically Significant Differences in Global Admission Length (GAL; days)

Factor	Shorter GAL	Longer GAL
Race/Ethnicity	Caucasian/White (11.8) African American/Black (16.1)	Hispanic/Latino (32.9)
Prior Referrals to DJS	Yes (15.0)	No (28.0)
Prior DSS Involvement	Yes (12.7)	No (19.0)
Funding Source	DJS (14.0) DHR/DSS (10.9)	CCIF/LMB (41.9)
Waitlisted	No (10.2)	Yes (30.3)

Utilization

Overall, 158 youth were admitted to MST in FY13—a substantial decrease from FY12 (n=255) due to one program's closure. Nevertheless, the overall percentage of referred youth who were admitted has stayed relatively consistent over these two years (62% in FY12 and 64% in FY13). And while DJS continues to be the primary funding source for MST, the percentages of admitted youth funded by CCIF and DSS both increased in the last fiscal year (10% and 8%, respectively; Figure 9). This change was due in part to a reduction in slots funded by DJS and a new contract established by a local DSS.

Figure 9. MST Funding Sources, Percentage of Youth Admitted, FY11-FY13



Given the investment to make MST available to youth and families, it has been critical to all stakeholders that the available slots are utilized to their maximum capacity. MST utilization reflects the number of youth who are admitted to treatment, as well as the length of time youth and their families remain in treatment (see page 16 for descriptive statistics related to length of stay), divided by the number of slots. Utilization is calculated based on funding capacity (i.e., funded slots) and actual capacity (i.e., active slots), which accounts for the availability of therapists (e.g., if the therapist is out on leave or away for training, or a position is vacant). These factors are tracked closely during the year by providers and referral/funding sources to ensure that MST is reaching as many youth and families as possible.

Table 5. MST Utilization, FY12-FY13

	FY12	FY13
Average Number of Funded Slots (Daily)	112	60
Average Number of Active Slots (Daily)	110	60
Average Daily MST Census	85	49
Average Utilization of Funded Slots	76%	82%
Average Utilization of Active Slots	77%	82%

In FY13, DJS, CCIF and DSS collectively funded a daily capacity of 60 MST slots across Maryland (Table 5), which is a significant decrease from the number of slots in FY12 (as mentioned earlier one provider was one longer providing MST in FY13). On average, all 60 of these slots were "active", or available to youth and families for treatment. The average daily census of youth served by MST was 49, and the average statewide utilization rates for both funded and active slots were 82%. The remainder of this section describes the types of youth who participated in MST.

Characteristics of Admitted Youth

The characteristics of youth admitted to MST were similar to those of the referral population. Most youth admitted to MST in FY13 were between the ages of 15 and 17 years old (72%; Figure 10), and the average age was 15.8 years old. The majority of youth were male (75%) and African American/Black (71%; Table 6). The characteristics of youth admitted to MST have changed somewhat over time. A smaller proportion of African American/Black youth and a greater proportion of youth with Caucasian/White and Hispanic/Latino backgrounds were admitted in FY13, relative to previous years. Additionally, a larger proportion of females were admitted in FY13 than in prior years.

Figure 10. Ages of Youth Admitted by MST, FY13

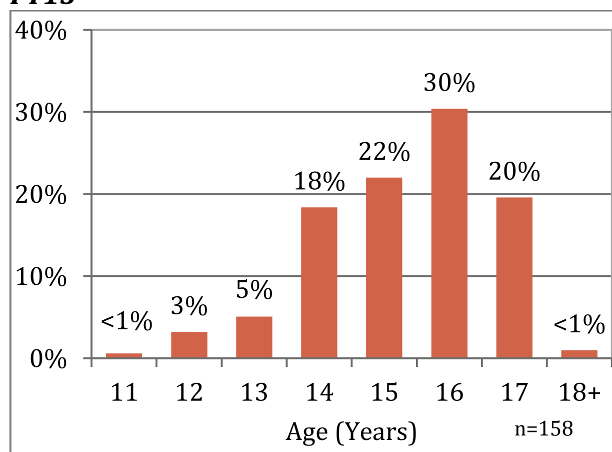


Table 6. Demographic Characteristics of Youth Admitted to MST, FY11-FY13

	FY11	FY12	FY13
Total Number of Youth	307	255	158
Male	248 (81%)	200 (78%)	118 (75%)
Female	59 (19%)	55 (22%)	40 (25%)
African American/Black	234 (76%)	199 (78%)	112 (71%)
Caucasian/White	55 (18%)	43 (17%)	33 (21%)
Hispanic/Latino	11 (4%)	10 (4%)	11 (7%)
Other	7 (2%)	3 (1%)	2 (1%)
Average Age (s.d.)	15.9 (1.2)	16.0 (1.2)	15.8 (1.4)

Involvement with DJS

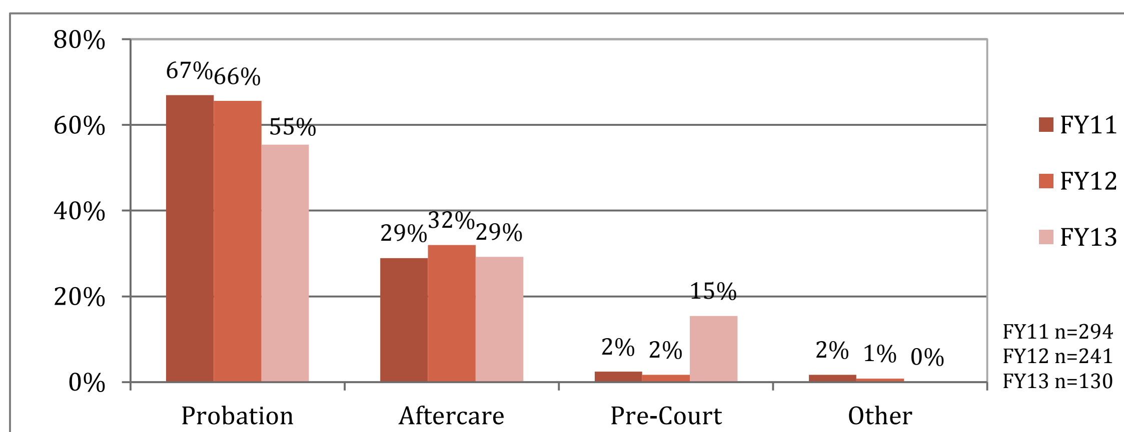
In FY13, 88% of youth admitted to MST had at least one prior referral to DJS (Table 7). This represents a decline from previous years, when the percentage of youth with one or more prior referrals was 96%, and is consistent with the fact that a smaller share of admitted youth were funded by DJS in FY13. Of those with previous DJS involvement, youth admitted in FY13 had, on average, four prior DJS referrals and their mean age at first referral was 13.9 years old. Twenty-three percent of admitted youth had at least one prior commitment to DJS, and this subset of youth averaged 1.3 prior commitments.

Table 7. Prior DJS Involvement for Youth Admitted to MST, FY11-FY13

	FY11	FY12	FY13
Total Number of Youth	307	255	158
One or More Prior DJS Referrals	296 (96%)	245 (96%)	139 (88%)
Avg. # of Prior DJS Referrals (s.d.)	5.0 (3.5)	5.0 (3.5)	4.4 (3.8)
Avg. Age at First DJS Referral (s.d.)	13.6 (1.9)	13.7 (1.8)	13.9 (1.9)
One or More Prior DJS Commitments	77 (25%)	70 (28%)	36 (23%)
Avg. # of Prior DJS Commitments (s.d.)	1.3 (0.6)	1.4 (0.6)	1.3 (0.5)

The proportion of admitted youth who were actively involved with DJS declined from 95% in FY12 to 82% in FY13 (Figure 11). The type of DJS involvement/supervision also changed as some jurisdictions broadened MST availability to youth at DJS intake. In the most recent reporting year, 55% of the youth were under probation, 29% aftercare (i.e., committed to DJS), and 15% pre-court supervision. Of youth under probation or aftercare supervision, 18% were involved with the Violence Prevention Initiative (VPI), a more intensive supervision program for youth who had previously been a perpetrator and/or victim of violence. Further, nine youth (8% of youth under aftercare or probation supervision) had been released from a committed residential placement within 30 days of starting MST.

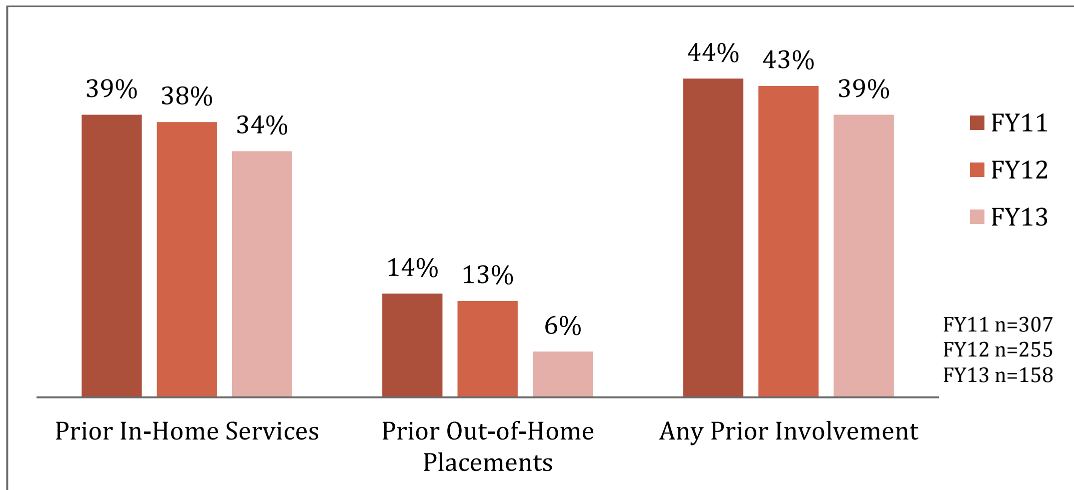
Figure 11. DJS Supervision for Youth Admitted to MST, FY11-FY13



Involvement with DSS

Of the 158 youth admitted to MST in FY13, 61 (39%) had some form of prior contact with the child welfare system (Figure 12). Prior to being referred to MST, 10 youth (6%) had been placed out-of-home and 54 youth (34%) had received in-home services. On average, youth were 7.8 years old at the time of their first in-home service and 9.1 years old at the time of their first out-of-home placement.

Figure 12. Prior DSS Involvement For Youth Admitted to MST, FY11-FY13



Simple bivariate analyses were conducted to determine if youth who started MST differed from those who did not start. These findings are summarized in Figure 13. Notably, Caucasian/White youth were significantly more likely to start MST relative to youth with other racial/ethnic backgrounds, as were youth with one or more prior DJS referrals, and those whose treatment was funded by DJS or DSS. Also, note that rates of admission varied substantially by provider agency and jurisdiction; these figures can be found in Appendix 1.

Figure 13. Factors Related to Starting MST

Youth who started MST were statistically more likely to:

- ✓ Be Caucasian/White
- ✓ Have DJS or DSS funding for MST
- ✓ Have one or more prior DJS referrals

Starting MST was not statistically related to:

- x Gender
- x Age at the time of referral
- x Having one or more prior DJS commitments
- x Having prior DSS involvement

MST Model Fidelity

The MST Quality Assurance System includes validated measures of clinical supervision practices and therapist adherence, and requires a number of procedures (e.g., family reports about treatment, therapist ratings of supervisors, etc.) to verify that fidelity to the MST model is maintained over the course of treatment (Henggeler, Schoenwald, Liao, Letourneau, & Edwards, 2002; Schoenwald, 2008). This quality assurance system includes two measures, the *Therapist Adherence Measure-Revised (TAM-R)* and the *Supervisor Adherence Measure (SAM)*. Because not all MST sites are required to complete the SAM, these scores will not be included or described in this report.

The *Therapist Adherence Measure-Revised (TAM-R)* is a 28-item questionnaire completed by the primary caregiver starting after the first two weeks of treatment, and then every fourth week until the end of treatment. The adherence score ranges from 0 to 1, with 1 representing the highest level of adherence. The target therapist adherence score is .61, which has been associated with good outcomes for families in previous clinical research.

MST teams are expected to collect at least one TAM-R for 100% of families served. This target has not been met for the past three fiscal years, and TAM-R completion rates dropped slightly from 90% in FY12

to 85% in FY13 (Figure 14). In FY13, a total of 511 TAM-R forms were completed and collected from 181 families, with an average adherence score of .79 (Figure 15). Overall, 80% of the families with completed TAM-R forms were served by a therapist who met or exceeded the target therapist adherence score of .61. Although therapist adherence scores across MST providers in Maryland have remained above this threshold since FY11, these results should be interpreted with caution since the TAM-R is not being completed for all families.

Figure 14. Percent of Families Completing at Least One TAM-R Form, FY11-FY13

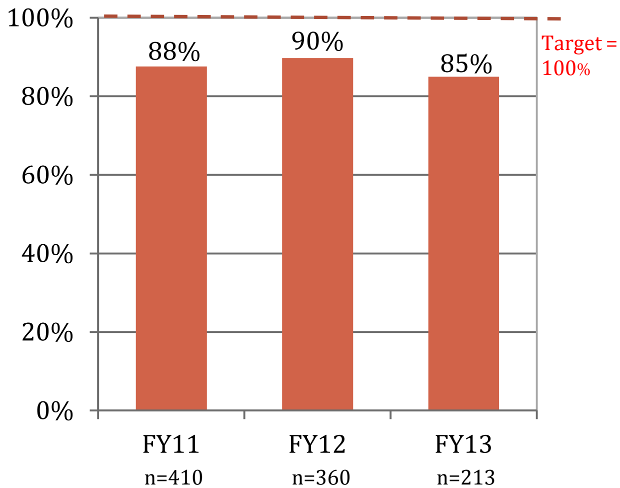
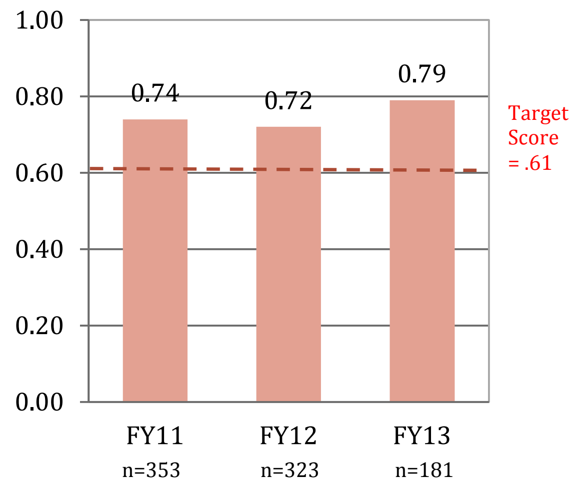


Figure 15. MST Average Therapist Adherence Score, FY11-FY13



MST Discharges & Outcomes

Of the 160 youth who were discharged from MST in FY13, 138 (86%) had the *opportunity for a full course of treatment.* The remaining 14% of cases did *not have the opportunity for a full course of treatment* (note that these cases will not be included in subsequent analyses). The specific discharge reasons falling under each category are listed in Figure 16.

Figure 16. MST Discharge Reasons	
Had the opportunity for a full course of treatment	**Did not have the opportunity for a full course of treatment**
➢ Completed treatment (i.e., case closed by mutual agreement) ➢ Lack of engagement ➢ Placed out of home for an event during treatment	➢ Youth/family moved ➢ Administrative reasons ➢ Youth placed for an event that occurred prior to treatment

Upon discharge from MST, each case is evaluated in three ways:

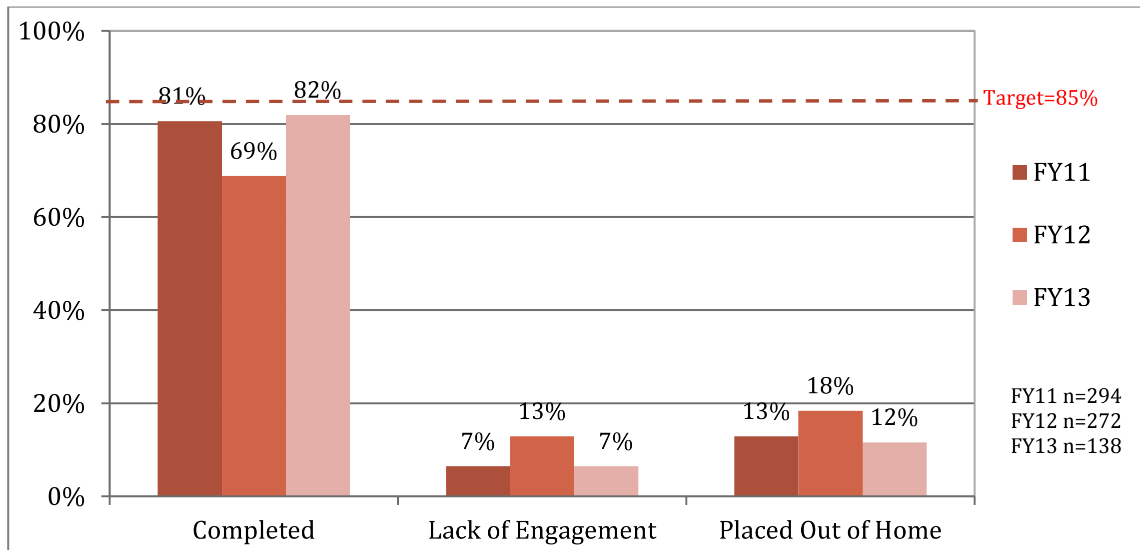
1. Did the youth and his/her family complete treatment (i.e., case progress)?
2. Were there sufficient changes in factors associated with problem behaviors (i.e., instrumental outcomes)?
3. How was the youth doing in three primary areas of functioning at discharge (i.e., ultimate outcomes)?

Each of these questions is addressed separately in this section.

Case Progress at Discharge

As shown in Figure 17, the majority of youth *completed* MST (82%, n=113). Though the completion rate fell just short of the 85% target in FY13, the current year represents a stark improvement from FY12, when 69% of discharged youth completed treatment. Twelve percent of youth were discharged due to being *placed out of home for a new event during treatment*, and 7% *had not engaged in treatment*; both of these outcomes were 2% higher than their respective MST target rates.

Figure 17. Discharge Reasons for Youth Discharged from MST, FY11-FY13



Bivariate analyses revealed that females were significantly more likely than males to complete MST (Figure 18). Other demographic characteristics of youth, including age and race/ethnicity, as well as their prior involvement with juvenile justice and the child welfare systems, were not significantly related to program completion. Variations by provider agency and jurisdiction can be found in Appendix 1.

Figure 18. Factors Related to Completing MST

Youth who completed MST were statistically <u>more likely</u> to:

- ✓ Be female

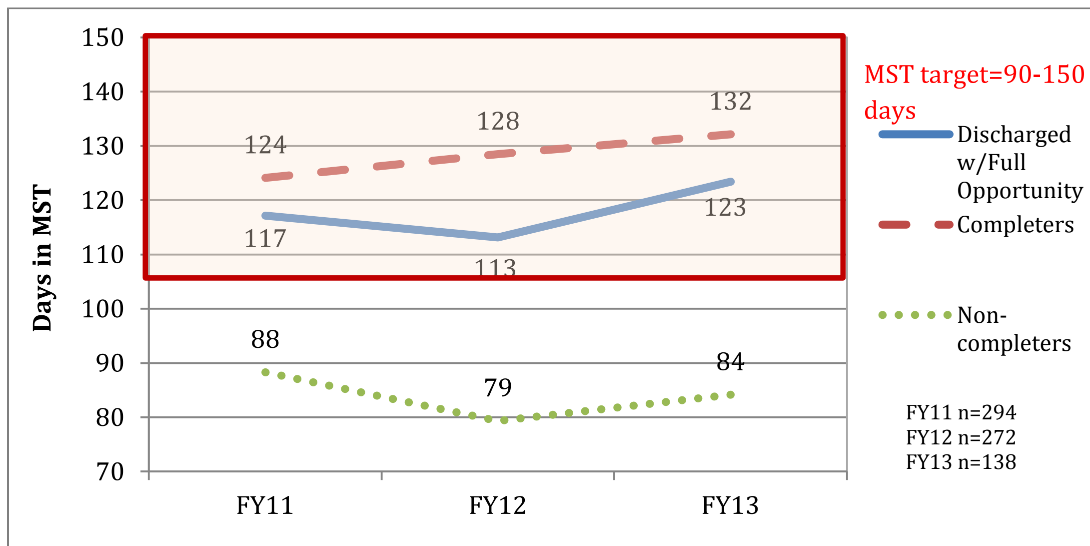
Completing MST was not statistically related to:

- x Race/ethnicity
- x Age at admission
- x Prior referrals to DJS
- x Prior DJS commitments
- x Prior DSS involvement

Length of Stay

The average length of stay (ALOS) in MST treatment was 123 days, which is well within the national purveyor's target of 90-150 days (Figure 19). The ALOS was significantly longer for youth who completed treatment (132 days) as compared to those who did not complete (84 days). The ALOS increased in FY13 compared to FY12.

Figure 19. Length of Stay in MST, FY11-FY13



The length of stay in MST was not statistically related to the youth characteristics examined in this report. That is, length of stay did not vary significantly by youth's age at admission, gender, race/ethnicity, prior DJS referrals, prior DJS commitments, or prior involvement with DSS.

Instrumental Outcomes at Discharge

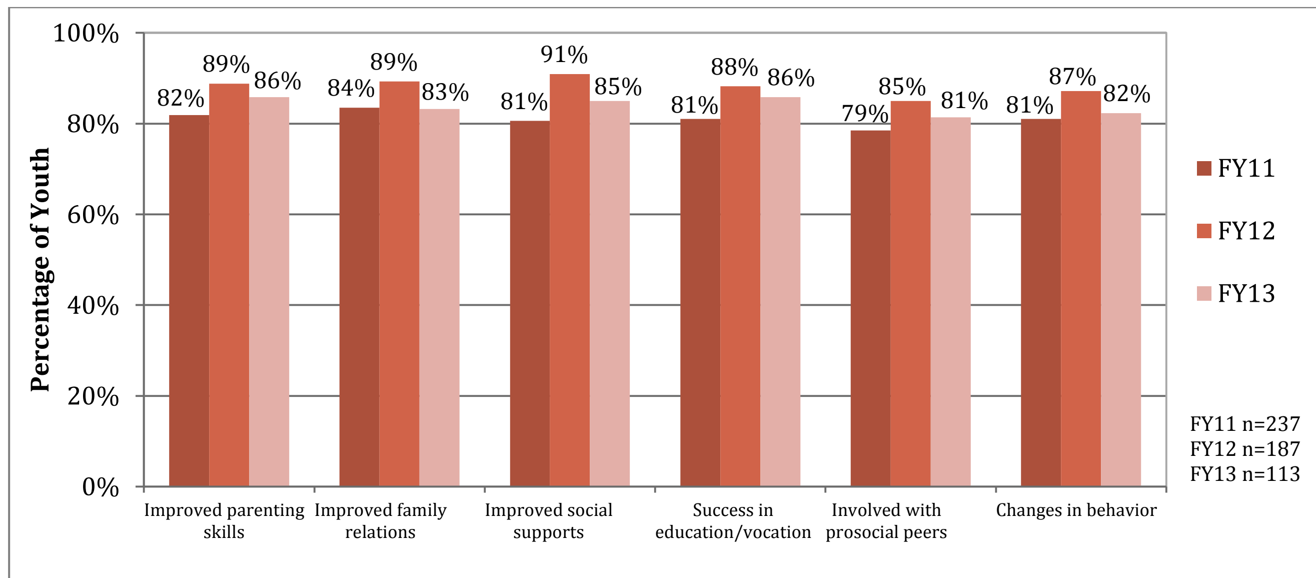
Even though most youth completed MST, the program's level of effectiveness could vary across youth. MSTI encourages the use of both instrumental and ultimate outcomes as a means to gauge the success of the program with each youth. Instrumental outcomes measure therapist-rated change in six target areas of treatment:

1) Primary caregiver(s) has improved the parenting skills necessary for handling subsequent problems;
2) Improved family relations related to drivers of the youth referral behavior;
3) Family has improved network of informal social supports in the community;
4) Youth is showing evidence of success in an educational or vocational setting;
5) Youth is involved with prosocial peers and activities and is minimally involved with problem peers; and
6) Changes in youth behavior and in the systems contributing to problems have been sustained for 3-4 weeks.

Changes or improvements in these areas are important to successful client functioning. Therapists are required to solicit feedback from schools, DJS case managers, and the youth and family to ensure valid reporting of these indicators. Ratings are also verified with the therapist's supervisor and MST Expert consultant.

Figure 20 shows the instrumental outcomes for youth who completed MST in Maryland for the past three years. There were slight declines for each outcome in the past fiscal year. Nonetheless, over 80% of the youth received a positive indication for each of the instrumental outcomes, and nearly three-quarters (72%) of youth showed improvement in all six domains.

Figure 20. Instrumental Outcomes for Youth who Completed MST, FY11-FY13



Ultimate Outcomes at Discharge

Three measures of success reported by the providers at discharge constitute the *ultimate outcomes*: (1) whether the youth was living at home; (2) whether the youth was attending school (e.g., not truant) or vocational training or working, if of the legally appropriate age; and (3) whether the youth had been arrested for a new offense since treatment had started. Other indicators of success include post-discharge outcomes, which are discussed in the next section.

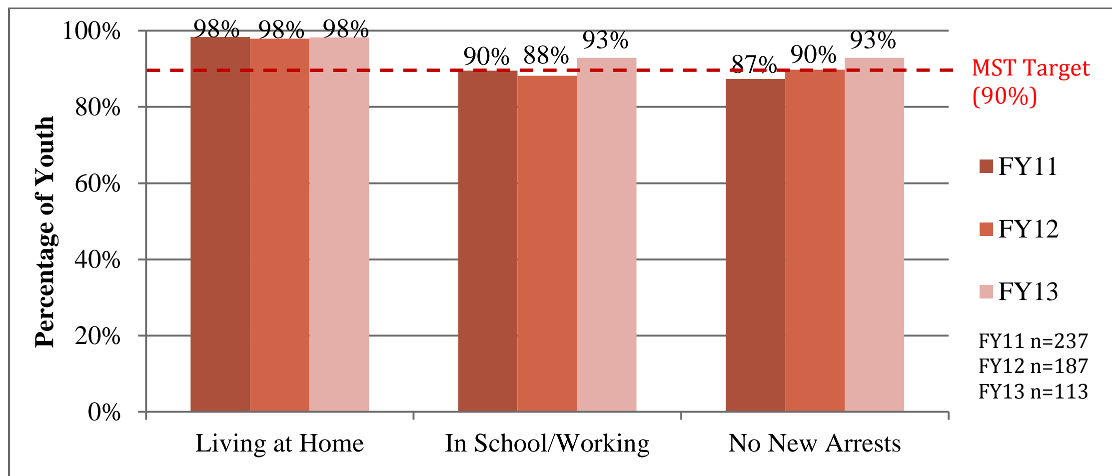
MSTI utilizes the MST Program Dashboard Rating Criteria to guide interpretation of the ultimate outcomes by delineating cut-off points to categorize ultimate outcome discharge data (Table 8). These categories are called *performance categories*, and are labeled *within target* (green), *needs monitoring* (yellow), and *area of concern* (red). Targets for each ultimate outcome are set according to findings from numerous clinical trials, or are based on recommended best practices. The use of the performance categories is intended to facilitate program monitoring and management and can help program managers and implementers identify which areas need to be targeted for improvement.

Table 8. MST Program Dashboard Rating Criteria

ULTIMATE OUTCOMES REVIEW	Target	**Within Target** Green Zone	**Needs Monitoring** Yellow Zone	**Area of Concern** Red Zone
Percent of youth living at home	90%	>88%	80-87.9%	<80%
Percent of youth in school/working	90%	>85%	75-84.9%	<75%
Percent of youth with no new arrests	90%	>85%	75-84.9%	<75%

Figure 21 shows improving trends, and positive results overall, in the ultimate outcomes for youth who completed MST in Maryland from FY11 through FY13. In the most recent year, the percentages of youth living at home (98%), in school/working (93%), and with no new arrests (93%) exceeded program targets (90%). Additionally, 88% of youth who completed MST in FY13 had positive results for all three ultimate outcomes. Notably, the likelihood of achieving all three outcomes was not significantly related to any of the youth characteristics examined in this report, such as age, race/ethnicity, or gender.

Figure 21. Ultimate Outcomes for Youth who Completed MST, FY11-FY13



DJS Involvement during Treatment

The ultimate outcomes are reported by MST therapists, who may not be aware of all youth contacts with law enforcement or the justice system. And not all contacts with the system may be the result of an arrest—youth may also be referred to DJS from other sources (e.g., school). According to DJS and DPSCS's data, 25% of youth had been referred to DJS/arrested while receiving MST in FY13 (of youth who completed MST)—compared with the reported 7% who had new arrests upon discharge. In addition, DJS data show that 18% of youth were admitted to a DJS detention facility during treatment.

Longitudinal Outcomes

Subsequent Involvement with the Juvenile and/or Criminal Justice System

Research has demonstrated that participation in MST is associated with a reduced risk for delinquency and criminal behavior. In order to assess these longitudinal outcomes, The Institute provided DJS and DPSCS with the name, gender, race/ethnicity, and date of birth of *all* youth who were discharged from MST in FY10, FY11, and FY12, and matches were identified in their respective databases. Following DJS' recidivism criteria, subsequent involvement with DJS and the adult criminal justice system were categorized as arrested, convicted, and incarcerated (see the insert for definitions). Youth who had been placed in secure juvenile residential facilities (e.g., detention, Youth Center) as of discharge from MST were excluded from the analysis (five youth in FY10, three youth in FY11, and two youth in FY12).[5]

Juvenile & Criminal Justice System Recidivism Measures

For the purposes of this report, subsequent involvement with the juvenile and criminal justice systems are combined and labeled as the following categories:

Arrested refers to any subsequent DJS referral or adult arrest.

Convicted refers to any juvenile complaint that is adjudicated delinquent at a judiciary hearing or any adult arrest that results in a guilty finding at a criminal court hearing.

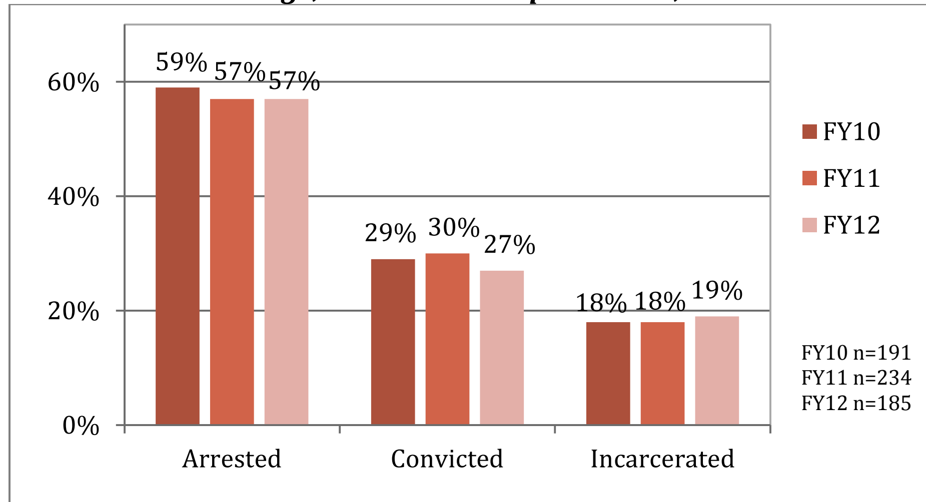
Incarcerated refers to any commitment to DJS custody as a result of a complaint that is adjudicated delinquent, as well as incarceration in the adult system that results from an adult arrest and conviction.

As shown in Figure 22, over half of youth who completed MST in FY10, FY11, and FY12 were subsequently arrested within one year of discharge (59% for the FY10, and 57% for the FY11 and FY12

[5] Because incarceration dates are not provided in the data attained from DPSCS, the analyses presented here cannot exclude youth who were in adult facilities at the time of their discharge from MST.

cohorts); however, far fewer youth were ultimately convicted (29% for FY10, 30% for FY11, and 27% for FY12) and incarcerated for these arrests within one year (18% for FY10 and FY11, and 19% for FY12). Notably, there was a slight decline in conviction rates for youth who completed in FY12 compared to those for the two prior discharge cohorts.

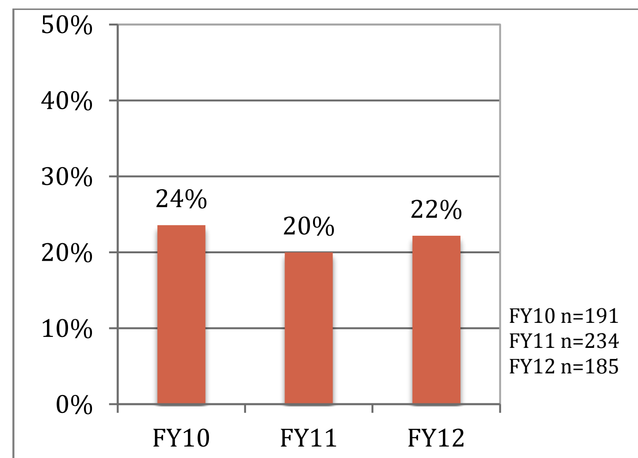
Figure 22. Juvenile and/or Criminal Justice Involvement within 12 Months Post-Discharge, Youth who Completed MST, FY10-FY12



According to bivariate analyses using FY12 completers, males and those with prior DJS commitments were significantly more likely than their counterparts to be arrested within one year post-MST discharge. Age, race/ethnicity, prior referrals to DJS, and prior DSS involvement were not statistically related to having a subsequent arrest.

New Residential Placement with DJS. Youth who are committed to DJS do not need to commit a new offense and be processed through the juvenile court in order to be placed in a residential facility. Consequently, more youth may be admitted to a new residential placement following discharge from MST than indicated by rates of commitment (shown above). Among youth who completed MST from FY10 through FY12, less than one-quarter were admitted to a residential placement[6] by DJS during the twelve months following treatment completion (Figure 23). Of the 185 youth who completed MST in FY12, 22% were admitted to a residential placement by DJS during the twelve months following discharge, compared with 20% of the 234 youth discharged in FY11 (Figure 23).[7] The most frequent types of placements included therapeutic and other group homes (39%; n=16), in-patient substance abuse programs (29%; n=12), and Youth Centers (17%; n=7).

Figure 23. New DJS Residential Placement within 12 Months Post-Discharge, Youth who Completed MST, FY10-FY12



[3]Residential placements include places such as Youth Centers, group homes, residential treatment facilities, treatment foster care, etc. It does not include detention.
[7]These percentages do not include youth who were residing in a secure facility at discharge from MST.

Subsequent Involvement with the Child Welfare System

The Institute also provided DHR with the names, dates of birth, and other demographic variables of all youth who were discharged prior to the last day of FY12. DHR researchers matched these youth in their state SACWIS (State Automated Child Welfare Information System) system known as CHESSIE (Children's Electronic Social Services Information Exchange) to retrieve information about contact with the child welfare system post-MST discharge. Overall, 5% of the 187 youth who completed MST in FY12 had some form of new DSS contact within twelve months of discharge; three (2%) youth had a new investigation, six (3%) youth began receiving in-home services, and only one (1%) youth was placed out-of-home within twelve months of discharge from MST (Table 9).

Table 9. DSS Involvement within 12 Months Post-Discharge, Youth who Completed MST, FY10-FY12

	FY10	FY11	FY12
Total Number of Youth	196	237	187
New DSS Involvement	17 (9%)	13 (6%)	9 (5%)
Investigation	8 (4%)	6 (3%)	3 (2%)
In-Home Service	9 (5%)	10 (4%)	6 (3%)
Out-of-Home Placement	3 (2%)	2 (1%)	1 (1%)

Cost Analysis

MST provides an opportunity to not only help youth but to save money when it can be used to prevent the costs of more expensive placements. The costs of serving youth with MST (DJS-funded youth only) were compared with the costs for placing youth in different types of DJS residential care in FY13 (Table 10). The average per diem cost of MST was $110 compared to an average of $210 for group homes, $274 for staff-secure facilities, and $531 for hardware-secure facilities. While the average costs per stay were over $43,000 for group homes, nearly $34,000 for staff-secure facilities, and almost $84,000 for hardware-secure facilities, the average cost per MST intervention per child was approximately $13,500.

Table 10. Cost Comparison: MST versus Other DJS Residential Placements, FY13

	Average Length of Stay / Treatment (Days)	Per Diem Cost	Average Cost per Stay / Treatment
MST	123	$110	$13,473
Group Homes	206	$210	$43,283
Staff-Secure Facilities	123	$274	$33,573
Hardware-Secure Facilities	157	$531	$83,535

Notes: (1) Calculations for Group Homes, Staff Secure, and Hardware Secure facilities are based on data provided by DJS; these data include only DJS facilities in Maryland. (2) Per diem costs include ongoing training and fidelity monitoring costs; costs for educational services have been subtracted from Staff Secure and Hardware Secure Facility costs.

FY13 MST Implementation in Maryland: Successes & Challenges

Utilization

- The percentage of referred youth who started MST has remained relatively stable since FY11 (62% in FY11 and FY12, 64% in FY13). Youth who started MST in FY13 were significantly more likely to be Caucasian/White, to be funded by DJS or DSS, and to have one more prior DJS referrals.
- The average utilization rate for both funded and active MST slots was 82%. Although improving, utilization continues to fall short of the 90% target for the state. Referral agencies and MST providers should continue frequent and consistent communication to track and maintain referral flow based on current openings and upcoming discharges.
- The percentage of referrals not admitted to MST because the family could not be contacted decreased from 29% in FY12 to 13% in FY13. Yet, obtaining youth/family consent remains an issue, accounting for 28% of the cases that did not start this fiscal year. This suggests a continued need for referral sources and MST providers to work together to enhance family engagement and to educate parents on the goals of the program prior to referral.
- The global admission length has increased over time, and, on average, youth and families started treatment 16.6 weekdays after being referred in FY13. Global admission lengths were significantly longer for Hispanic/Latino youth compared to Caucasian/White and African American/Black youth, and time from referral to admission was also significantly longer for youth who had no prior involvement with DJS, largely as a function of their slots being funded by CCIF.
- A larger number of youth were placed on the waitlist in FY13 than in FY12, and the percentage of youth who were placed on the waitlist and ultimately did not start MST also increased this year, from 41% to 47%. Youth who were not waitlisted were significantly more likely to be admitted to MST than those who were placed on the waitlist.

Fidelity

- The percentage of families with at least one completed *Therapist Adherence Measure* (TAM-R) form declined slightly in FY13, and the target of 100% completion has not been met for the past three fiscal years. Among the families with at least one completed TAM-R, the average adherence score was .79, which is well above the MST target score (.61). MST vendors should continue working closely with the MST expert at The Institute to systematically carry out improved engagement strategies to better support the process.
- Although the average length of stay in MST treatment was within the purveyor's target range in FY13, it increased by 10 days over the average for FY12.

Outcomes

- Though just short of the 85% target, the majority of discharged youth completed MST (82%) in FY13, which represents a stark improvement as compared with youth discharged in FY12. Female youth were more likely than males to complete treatment; reasons for these results should be explored.
- Despite minor decreases across each of the six instrumental outcomes in FY13, more than 80% of youth who completed MST achieved positive results for each outcome. Additionally, 72% of youth who completed treatment showed positive results in all six outcome areas.
- For the first time in the last three fiscal years, MST completers exceeded the 90% target zone on each of the ultimate outcomes (i.e., living at home, in school/working, and no new arrests at discharge);

and 88% of youth who completed treatment achieved success for all three of the outcomes as of discharge. Females and youth with no prior DJS referrals were significantly more likely to achieve positive results on all three ultimate outcomes than their respective counterparts; reasons for these results should be explored.

- Involvement with the juvenile and/or criminal justice systems during the twelve months post-discharge has remained relatively stable among FY10, FY11, and FY12 completers, but arrest rates remain high. Twenty-two percent of youth who completed MST in FY12 were subsequently placed in a committed residential facility—roughly the same share as the two prior fiscal years.
- Very few youth who completed MST in FY12 (5%) had new involvement with DSS in the year following discharge.

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