MULTISYSTEMIC THERAPY IN MARYLAND: FY2014 IMPLEMENTATION REPORT

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EXECUTIVE SUMMARY

Multisystemic Therapy (MST) is one of five prioritized evidence-based practices chosen by Maryland's Children's Cabinet with the goals of providing empirically-supported community-based services that address key youth outcomes and reducing the use of costly out-of-home placements. Since 2007, The Institute for Innovation & Implementation has supported MST implementation in Maryland, providing technical assistance and data reporting to providers and stakeholders. The following report summarizes MST utilization, fidelity, outcomes, and costs across the State for fiscal year (FY) 2014.

FY14 Data Highlights

Utilization

- MST was available in five jurisdictions throughout Maryland. Based on FY14 funding capacity, Maryland could serve an estimated 180 youths in MST annually. The average Statewide utilization of MST slots was 81%.
- 278 youths were referred to MST in FY14. The majority of referrals were made by the Department of Juvenile Services (DJS; 80%). Of those youth referred, only 46% started treatment, which was a decrease from FY13 (63%). Issues with obtaining youth/family consent for treatment and youth availability were the primary reasons youth did not start MST.
- Of the 135 youths who started MST, the majority was African American/Black (60%) and male (71%), and the average age was 15.6 years old. Most youth (85%) were involved with DJS prior to starting MST, and these youth had considerable delinquency histories—on average, youth had five prior complaints filed with DJS. In addition, 41% of youth had been previously involved with the child welfare system.

Fidelity

- 80% of youth and families with completed Therapist Adherence Measure-Revised (TAM-R) forms were treated by a therapist with an average adherence score above the .61 target.

Outcomes

- 128 youths were discharged from MST with the opportunity for a full course of treatment in FY14, and **77%** of these youth completed treatment—a slight decline from the previous fiscal year.
- Of youth who completed MST in FY14, at the time of discharge: **99%** were living at home; **96%** were in school/working; and **95%** had no new arrests.
- Of youth who completed MST in FY13, as of one year post-discharge: **49%** did not have a new DJS referral/ arrest; **74%** did not have a new adjudication/conviction; and **93%** had not been committed/incarcerated. Additionally, **80%** had not been placed in a new committed residential placement with DJS.
- Only **4%** of youth who completed MST in FY13 had any new involvement with the child welfare system within one year.

Costs

- The average cost of service delivery for providing MST in Maryland, including training, coaching, and implementation data monitoring in addition to provider costs, was $12,764 per youth.

Introduction

Purpose of this Report

Multisystemic Therapy (MST) is a widely-recognized evidence-based practice (EBP) that is 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 improving outcomes for youth and families and serving youth in their homes, thereby reducing out-of-home placements.

The Institute for Innovation & Implementation (The Institute) collects and analyzes data to monitor and support MST implementation in Maryland. This report provides a summary of MST implementation across the State as of fiscal year (FY) 2014. 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 acknowledges 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, 2015). 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 primary goals of MST include reducing anti-social behavior, and thereby risk of out-of-home placement, by improving youth and family functioning while maximizing community-based resources and supports. Ample research demonstrates 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). Table 1 summarizes MST's ratings on four nationally-recognized EBP registries. For additional information on MST, please go to www.mstservices.com.

Table 1. MST Ratings on National EBP Registries*

EBP Registry	MST Rating(s)
Blueprints for Healthy Youth Development www.blueprintsprograms.com	Model Program
California Evidence-Based Clearinghouse for Child Welfare www.cebc4cw.org	1: Well-Supported by Research Evidence *(reviewed June 2013)*
SAMHSA's National Registry of Evidence-Based Programs & Practices (NREPP) www.nrepp.samhsa.gov	*Quality of Research*** *(reviewed March 2007):* Monetary benefit-to-cost advantage: 3.3† Post-treatment arrest rates: 2.9 Long-term arrest rates: 3.0 Long-term incarceration rates: 3.1 Self-reported criminal activity: 3.2 Alcohol and drug use: 3.0 Perceived family functioning-cohesion: 3.0 Peer aggression: 3.1 *Readiness for Dissemination*** *(reviewed March 2007):* Implementation Materials=4.0 Training & Support Resources=4.0 Quality Assurance Procedures=4.0 Overall Rating=4.0
Office of Justice Programs' CrimeSolutions.gov www.crimesolutions.gov	Effective Program

*Ratings as of November 2014. **The scales range from 0 to 4. †Reviewed April 2012.

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's tools and guidance to support MST implementation across Maryland. In addition to monitoring MST utilization, fidelity, and outcomes, 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: Daniel's Story

Daniel was referred to MST to help address his behavioral problems, which included physical aggression, suspected substance abuse, and non-compliance at school. Daniel, his father, and the MST therapist worked together to reduce Daniel's aggressive behavior by identifying triggers, developing several de-escalation strategies, and increasing the positive relationship between father and son. The MST therapist provided Daniel with substance abuse psychoeducation and drug testing, and the therapist gave Daniel's father instructions on where to purchase and how to administer urinalysis tests. After determining that Daniel's pattern of skipping classes resulted from his inability to understand class materials, he was moved into a smaller class, and the school is working with Daniel and his father to find a school that will be better suited to address his needs. Daniel's father's commitment to advocating for his son's education, as well as Daniel's own attitudes toward school, has also improved.

Assessing MST Utilization and Outcomes

The data presented in this report are drawn primarily from youth-level data routinely collected 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 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 2). 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 delinquent behaviors, reducing the frequency and number of days spent in out-of-home placements, and improving family functioning (Henggeler et al., 2009).

Table 2. MST Outcomes 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
Post-Discharge 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 FY14. Where possible, data are presented and comparisons are drawn for previous fiscal years. Refer to Appendix 1 for FY14 descriptive data presented by funding source, provider, and jurisdiction.

[1] Fidelity data are collected through MSTI.

Where was MST Offered in Maryland?

During FY14, MST was implemented in five jurisdictions[2] in Maryland, including Baltimore, Frederick, Montgomery, Prince George's, and Washington Counties (Figure 1). Three providers—Community Counseling & Mentoring Services, Inc., Community Solutions Inc., and Way Station, Inc.—administered MST for an estimated annual capacity to serve 180 youths;[3] there were no changes in capacity from FY13. Across the State, MST was funded by DJS, a local Department of Social Services (DSS), and the Children's Cabinet Interagency Fund (CCIF); funding sources varied by jurisdiction (see Table 3).

Figure 1. MST Availability in Maryland, FY14

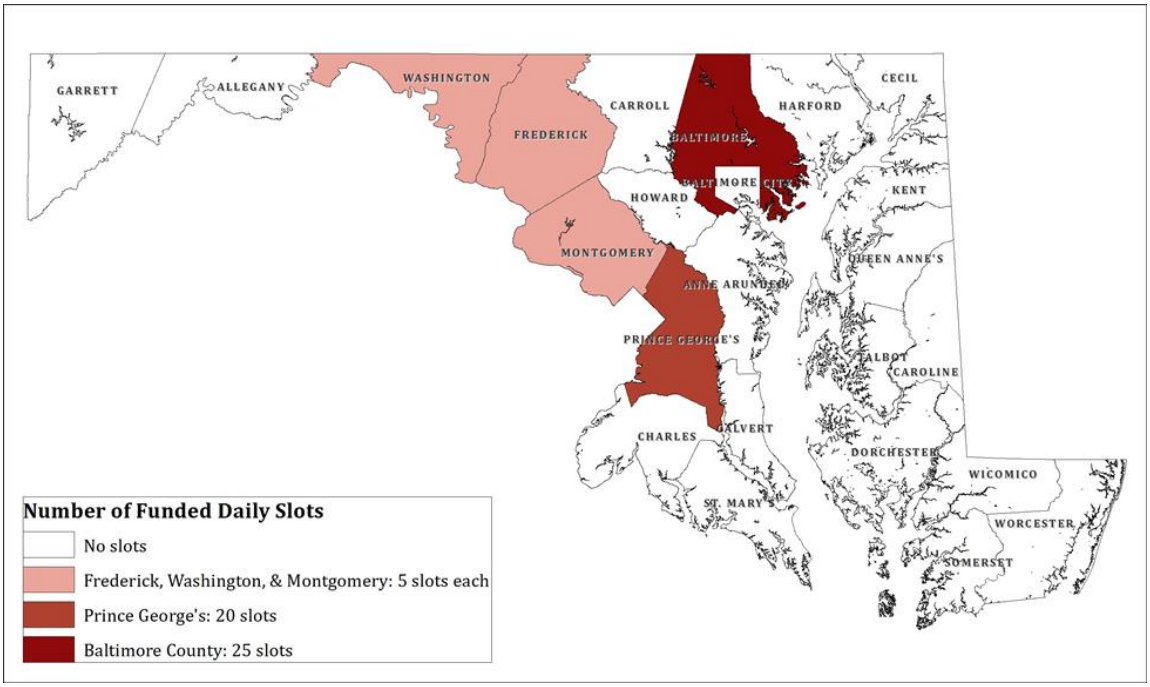


Table 3. MST Provision & Funding Sources in Maryland, FY14

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

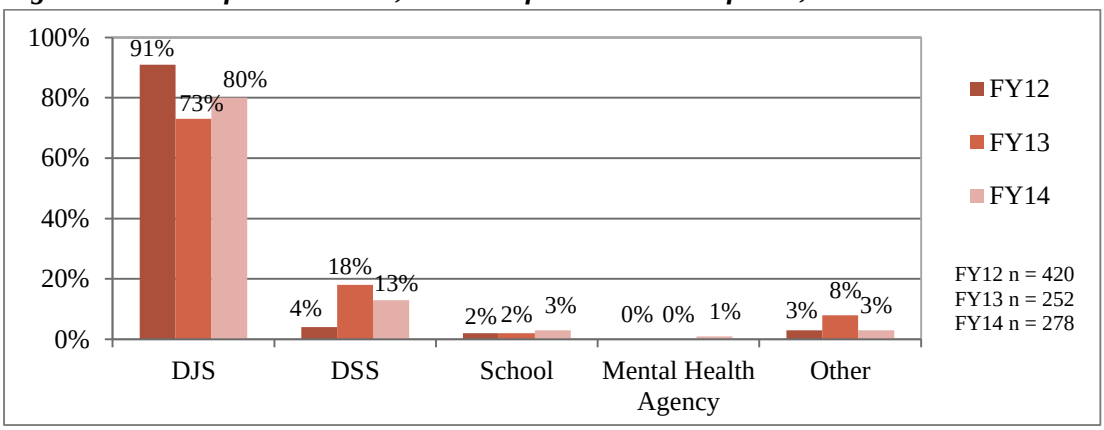
[2] Jurisdictions in Maryland refer to all Counties as well as Baltimore City.

[3] The estimated annual capacity is based on the average number of slots funded by DJS, DSS and CCIF during FY14 (n=60). It assumes that each youth will remain in MST for an average length of stay of 120 days (the targeted range is 90 to 150 days), and that three youths 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 FY14, the majority of the 278 referrals were made by DJS (80%), followed by DSS (13%), schools (3%), and other sources (3%; Figure 2).[4] DJS has been the principal referral source in Maryland for the past several years.

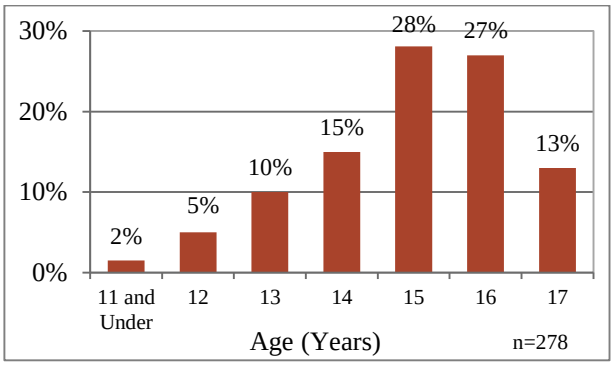
Figure 2. MST Referral Sources, Percent of Total Youth Referred, FY12-FY14



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 FY14, nearly all (98%) referred youth met the age criteria, with 68% between the ages of 15 and 17 years old (Figure 3). The average age at referral was 15.5 years old (Table 4).

Figure 3. Ages, Percent of Youth Referred to MST, FY14



In FY14, 69% of referred youth were male and 31% were female. The proportion of female referrals has been increasing since FY12, when girls represented 22% of the referral population. Racial/ethnic characteristics of referred youth have also changed over time. While the proportion of referred Caucasian/White youth has increased slightly over the past three fiscal years (from 13% in FY12 to 17% in FY14), the percentage of African American/Black referrals dropped from 80% to 68% between FY12 and FY14, and the percentage of Hispanic/Latino referrals more than doubled from FY13 to FY14.

Table 4. Demographic Characteristics of Youth Referred to MST, FY12-FY14

	FY12	FY13*	FY14
Total Number of Youth	420	252	278
Male	78%	71%	69%
Female	22%	29%	31%
African American/Black	80%	73%	68%
Caucasian/White	13%	16%	17%
Hispanic/Latino	6%	7%	14%
Other	1%	4%	1%
Average Age (s.d.)	16.1 (1.3)	15.7 (1.5)	15.5 (1.4)

*Demographic characteristics were not reported for one youth who was referred in FY13.

[4] Other sources included parents/families, internal agency, and other.

Referred Youth Who Did Not Start MST

Not all youth referred to MST start treatment (i.e., had a first visit, treatment consent is signed by the family). 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. More than half (54%) of youth referred in FY14 did not start MST (Figure 4)—a higher proportion than previous years (39% in FY12 and 37% in FY13). Slightly more than half (52%, n=78) of the 149 youths who did not start MST in FY14 were ineligible for treatment (Figure 5). This represents a shift from the two prior fiscal years, when larger numbers of youth who did not start were deemed eligible for treatment.

Figure 4. Percent of Referred Youth Who Started MST, FY12-FY14

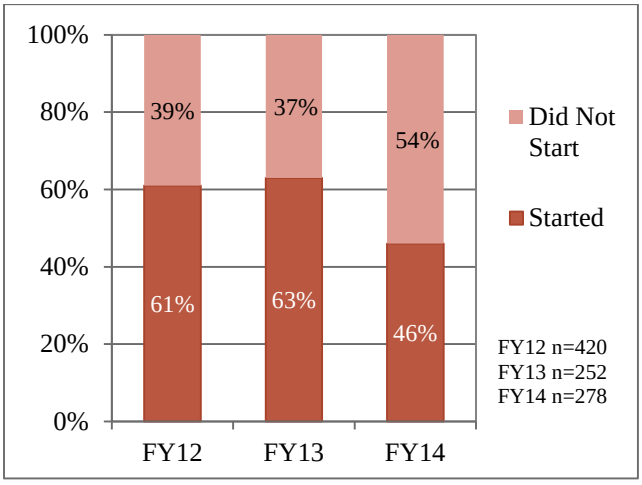


Figure 5. Number of Youth Who Did Not Start MST by Eligibility, FY12-FY14

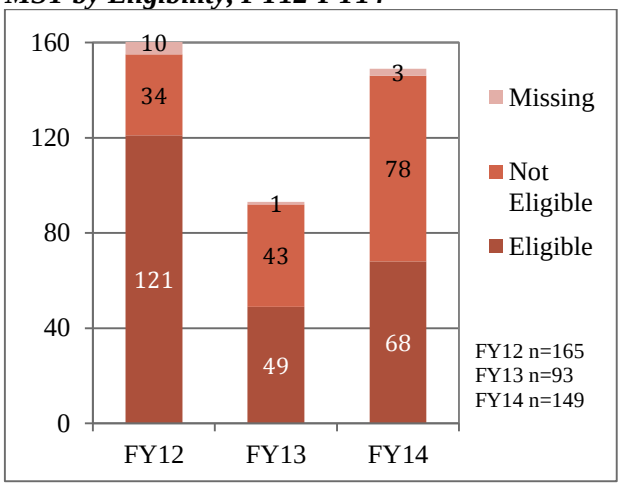


Figure 6 lists the reasons for not starting MST, which are indicated by the providers. These reasons are closely monitored over time as they offer important information about how to improve the referral process, including how to increase appropriate referrals and decrease barriers to treatment engagement. Ultimately, utilization is highly dependent on a sufficient flow of referrals for eligible youth and families who could benefit from MST.

Figure 6. Reasons for Not Starting MST

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

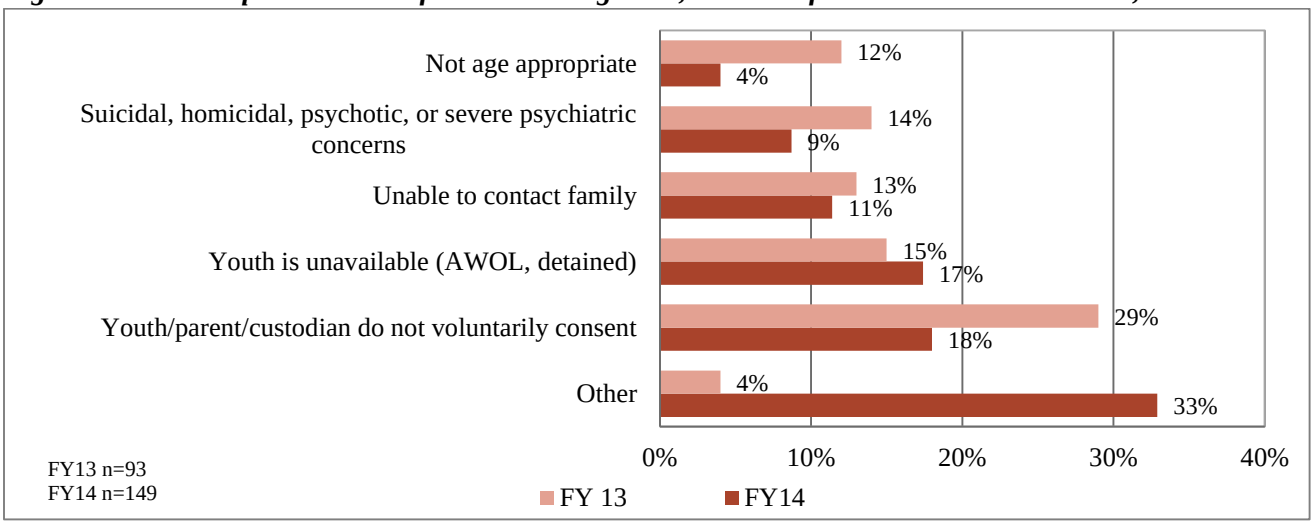
- Age appropriateness;
- Youth is living independently;
- Primary concerns related to suicidal, homicidal, psychotic, or severe psychiatric behaviors;
- Juvenile sex offender;
- Pervasive developmental delays; or
- Unavailable (AWOL, detained).

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.

Figure 7 shows the most frequent reasons that youth did not start MST in FY13 and FY14. Most noticeably, providers cited "other" as the reason for not starting in one-third (33%, n=49) of cases in FY14; in 21 (43%) of these cases, the referred youth was indicated as not having behavioral problems severe enough to warrant MST. More consistent with FY13, the other most frequent reasons for youth not starting MST in FY14 were *youth/parent/custodian do not voluntarily consent* (18% vs. 29% in FY13), followed by *youth is unavailable* (17% vs. 15%) and *unable to contact the family* (11% vs. 13%).

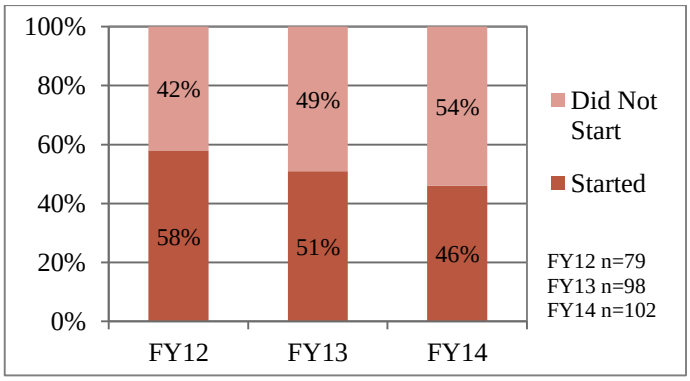
Figure 7. Most Frequent Reasons for Not Starting MST, Percent of Youth Who Did Not Start, FY13-FY14



Waitlisted Youth

Only one MST provider utilized a waitlist over the past two years. In FY14, 102 youths were placed on the waitlist—up slightly from 98 in FY13. Nearly all (99%) of the FY14 waitlist placements resulted from the program being at capacity.[5] The percentage of youth who were placed on the waitlist and ultimately did not start MST increased this year, from 49% in FY13 to 54% in FY14 (Figure 8).

Figure 8. Percent of Waitlisted Youth Who Started MST, FY12-FY14

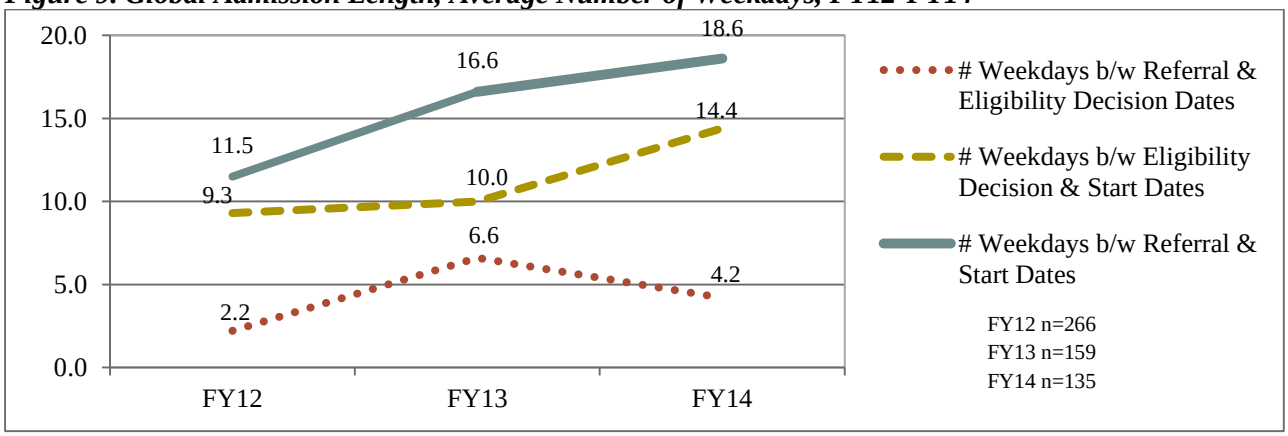


Youth Who Started MST

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*.

Figure 9. Global Admission Length, Average Number of Weekdays, FY12-FY14

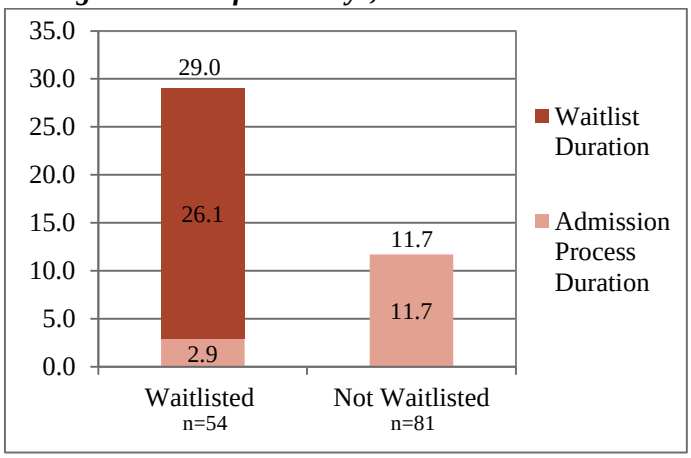


[5] Waitlist reasons were not standardized until FY14; future reports will include comparisons across fiscal years.

The average global admission length increased over the past three years, from approximately 12 weekdays in FY12 to nearly 19 weekdays in FY14 (Figure 9). Although providers generally made an eligibility decision within four weekdays of receiving the referral in FY14 (compared to seven weekdays in FY13), there was an increase in the amount of time between the eligibility decision and the start of treatment, from 10 weekdays in FY13 to approximately 14 weekdays in FY14.

Among the 135 youths who started MST in FY14, 54 (40%) were temporarily placed on the waitlist.[6] As shown in Figure 10, waitlisted youth took an average of 29 weekdays to enter treatment, while non-waitlisted youth took an average of 12 weekdays.

Figure 10. Global Admission Length by Waitlist Status, Average Number of Weekdays, FY14



There were a number of statistical differences in the global admission length by subgroups of youth (see Table 5; only significant differences shown), as well as differences across agencies and jurisdictions (Appendix 1). Consistent with the previous discussion, those youth placed on the waitlist experienced a significant delay in the start of services compared to non-waitlisted youth. In addition, African American/Black youth (20.9 weekdays) and youth of "other" races/ethnicities (27.6) waited for substantially longer periods than Caucasian/White youth (8.3) to start services. And similar to previous years, global admission length varied significantly by funding source.

Table 5. Statistically Significant Differences in Global Admission Length (GAL; weekdays)

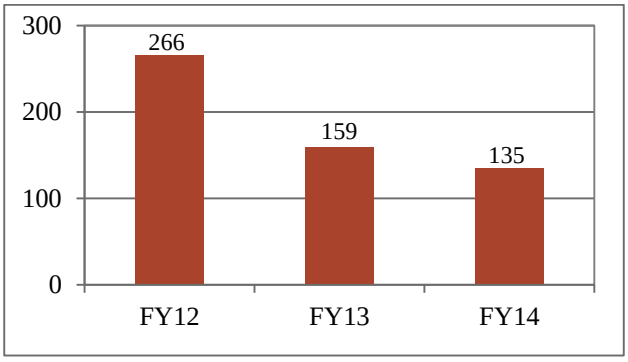
Factor	Shorter GAL	Longer GAL
Race/Ethnicity	Caucasian/White (8.3)	African American/Black (20.9) Other (27.6)
Funding Source	DHR/DSS (13.2) DJS (16.3)	CCIF/LMB (40.6)
Waitlisted	No (11.7)	Yes (29.0)

Utilization

A total of 135 youths started MST in FY14. As shown in Figure 11, the number of youth who started has been decreasing since FY12 (n=266). The large decline from FY12 to FY13 is due in part to the closing of one MST program in FY13.

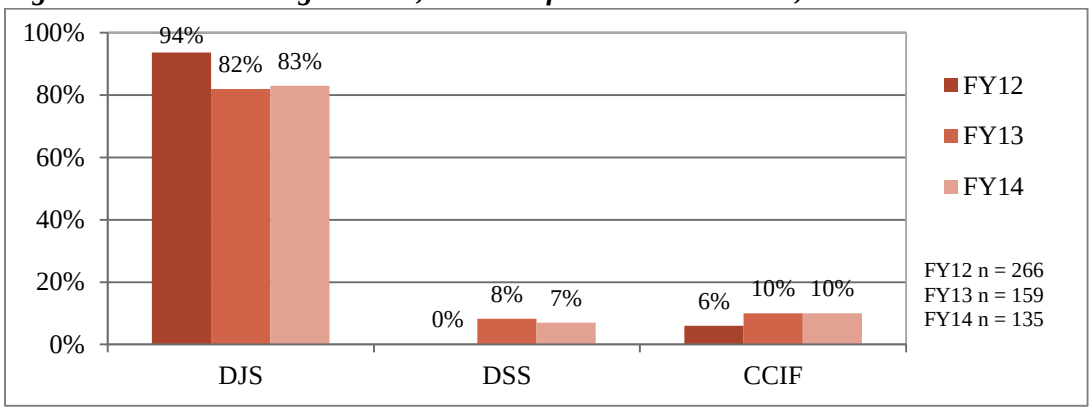
DJS has been the primary funding source for MST for the past few years; accordingly, the majority of youth who started MST in FY14 were funded by DJS (83%), followed by CCIF (10%) and DSS (7%; Figure 12).

Figure 11. Number of Youth Who Started MST, FY12-FY14



[6] Data regarding waitlist duration were not collected prior to FY14.

Figure 12. MST Funding Sources, Percent of Youth Who Started, FY12-FY14



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.

In FY14, DJS, CCIF, and DSS collectively funded a daily capacity of 60 MST slots across Maryland (Table 6). On average, 58 of these slots were "active", or available to youth and families for treatment. The average daily census of youth served by MST was 47; thus, on average, 78% of funded slots, or 81% of active slots, were utilized. Both of these percentages represent slight declines from FY13, when the average statewide utilization of both funded and active slots was 82%.

Table 6. MST Utilization, FY12-FY14

	FY12	FY13	FY14
Avg. Number of Funded Slots	113	60	60
Avg. Number of Active Slots	110	60	58
Avg. Daily Census	85	49	47
Avg. Utilization of Funded Slots	75%	82%	78%
Avg. Utilization of Active Slots	77%	82%	81%

Characteristics of Youth Who Started MST

Most youth who started MST in FY14 were between the ages of 15 and 17 years old (70%; Figure 13), and the average age was 15.6 years old. The majority of youth were male (71%) and African American/Black (60%; Table 7).

The characteristics of youth who started MST have changed somewhat over time. A smaller proportion of these youth were African American/Black and greater proportions were Caucasian/White and Hispanic/Latino in FY14, relative to previous years. Additionally, females comprised a larger proportion of youth who started in FY14 than in prior years.

Figure 13. Ages, Percent of Youth Who Started MST, FY14

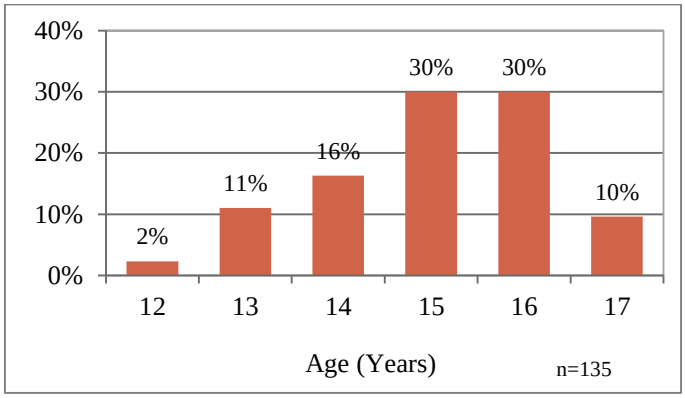
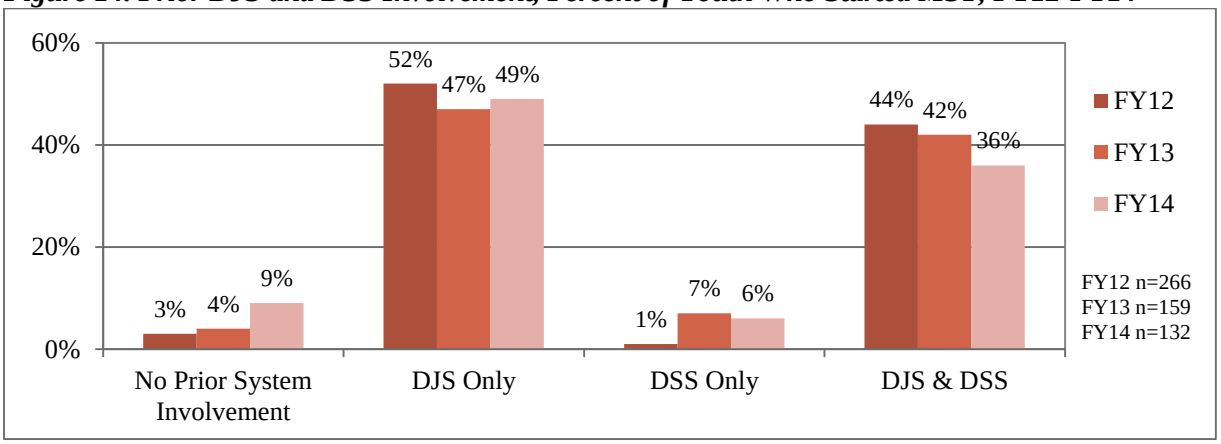


Table 7. Demographic Characteristics of Youth Who Started MST, FY12-FY14

	FY12	FY13	FY14
Total Number of Youth	266	159	135
Male	79%	73%	71%
Female	21%	27%	29%
African American/Black	77%	69%	60%
Caucasian/White	17%	20%	26%
Hispanic/Latino	5%	6%	12%
Other	2%	6%	2%
Average Age (s.d.)	16.0 (1.2)	15.8 (1.4)	15.6 (1.2)

The majority (91%) of youth who started MST in FY14 were previously or currently involved with DJS and/or DSS. Over one-third (36%) had some form of previous involvement with both systems prior to treatment (Figure 14); this proportion has been gradually declining since FY12, when 44% of youth had prior involvement with both DJS and DSS.

Figure 14. Prior DJS and DSS Involvement, Percent of Youth Who Started MST, FY12-FY14



Involvement with the Juvenile Justice System

In FY14, 85% of youth who started MST had at least one prior complaint filed with DJS (Table 8). This represents a decrease from previous years, when the percentages of youth with any prior complaints were 89% or more. Of those with previous DJS involvement, youth had, on average, five prior complaints, and their average age at first complaint was 13.7 years old. Seventeen percent of youth had at least one prior committed residential placement with DJS, and this subset of youth averaged 1.4 prior placements.

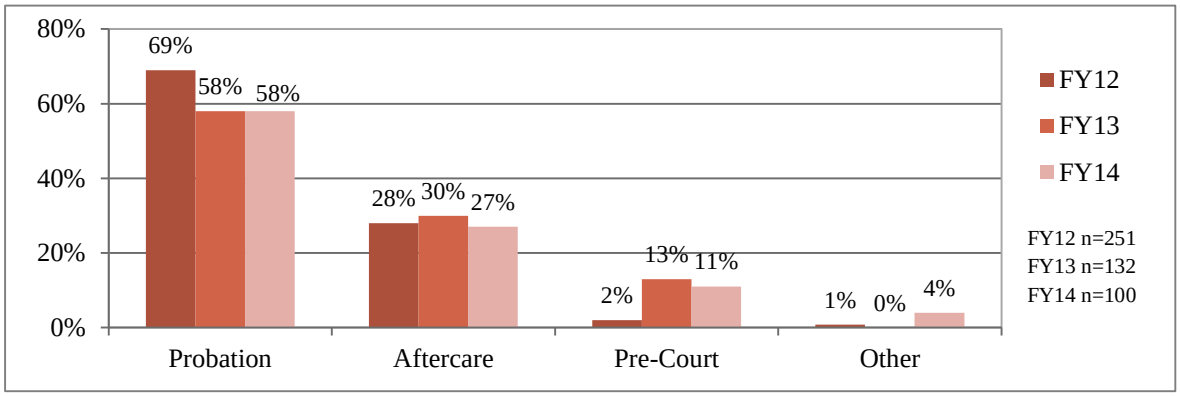
Table 8. Prior DJS Involvement, Youth Who Started MST, FY12-FY14

	FY12	FY13	FY14
Total Number of Youth	266	159	132
Any Prior DJS Complaints	96%	89%	85%
Avg. # of Prior DJS Complaints (s.d.)	5.3 (3.8)	4.8 (4.3)	5.2 (4.4)
Avg. Age at First DJS Complaint (s.d.)	13.7 (1.8)	13.8 (1.9)	13.7 (1.7)
Any Prior DJS Committed Residential Placements	20%	21%	17%
Avg. # of Prior DJS Committed Residential Placements (s.d.)	1.7 (1.4)	1.3 (0.6)	1.4 (0.7)

Just over three-fourths (76%) of youth were actively involved with DJS when they started MST—a decrease from prior fiscal years (94% in FY12; 83% in FY13). The type of DJS involvement/supervision has changed somewhat over time, as some jurisdictions broadened MST availability to youth at DJS intake (Figure 15). In the most recent reporting year, 58% of these youth were under probation, 27% aftercare (i.e., committed to DJS), 11% pre-court,

and 4% other supervision.[7] Of youth under probation or aftercare supervision, 18% were also involved, at some point during the course of treatment, 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, ten youths (12% of youth under aftercare or probation supervision) had been released from a committed residential placement within 30 days of starting MST.

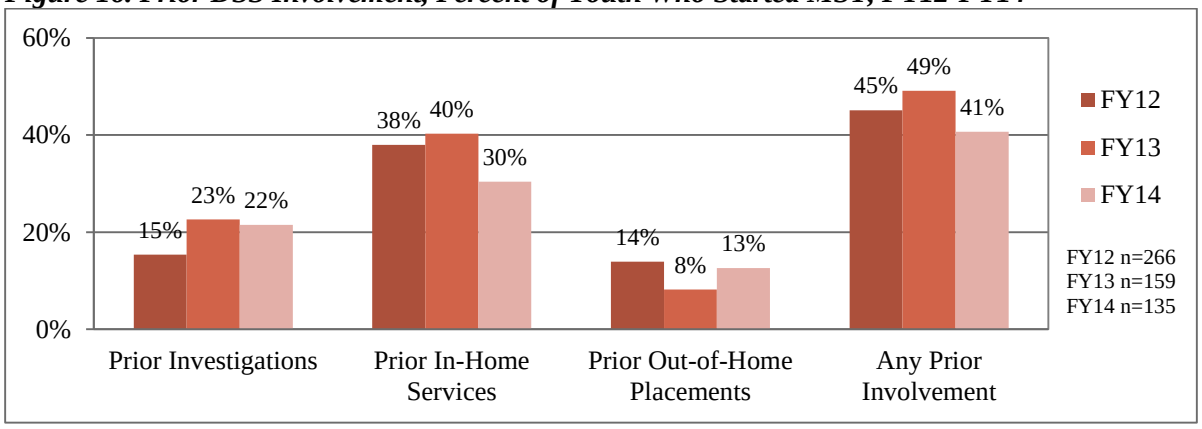
Figure 15. DJS Supervision Type, Percent of DJS-Involved Youth Who Started MST, FY12-FY14



Involvement with the Child Welfare System

Of the 135 youths who started MST in FY14, 55 (41%) had some form of prior contact with DSS (Figure 16). Prior to being referred to MST, 29 youths (22%) were part of a prior DSS investigation, 41 youths (30%) had received in-home services, and 17 youths (13%) had been placed out-of-home.[8] On average, youth were 7.0 years old at the time of their first in-home service and 6.8 years old at the time of their first out-of-home placement.[9] The overall proportion of youth with any prior DSS involvement declined from FY13.

Figure 16. Prior DSS Involvement, Percent of Youth Who Started MST, FY12-FY14



[7] Pre-Court supervision occurs at intake when a youth and his/her family enter into an agreement with DJS to undergo counseling and/or informal DJS supervision without the involvement of the court. "Other" is largely comprised of youth under administrative supervision; these youth are often transitioned into probation or aftercare supervision.

[8] DSS investigations include cases that were indicated or unsubstantiated; because unsubstantiated cases can be expunged after 5 years, the number of investigations reported in this analysis may be under-counted.

[9] Average age excludes youth whose age was a negative value.

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 17. 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 complaints, and those whose treatment was funded by DJS or DSS. Also, rates of starting MST varied substantially by provider agency and jurisdiction; these data can be found in Appendix 1.

Figure 17. Factors Related to Youth Starting MST in FY14

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

- ✓ Be Caucasian/White
- ✓ Have DJS or DSS funding for MST
- ✓ Have prior DJS complaints

Starting MST was not statistically related to:

- x Gender
- x Age at the time of referral
- x Having prior DJS committed residential placements
- x Having prior DSS involvement
- x Being placed on the waitlist

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)*. The Institute regularly compiles and reports TAM-R data; SAM data will be included in future reports.

The 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 <u>target</u> therapist adherence score is .61, which has been associated with good outcomes for families in clinical research.

MST teams are expected to collect at least one TAM-R for 100% of families served. Though this target has not been met for the past three fiscal years, TAM-R completion rates improved from 88% in FY12 and FY13 to 93% in FY14 (Figure 18). In FY14, a total of 564 TAM-R forms were completed and collected from 167 families, with an average adherence score of .79 (Figure 19). Comparable to FY13 (82%), 80% of the families with completed TAM-R forms in FY14 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 for many years, these results should be interpreted with caution since the TAM-R is not being completed for all families.

Figure 18. Percent of Families Completing at Least One TAM-R Form, FY12-FY14

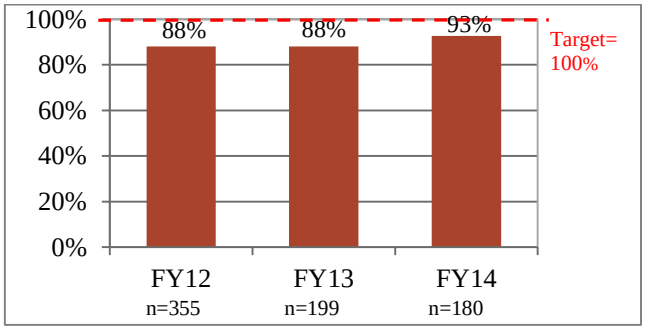
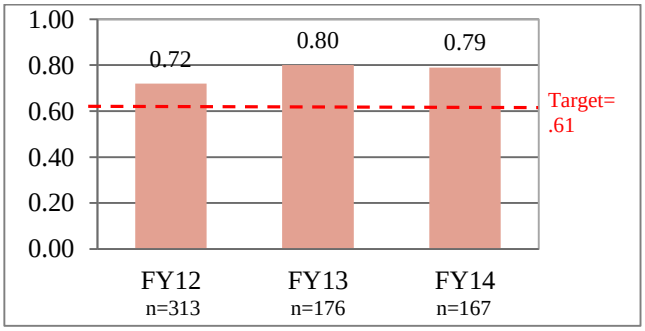


Figure 19. Average Therapist Adherence Score, FY12-FY14



MST Discharges & Outcomes

Of the 141 youths who were discharged from MST in FY14, 128 (91%) had the *opportunity for a full course of treatment.* The remaining 9% of cases did *not have the opportunity for a full course of treatment* (note that these cases are not included in subsequent analyses).[10] The specific discharge reasons falling under each category are listed in Figure 20.

Figure 20. 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:

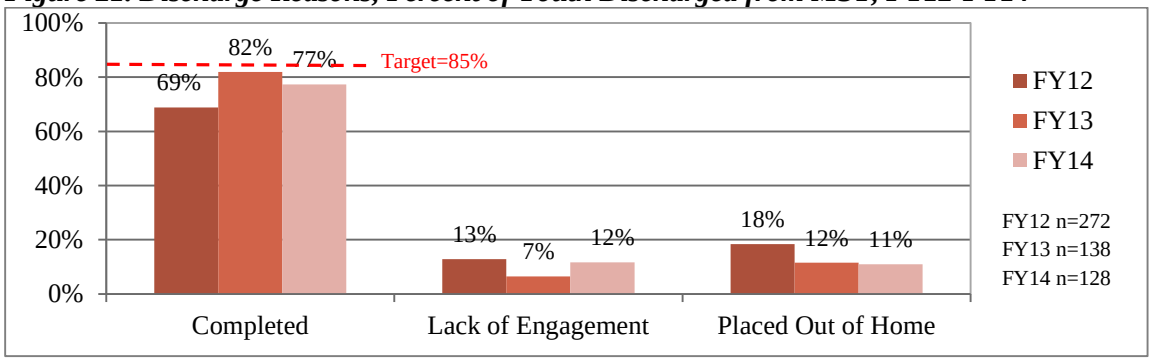
1) Did the youth and his/her family complete treatment (i.e., case progress)?
2) Were there sufficient changes in factors associated with problem behaviors (i.e., instrumental outcomes)?
3) How was the youth doing in three primary areas of functioning at discharge (i.e., ultimate outcomes)?

Each of these questions is addressed separately in this section.

Case Progress at Discharge

As shown in Figure 21, the majority of youth *completed* MST (77%, n=99), but this represents a slight decrease in the completion rate from FY13 (82%) and falls short of the 85% target. Twelve percent of youth discharged because they *had not engaged in treatment* and 11% were *placed out of home for a new event during treatment*; both of these outcomes exceed their respective MST target rates (5% and 10%, respectively).

Figure 21. Discharge Reasons, Percent of Youth Discharged from MST, FY12-FY14



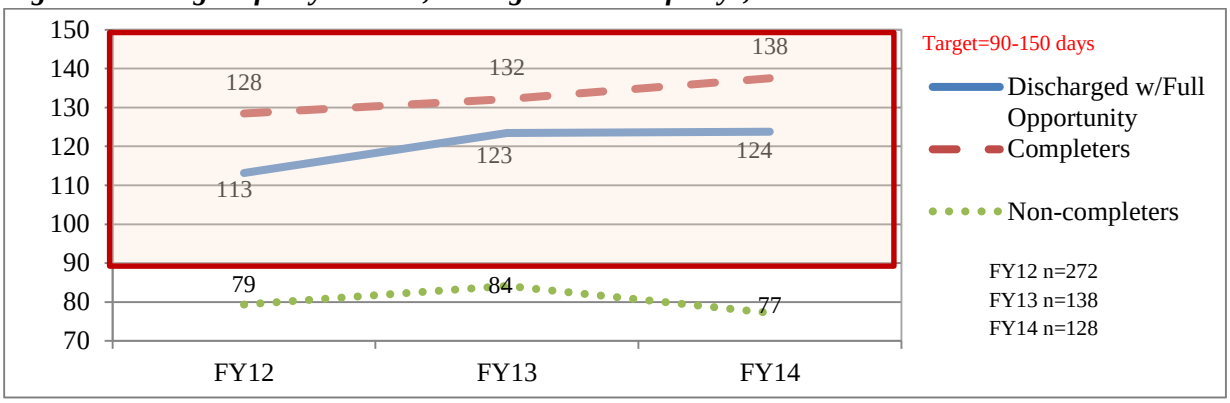
Bivariate analyses revealed that demographic characteristics of youth, including age, gender, and race/ethnicity, as well as their prior involvement with juvenile justice system, were not significantly related to program completion. However, youth who had prior involvement with the child welfare system were significantly more likely to complete treatment. Variations by provider agency and jurisdiction can be found in Appendix 1.

Length of Stay

The average length of stay (ALOS) in MST treatment was 124 days, which is well within the national purveyor's target of 90-150 days (Figure 22). The ALOS was significantly longer for youth who completed treatment (138 days) as compared to those who did not complete treatment (77 days).

[10] Of the 13 youths who did not have the opportunity for a full course of treatment in FY14, four were placed for a prior event, three moved, three were administratively removed or withdrawn, and three were removed by the funding/referral source.

Figure 22. Length of Stay in MST, Average Number of Days, FY12-FY14



The length of stay for youth discharged from MST in FY14 was statistically related to having prior involvement with DSS (longer lengths of stay). Length of stay did not vary significantly by youth's age, gender, race/ethnicity, having prior DJS complaints, or having prior DJS committed residential placements. Variations by provider agency and jurisdiction can be found in Appendix 1.

Instrumental Outcomes at Discharge

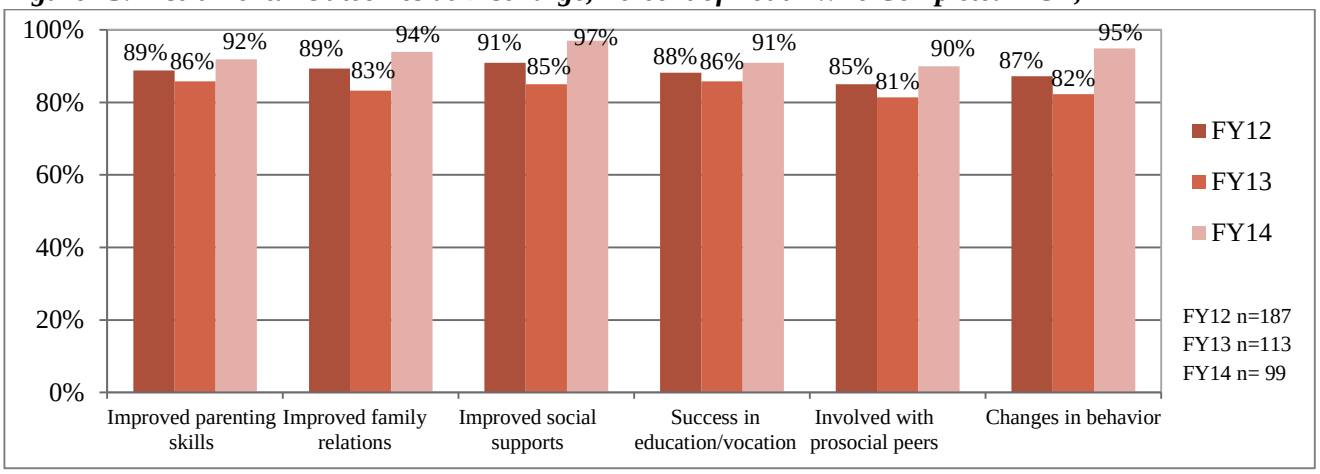
Even though most youth completed MST, the program's level of effectiveness could vary across youth. MSTI encourages the use of both instrumental and ultimate outcomes as a means to gauge the success of the program with each youth. Instrumental outcomes measure therapist-rated change in six target areas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

Figure 23 shows the instrumental outcomes for youth who completed MST for the past three years. There were increases in every instrumental outcome in the past fiscal year. At least 90% of the youth received a positive indication for each of the instrumental outcomes, and 80% of youth showed improvement in all six domains.

Figure 23. Instrumental Outcomes at Discharge, Percent of Youth Who Completed MST, FY12-FY14

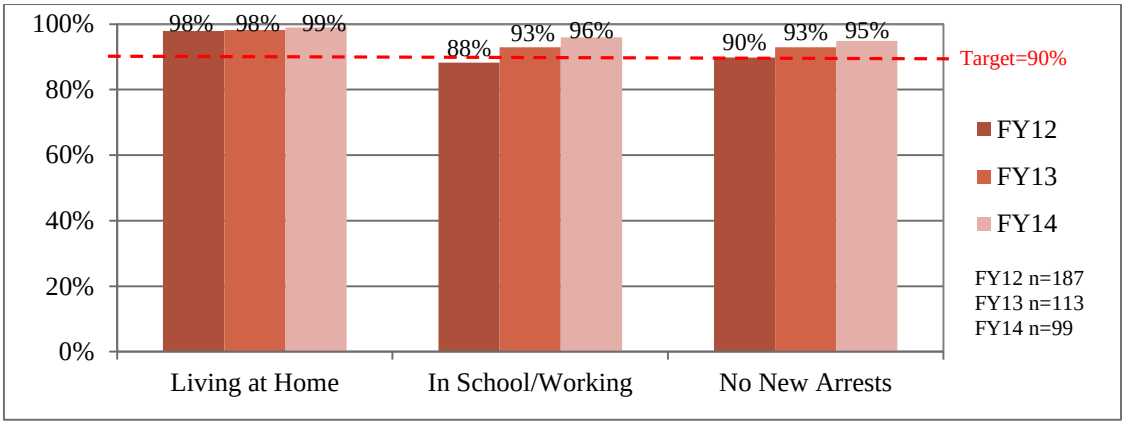


Ultimate Outcomes at Discharge

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.

Figure 24 shows improving trends, and positive results overall, in the ultimate outcomes for youth who completed MST in Maryland from FY12 through FY14. In the most recent year, the percentages of youth living at home (99%), in school/working (96%), and with no new arrests (95%) exceeded program targets (90%). Additionally, 91% of youth who completed MST in FY14 had positive results for all three ultimate outcomes.

Figure 24. Ultimate Outcomes at Discharge, Percent of Youth Who Completed MST, FY12-FY14



Juvenile and/or Criminal Justice System 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., schools). Although the ultimate outcomes indicate that just 5% of completers had new arrests during treatment, data provided by DJS and DPSCS indicate that 26% of completers had been referred to DJS/arrested while receiving MST in FY14.[11] In addition, DJS data show that 15% of youth were admitted to a DJS detention facility during treatment.

Juvenile & Criminal Justice System Measures*

Subsequent involvement with the juvenile and criminal justice systems are defined as follows:

Referred to DJS/Arrested refers to any DJS referral (including all complaints and violations of probation referred to DJS) or adult arrest.

Adjudicated Delinquent/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.

Committed to DJS/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.

**These measures exclude recidivism events outside of Maryland.*

Post-Discharge Outcomes

Subsequent Involvement with the Juvenile and/or Criminal Justice Systems

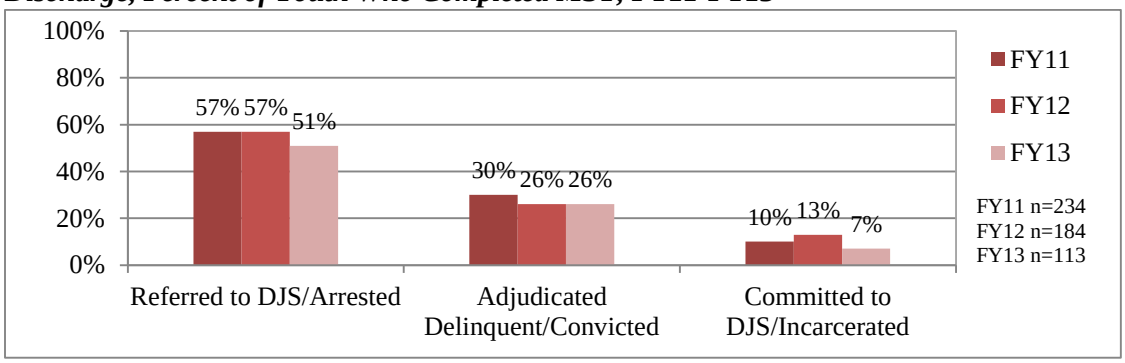
Research has shown that participation in MST is associated with a reduced risk for delinquency and criminal behavior. In order to assess these outcomes post-discharge, The Institute provided DJS and DPSCS with the name, gender,

[11] The percentage of youth who were referred to DJS/arrested (26%) includes youth who were referred to DJS for violations of probation and status offenses (using DJS's current definition for recidivism). When these offenses are excluded, the data indicate that 20% of completers were referred to DJS or arrested during treatment for felonies, misdemeanors, or incarcerable traffic offenses.

race/ethnicity, and date of birth of *all* youth who were discharged from MST in FY11, FY12, and FY13, and matches were identified in their respective databases. Following DJS' recidivism criteria, subsequent involvement with the juvenile and adult criminal justice systems were categorized as referred to DJS/arrested, adjudicated delinquent/convicted, and committed to DJS/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 (three youth in FY11 and two in FY12).[12]

As shown in Figure 25, over half of youth who completed MST were subsequently referred to DJS or arrested within one year of discharge (57% for FY11, 57% for FY12, and 51% for FY13); however, far fewer youth were ultimately adjudicated delinquent/convicted (30% for FY11, 26% for FY12 and FY13) and committed/ incarcerated for these arrests within one year (10% for FY11, 13% for FY12, and 7% for FY13). Notably, there was a decrease in DJS referral/arrest and commitment/incarceration rates for youth who completed in FY13 compared to those for the two prior discharge cohorts.

Figure 25. Juvenile & Criminal Justice System Involvement within 12 Months Post-Discharge, Percent of Youth Who Completed MST, FY11-FY13



According to bivariate analyses using all MST completers from FY11 through FY13, males, those with prior DJS complaints, those with prior placements in committed residential care (DJS), and those with prior DSS involvement were significantly more likely than their counterparts to be referred to DJS/arrested within one year post-MST discharge. Age and race/ethnicity were not statistically related to having a subsequent referral to DJS/arrest.

Table 9. Juvenile & Criminal Justice System Involvement within 12 and 24 Months Post-Discharge, Percent of Youth Who Completed MST, FY11-FY13

		FY11 (n=234)			FY12 (n=184)			FY13 (n=113)		
		Ref./ Arrest	Adj./ Convict.	Comm./ Incar.	Ref./ Arrest	Adj./ Convict.	Comm./ Incar.	Ref./ Arrest	Adj./ Convict.	Comm./ Incar.
DJS	12 Months	52%	28%	8%	52%	25%	12%	47%	24%	7%
	24 Months	63%	35%	15%	59%	32%	15%	--	--	--
DPSCS	12 Months	10%	2%	2%	11%	2%	1%	7%	2%	0%
	24 Months	30%	12%	12%	25%	9%	9%	--	--	--
DJS/ DPSCS	12 Months	57%	30%	10%	57%	26%	13%	51%	26%	7%
	24 Months	74%	43%	26%	70%	38%	23%	--	--	--

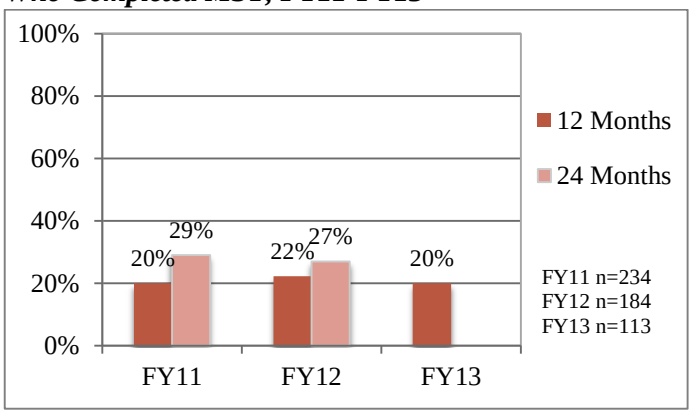
Table 9 summarizes subsequent involvement with DJS and/or DPSCS within 12 and 24 months for youth who completed MST in FY11, FY12, and FY13. These numbers suggest that justice system involvement was driven primarily by contacts with the juvenile justice system, though 30% of FY11 completers and 25% of FY12 completers were arrested in the adult system within two years of discharge. While there are generally decreasing

[12] Because incarceration start and release 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.

trends over time, the percentages of youth with subsequent justice system contact within 24 months are high—70% of FY12 completers were referred to DJS/arrested, 38% were adjudicated delinquent/convicted, and 23% were subsequently committed by DJS/incarcerated. There were substantial differences in these percentages by jurisdiction (see Appendix 1).

DJS Committed Residential Placements. Youth who are committed to DJS do not necessarily 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 residential placement following discharge from MST than indicated by rates of commitment (shown above). Among youth who completed MST from FY11 through FY13, approximately 20% were admitted to a DJS committed residential placement[13] during the 12 months following treatment completion, and 29% and 27% of the FY11 and FY12 completers, respectively, were admitted to a committed residential placement within a 24-month follow-up period (Figure 26).[14]

Figure 26. DJS Committed Residential Placement within 12 and 24 Months Post-Discharge, Percent of Youth Who Completed MST, FY11-FY13



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 FY13. DHR researchers matched these youth in their State Automated Child Welfare Information System to retrieve information about contact with the child welfare system post-MST discharge. Overall, 7% of youth who completed MST in FY11, 5% of completers in FY12, and 4% of completers in FY13 had some form of new DSS contact within 12 months. Among the 113 youths who completed in FY13, one (1%) had an investigation, three (3%) began receiving in-home services, and none were placed out-of-home within 12 months of discharge from MST (Table 10). Of the youth who completed in FY11 and FY12, 10% and 8%, respectively, had some form of new DSS contact within 24 months of discharge.

Table 10. Child Welfare System Involvement within 12 and 24 Months Post-Discharge, Percent of Youth Who Completed MST, FY11-FY13

	FY11 (n=237)			FY12 (n=187)			FY13 (n=113)		
	Invest-igation	In-Home Service	Out-of-Home Plcmt	Invest-igation	In-Home Service	Out-of-Home Plcmt	Invest-igation	In-Home Service	Out-of-Home Plcmt
12 Months	3%	4%	2%	2%	3%	1%	1%	3%	0%
24 Months	4%	6%	3%	4%	4%	2%	--	--	--

[12] Committed residential placements include places such as Youth Centers, group homes, residential treatment facilities, etc. They do not include detention.

[14] These percentages do not include youth who were residing in a secure facility at discharge from MST.

Cost of MST in Maryland

Service Delivery Cost

In FY14, the total service delivery cost for providing MST in Maryland was $1,799,661. The service delivery cost is based on payments to service providers and expenses incurred for training, coaching, and implementation data monitoring in FY14. Although there were variations in expenditures across the different providers, on average, the cost of administering MST was $12,764 per discharged youth (Table 11).

Table 11. Service Delivery Cost of MST in Maryland, FY14

	FY14
Number of Discharged Youth	141
Average Cost per Youth	$12,764
Total Service Delivery Cost	$1,799,661

Cost Analysis for DJS-Funded Youth

One of the applications of MST is to prevent more restrictive placements among high-risk youth. Although youth served by MST can be funded by a variety of sources (i.e., DJS, DSS, and CCIF), the majority of the youth is funded by DJS. Table 12 highlights the average per diem rates reimbursed by DJS for different placement types and the resulting average cost per stay based on the average length of stay of DJS-funded youth. The average per diem rates are based on the contracted amounts between the service provider and DJS.[15] The average per diem rates of the placements examined ranged from $160 for treatment foster care to $572 for hardware secure youth centers, with the MST per diem rate for DJS funded youth at $98. A cost analysis shows that MST has the potential to provide substantial returns on investments. For example, the investment in MST by DJS was 14% of the average cost per stay of hardware-secure youth centers and 28% of the average cost per stay of group homes.

Table 12. Cost Analysis of MST and Placements for DJS-Funded Youth, FY14[1]

	Average Length of Stay (Days)	Average Per Diem Rate	Average Cost per Stay/Treatment
MST	120	$98	$11,750
Treatment Foster Care	241[2]	$160	$38,548
Group Homes	202	$210	$42,402
DJS Staff Secure Youth Centers	142	$378	$53,708
DJS Hardware Secure Youth Centers	146	$572	$83,480

[1] Data used for calculations for Treatment Foster Care, Group Homes, and Staff Secure and Hardware Secure Youth Centers are derived *from DJS's Fiscal Year 2014 Data Resource Guide.*

[2] The ALOS includes both traditional and treatment foster care placements.

[15] In order to compare cost with DJS rates, the estimated costs in this section for MST do not include expenses for training, coaching, and implementation data monitoring. The DJS rates derived from *DJS's Fiscal Year 2014 Data Resource Guide* do not include these expenses.

FY14 MST Implementation in Maryland: Successes & Challenges

Utilization

- The average utilization rate was 78% for funded slots and 81% for active slots. Utilization has been steady but 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. They should also work together, with support from The Institute, to identify eligible youth earlier in their involvement with child-serving systems.
- The percentage of referred youth who started MST decreased to 46% in FY14 (from 61% in FY12 and 63% in FY13). One recommendation for increasing this percentage includes training referral sources to effectively communicate the purpose and benefits of MST to families at the time of referral. Providers are also collaborating with the MST Expert around strategies to increase engagement skills and decrease the time between referral and first face-to-face contact with the family.
- Seventeen percent of youth who did not start MST resulted from the youth being unavailable. In addition, 14% of youth who did not start were identified as not having behavioral problems severe enough to warrant MST. These findings suggests a continued need for referral sources and providers to work together to ensure that appropriate cases are being referred to MST. MST providers will benefit from training referral sources to effectively use the MST admission criteria to identify eligible youth. The Institute will also support referral sources by identifying additional strategies for using their existing screening and assessment tools to identify potential MST referrals within their organizations.
- The global admission length has increased over time, and, on average, youth and families started treatment 19 weekdays after being referred in FY14 (as compared 17 weekdays in FY13). Global admission lengths were significantly longer for minority youth, youth funded by CCIF, and youth who spent time on the waitlist. It is recommended that MST providers consider more consistent collaboration with the referral sources to ensure that families can be reached quickly and an admission scheduled within 7 days of receiving a referral. Recommendations to help the referral sources increase family awareness of MST referral and benefits of the program can also be beneficial for decreasing global admission length.
- During the past two fiscal years, only one provider utilized a waitlist, and a larger number of youth were placed on the waitlist in FY14 than in FY13. Maryland's MST Expert worked closely with this provider to address its referral and admission process, and the number of waitlisted youth is anticipated to decrease.

Fidelity

- The percentage of families with at least one completed *Therapist Adherence Measure* (TAM-R) form increased to 93%, though 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).
- The average length of stay in MST (124 days) continues to fall well within the purveyor's target range.

Outcomes

- Just over three-quarters (77%) of youth who were discharged with the opportunity for the full course of treatment completed MST in FY14—a small drop relative to the cohort of youth from FY13 (82%). This completion rate falls short of the 85% target.
- More than 90% of youth who completed MST achieved positive results for each of the six instrumental outcomes. Additionally, 80% of youth who completed treatment showed positive results in all six outcomes.
- For the second time in the last three fiscal years, MST completers exceeded the 90% target for each of the ultimate outcomes (i.e., living at home, in school/working, and no new arrests at discharge), and 91% of youth who completed treatment achieved success for all three of the outcomes as of discharge.

- Although the ultimate outcomes indicate that just 5% of completers had new arrests during treatment, data provided by DJS and DPSCS indicate that 26% of completers had been referred to DJS/arrested while receiving MST in FY14. Note that the DJS recidivism data includes violations of probation and status offenses, and the percentage is revised to 20% if just accounting for felony, misdemeanor, and incarcerable traffic offenses.
- Although involvement with the juvenile and/or criminal justice systems during the 12 months post-discharge improved slightly for FY13 completers compared to the FY11 and FY12 cohorts, arrest rates remain high (51%), and 20% of youth were subsequently placed in a committed residential facility. In addition, at least 70% of the youth who completed MST in FY11 and FY12 were referred to DJS or arrested as adults within two years of discharge. Additional analyses will be completed to provide additional information regarding these outcomes.
- The proportion of youth who completed MST and had new DSS involvement in the year following their discharge has been declining in the last three fiscal years. Further, only 10% of FY11 completers and 8% of FY12 completers subsequently became involved with DSS within two years of discharge.

Costs

- The average cost per treatment of MST for DJS-funded youth was only 14% of the average cost per stay of hardware-secure youth centers and 28% of the average cost per stay of group homes.

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