

MULTISYSTEMIC THERAPY IN MARYLAND: FY2015 IMPLEMENTATION REPORT

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MAY 2017

Suggested citation: Farrell, J., Betsinger, S., Cosgrove, J., Strubler, K., Mayers, R., Lowther, J., & Zabel, M. (2017). Multisystemic Therapy in Maryland: FY2015 Implementation Report. Baltimore, MD: The Institute for Innovation & Implementation.

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Executive Summary

Multisystemic Therapy (MST) is an evidence-based practice 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) 2015.

Utilization

- MST was available in five jurisdictions throughout Maryland. Based on FY15 funding capacity, Maryland could serve an estimated 180 youths in MST annually.
- The average utilization rate was 71% for active slots. Utilization has declined since FY13 and continues to fall short of the 90% target for the State.
 - **Recommendation:** *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.*
- 227 youths were referred to MST in FY15. Most referrals were made by the Department of Juvenile Services (DJS; 80%), which was also the primary funder of MST in Maryland.
- Of youth referred, 55% started treatment, which was an increase from FY14 (46%). The primary reasons youth did not start MST were (1) *difficulty contacting the family* and (2) *youth/parent/custodian not consenting to treatment*.
 - **Recommendation:** *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.*
- The global admission length decreased markedly in FY15 such that, on average, youth and families started treatment within 9 weekdays of being referred (as compared to 18 weekdays in FY14).
 - **Recommendation:** *It is recommended that MST providers continue to consistently collaborate with the referral sources to ensure that families can be reached quickly and an admission scheduled within 7 days of receiving a referral. Increasing family awareness of the benefits of MST can also be beneficial for decreasing global admission length.*
- During the past two fiscal years, only one provider utilized a waitlist, and a substantially smaller number of youth were placed on the waitlist in FY15 than in FY14. This decrease was largely due to the fact that Maryland's MST Expert worked closely with this provider to address its referral and admission process.
- Of the 122 youths who started MST, the majority was African American/Black (71%) and male (74%), and the average age was 15.6 years old. Most youth (82%) were involved with DJS prior to starting MST, and these youths had considerable delinquency histories—on average, youth had five prior complaints filed with DJS. In addition, 45% of youth had been previously involved with the child welfare system.

Fidelity

- The percentage of families with at least one completed *Therapist Adherence Measure (TAM-R)* form decreased to 86%, 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 .75, which is well above the MST target score (.61).
- 77% 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.
- The average length of stay in MST (128 days) continues to fall well within MST's target range.

Outcomes

- 123 youths were discharged from MST with the opportunity for a full course of treatment in FY15, and **82%** of these youths completed treatment—an increase from the previous fiscal year (77%) and close to the 85% target.
- At least 80% of youth who completed MST achieved positive results for each of the six instrumental outcomes. Additionally, just over two-thirds (68%) of youth who completed treatment showed positive results in all six outcomes.
- For the third time in the last three fiscal years, MST completers met or 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 82% of youth who completed treatment achieved success for all three of the outcomes as of discharge.
- Of youth who completed MST in FY14, as of one year post-discharge: **61%** did not have a new DJS referral/arrest; **86%** did not have a new adjudication/conviction; and **91%** had not been committed to DJS/incarcerated. Additionally, **88%** had not been placed in a new committed residential placement with DJS.
- Only **8%** of youth who completed MST in FY14 had any new involvement with the child welfare system within one year of discharge.

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 \$15,674 per youth.
- The average cost per treatment for MST was only 23% of the average cost per stay in treatment foster care and 25% of the average cost per stay in therapeutic group homes.

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 for 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) 2015. In addition to utilization and fidelity indicators, both short- and long-term outcomes for participating youth are examined.

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 three to five months (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 2009). 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 et al., 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). Figure 1 summarizes MST's ratings on four nationally-recognized EBP registries. For additional information on MST, please go to www.mstservices.com.

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.

Figure 1. MST Ratings on National EBP Registries*

EBP Registry	MST Rating(s)
Blueprints for Healthy Youth Development www.blueprintsprograms.com	Model Plus Program
California Evidence-Based Clearinghouse for Child Welfare www.cebc4cw.org	1: Well-Supported by Research Evidence (<i>reviewed March 2015</i>)
SAMHSA’s National Registry of Evidence-Based Programs & Practices (NREPP) www.nrepp.samhsa.gov	<i>Quality of Research** (reviewed March 2007):</i> 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 <i>Readiness for Dissemination** (reviewed March 2007):</i> Implementation Materials=4.0 Training & Support Resources=4.0 Quality Assurance Procedures=4.0 Overall Rating=4.0
Office of Juvenile Justice and Delinquency Prevention’s Model Programs Guide www.ojjdp.gov/mpg	Effective Program

*Ratings as of March 2017. **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.

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 (Figure 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

¹ Fidelity data are collected through MSTI.

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).

Figure 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 DJS 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 FY15. Where possible, data are presented and comparisons are drawn for previous fiscal years. Refer to Appendix 1 for FY15 descriptive data presented by funding source, provider, and jurisdiction.

Where was MST Offered in Maryland?

During FY15, MST was implemented in five jurisdictions² 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 youths;³ there were no changes in capacity from FY14. Across the State, MST was funded by DJS, a local Department of Social Services (DSS), and the Children’s Cabinet Interagency Fund (CCIF, via a Local Management Board); funding sources varied by jurisdiction (Figures 3 and 4).

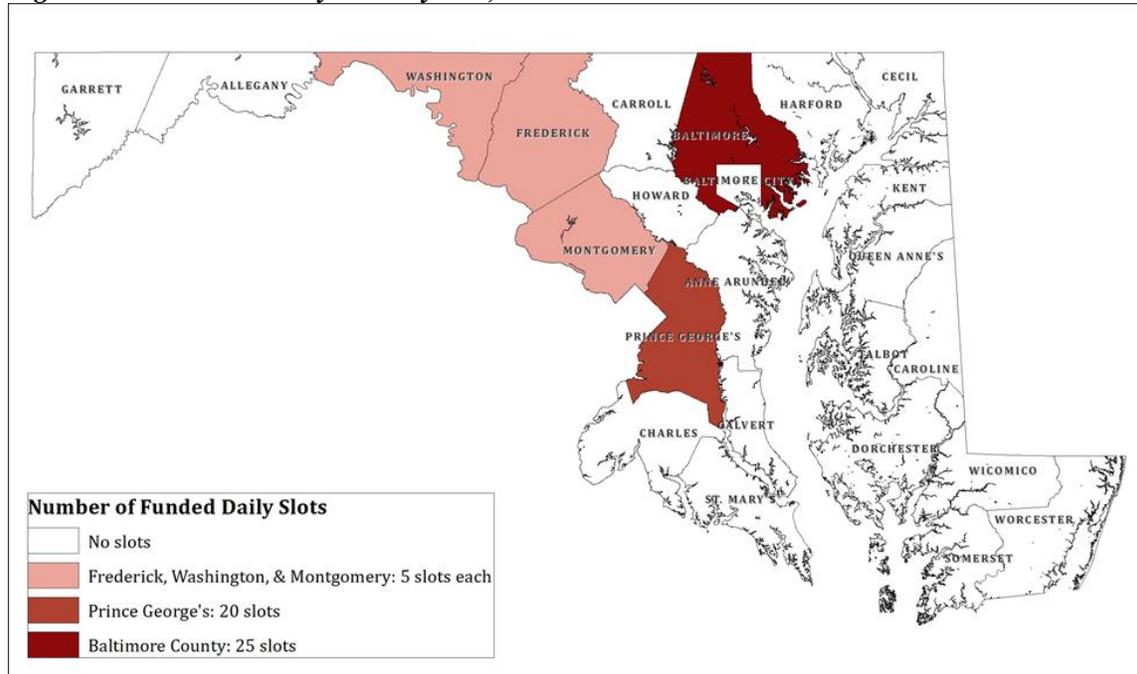
Figure 3. MST Provision & Funding Sources in Maryland, FY15

Region (DJS)	Jurisdiction(s) Served	Provider	Funding Source	# Funded Daily Slots
Central	Baltimore County	Community Solutions Inc.	DJS	20
			DSS	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 FY15 (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 year.

Figure 4. MST Availability in Maryland, FY15



Referrals to MST

Although capacity remained the same from the previous fiscal year, there was a notable decline in the number of referrals to MST from FY14 (n=278) to FY15 (n=227; Figure 5).

Maryland youth may be referred to MST from a variety of sources. In FY15, the majority of the 227 referrals were made by DJS (80%), followed by DSS (12%), parents/families (4%), mental health agencies (3%) and other sources (2%; Figure 6).⁴ DJS has been the principal referral source in Maryland since FY10.

Figure 5. Number of Referrals to MST, FY13-FY15

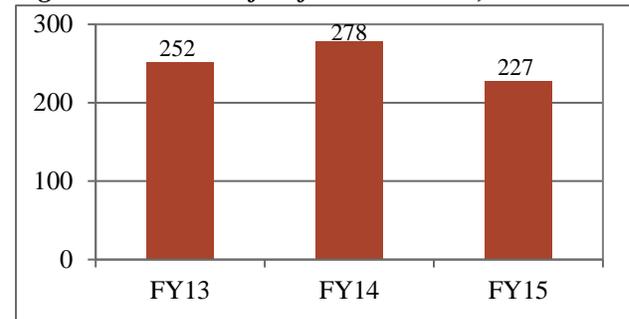
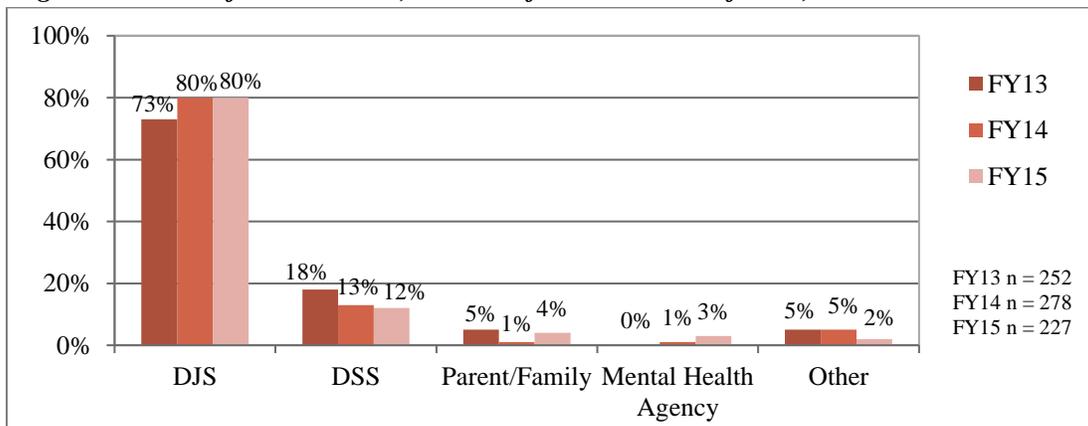


Figure 6. MST Referral Sources, Percent of Total Youth Referred, FY13-FY15



⁴ Other sources included schools, internal agency, and courts.

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 FY15, nearly all (99%) referred youth met the age criteria, with 55% ages 15 or 16 years old (Figure 7). The average age at referral was 15.6 years old (Figure 8).

While the average ages of referred youth have remained relatively stable over the past three fiscal years, changes have been evident in terms of sex and race/ethnicity. The proportion of referred youth who were female (26%) declined in FY15 compared to the two previous fiscal years (29% in FY13, 31% in FY14). And though the proportion of referred Caucasian/White youth has remained stable since the last fiscal year, the percentage of African American/Black referrals increased slightly from 68% to 70%, and the percentage of Hispanic/Latino referrals dropped from 14% to 9%.

Figure 7. Ages, Percent of Youth Referred to MST, FY15

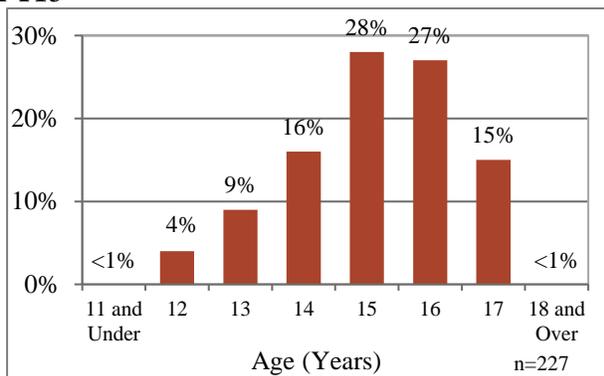


Figure 8. Demographic Characteristics of Youth Referred to MST, FY13-FY15

	FY13*	FY14	FY15
Total Number of Youth	252	278	227
Male	71%	69%	74%
Female	29%	31%	26%
African American/Black	73%	68%	70%
Caucasian/White	16%	17%	17%
Hispanic/Latino	7%	14%	9%
Other	4%	1%	4%
Average Age (s.d.)	15.6 (1.5)	15.5 (1.4)	15.6 (1.4)

*Characteristics were not reported for one youth referred in FY13.

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. Forty-five percent (45%) of youth referred in FY15 did not start MST (Figure 9); this represents an improvement over FY14, when more than half (54%) of referred youth did not start treatment. Additionally, less than one-third (28%, n=29) of the 102 youths who did not start MST in FY15 were ineligible for treatment (Figure 10). This also represents a shift from the previous fiscal year, when 50% of youth who did not start were deemed not eligible for treatment.

Figure 9. Percent of Referred Youth Who Started MST, FY13-FY15

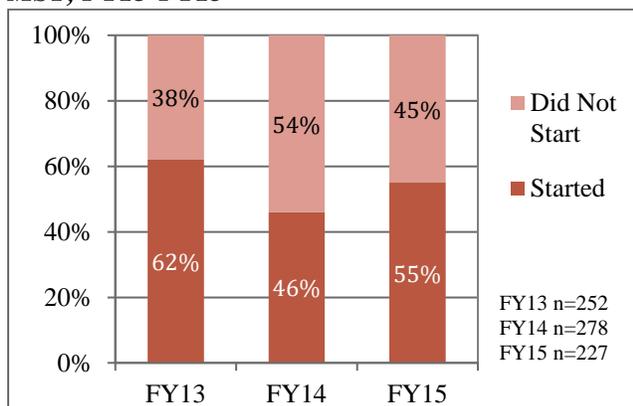
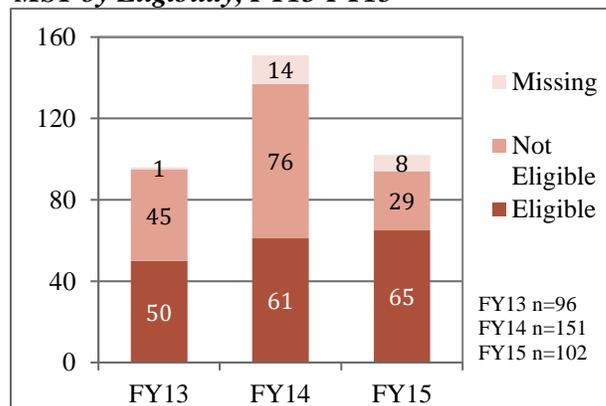
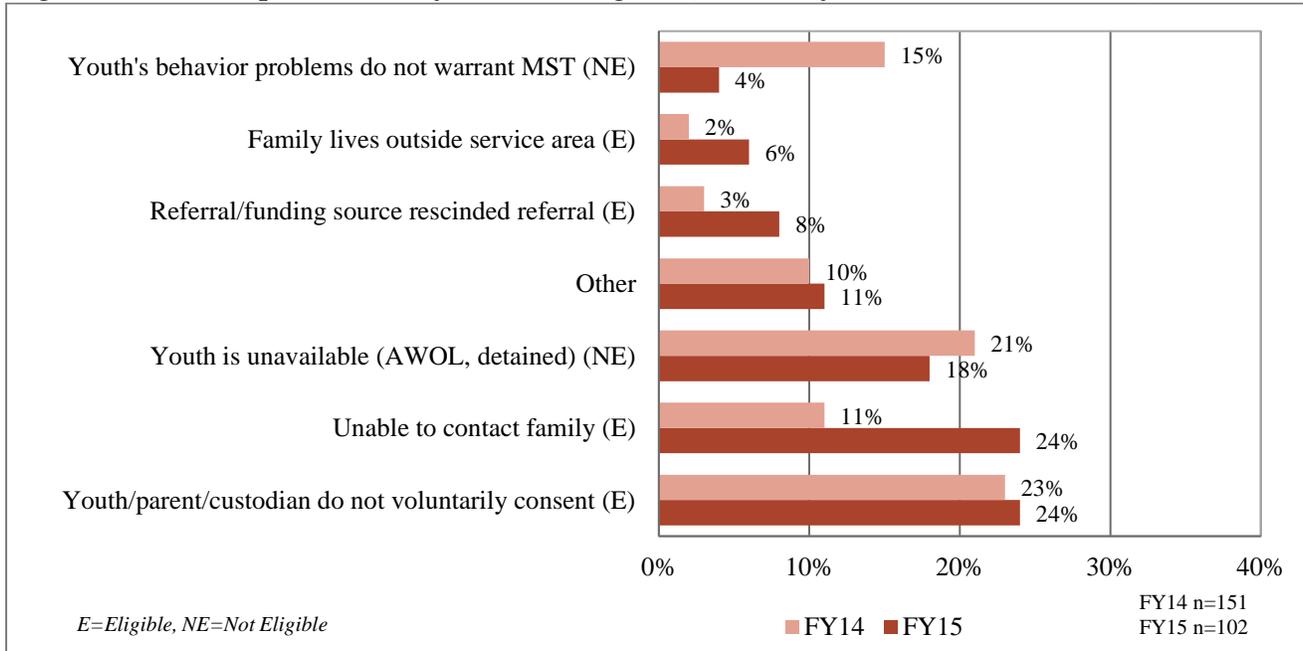


Figure 10. Number of Youth Who Did Not Start MST by Eligibility, FY13-FY15



The reasons for not starting MST 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 11 shows the most frequent reasons that youth did not start MST in FY14 and FY15. *Youth/parent/custodian do not voluntarily consent* (24%) and *unable to contact the family* (24%) accounted for approximately half of youth who did not start (48%), followed by *youth is unavailable* (18%).

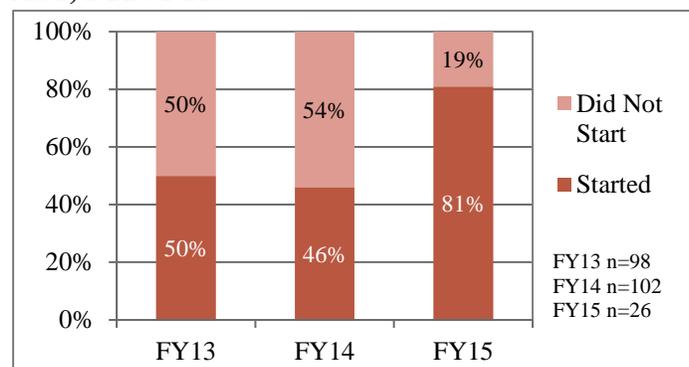
Figure 11. Most Frequent Reasons for Not Starting MST, Percent of Youth Who Did Not Start, FY14-FY15



Waitlisted Youth

Only one MST provider utilized a waitlist over the past two years. In FY15, 26 youths were placed on the waitlist (12% of all referrals)—down from 98 (39%) in FY13 and 102 (37%) in FY14. This decline is largely due to revisions to the provider’s waitlist protocol. In addition, the percentage of youth who were placed on the waitlist and ultimately did not start MST decreased substantially, from 54% in FY14 to 19% in FY15 (Figure 12). All of the FY15 waitlist placements resulted from the *program being at capacity*.

Figure 12. Percent of Waitlisted Youth Who Started MST, FY13-FY15



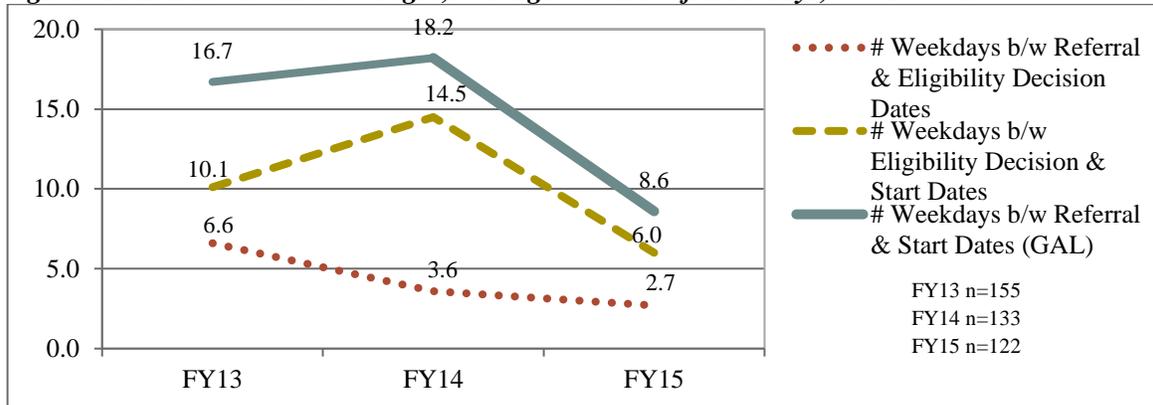
Youth Who Started MST

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*.

The average global admission length decreased by more than half from 18 weekdays in FY14 to approximately 9 weekdays in FY15 (Figure 13). Providers generally made an eligibility decision within 3 weekdays of receiving the referral in FY15 (compared to 4 weekdays in FY14), and there was a substantial decrease in the amount of time between the eligibility decision and the start of treatment, from approximately 15 weekdays in FY14 to 6 weekdays in FY15.

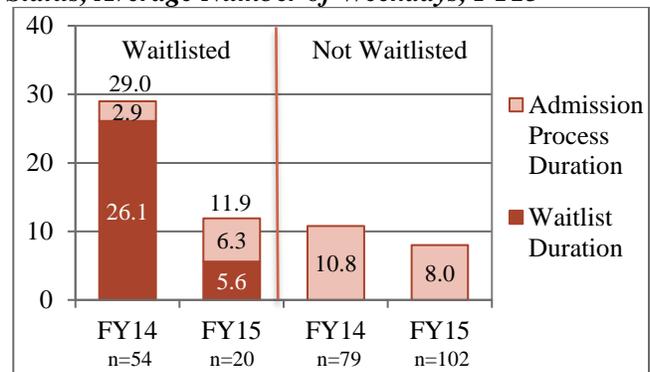
Figure 13. Global Admission Length, Average Number of Weekdays, FY13-FY15



Among the 122 youths who started MST in FY15, 20 (16%) were temporarily placed on the waitlist. As shown in Figure 14, waitlisted youth took an average of 12 weekdays to enter treatment, while non-waitlisted youth took an average of 8 weekdays. The duration of the admission process decreased for both waitlisted and non-waitlisted youth from their FY14 lengths.

Consistent with the previous discussion, youth placed on the waitlist experienced a statistically significant delay in the start of services compared to non-waitlisted youth. There were also statistically significant differences across agencies (Appendix 1). Global admission lengths did not vary significantly by the characteristics of youth (i.e., race/ethnicity, gender, or age), jurisdiction, or funding source.

Figure 14. Global Admission Length by Waitlist Status, Average Number of Weekdays, FY15

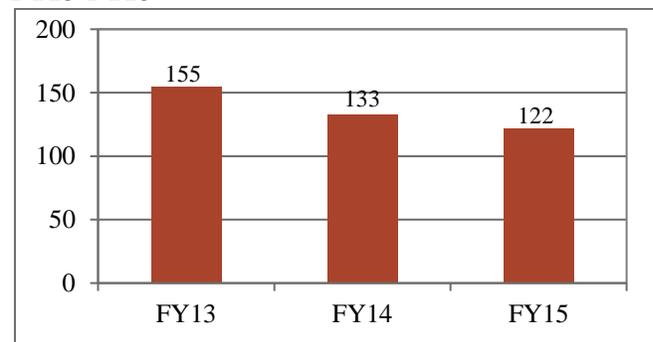


Utilization

A total of 122 youths started MST in FY15. As shown in Figure 15, the number of youth who started has been decreasing since FY13 (n=155). DJS has been the primary funding source for MST for the past several years; accordingly, the majority of youth who started MST in FY15 were funded by DJS (80%), followed by CCIF (13%) and DSS (7%; Figure 16).

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

Figure 15. Number of Youth Who Started MST, FY13-FY15



number of youth who are admitted to treatment, as well as the length of time youth and their families remain in treatment (see page 14 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 a therapist is out on extended leave 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 FY15, DJS, CCIF, and DSS collectively funded a daily capacity of 60 MST slots across Maryland (Figure 17). 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 41; thus, on average, 68% of funded slots, or 71% of active slots, were utilized. Both percentages represent declines from FY14, when the statewide utilization averages for funded and active slots were 77% and 80%, respectively.

Characteristics of Youth Who Started MST

Over half of the youth who started MST in FY15 were 15 or 16 years old (57%; Figure 18), and the average age was 15.6 years old. The majority of youth were male (74%) and African American/Black (71%; Figure 19). The characteristics of youth who started MST have changed somewhat over time. A greater proportion of these youth were African American/Black, and a smaller proportion were Caucasian/White in FY15, relative to previous years.

Figure 16. MST Funding Sources, Percent of Youth Who Started, FY13-FY15

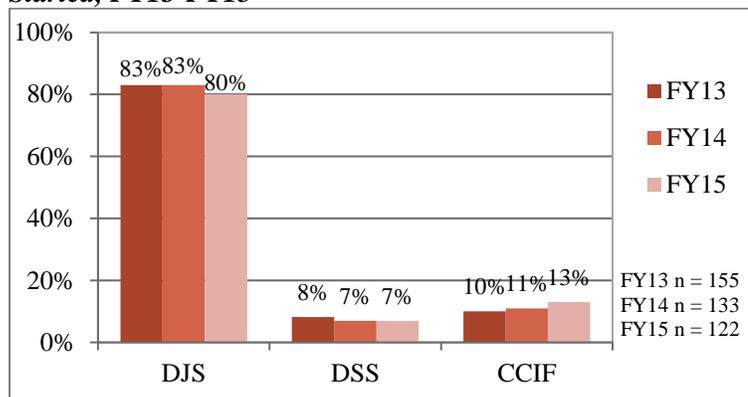


Figure 17. MST Utilization, FY13-FY15

	FY13	FY14	FY15
Avg. Number of Funded Slots	60	60	60
Avg. Number of Active Slots	60	58	58
Avg. Daily Census	47.4	46.3	41.0
Avg. Utilization of Funded Slots	79%	77%	68%
Avg. Utilization of Active Slots	79%	80%	71%

Figure 18. Ages of Youth Participants, Percent of Youth Who Started MST, FY15

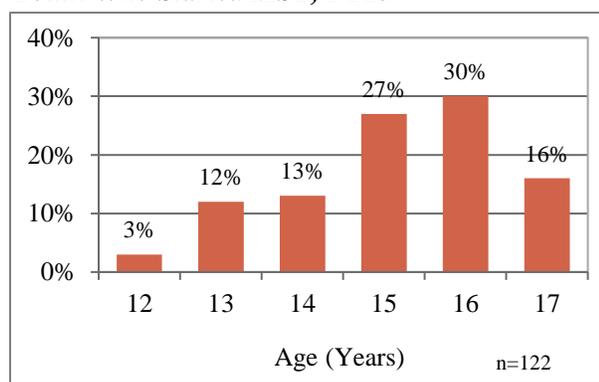
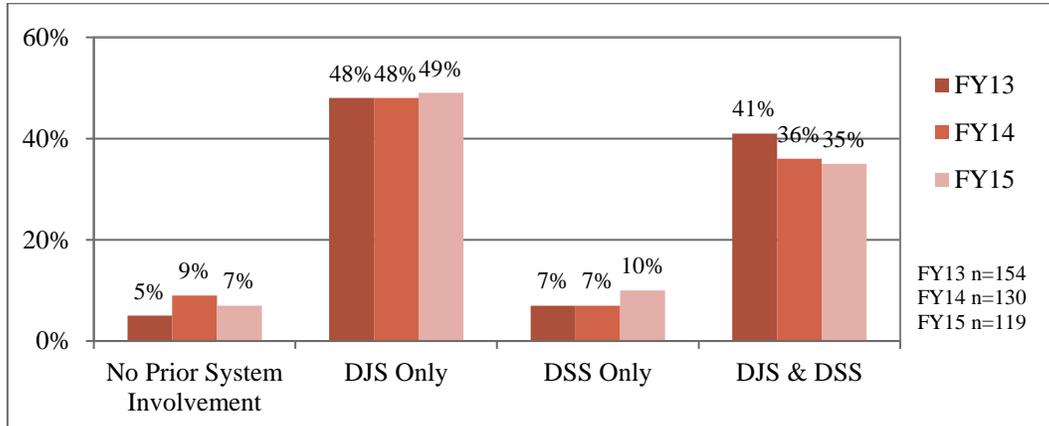


Figure 19. Demographic Characteristics of Youth Who Started MST, FY13-FY15

	FY13	FY14	FY15
Total Number of Youth	155	133	122
Male	74%	71%	74%
Female	26%	29%	26%
African American/Black	68%	59%	71%
Caucasian/White	21%	26%	15%
Hispanic/Latino	6%	12%	12%
Other	6%	2%	3%
Average Age (s.d.)	15.8 (1.3)	15.6 (1.2)	15.6 (1.3)

The majority (93%) of youth who started MST in FY15 were previously or currently involved with DJS and/or DSS. Over one-third (35%) had some form of previous involvement with both systems prior to treatment (Figure 20); this proportion has been gradually declining since FY12, when 41% of youth had prior involvement with both DJS and DSS.

Figure 20. Prior DJS and DSS Involvement, Percent of Youth Who Started MST, FY13-FY15*



*Some youth could not be matched to DJS or DHR data due to missing identifiers (1 case in FY13, 3 in FY14, and 3 in FY15); it is possible these additional youths were involved with DJS and/or DSS.

Involvement with the Juvenile Justice System

In FY15, 82% of youth who started MST had at least one prior complaint filed with DJS (Figure 21), a slight decrease from previous years. 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. Twenty-four percent (24%) of youth had at least one prior committed residential placement with DJS, and this subset of youth averaged 1.5 prior placements.

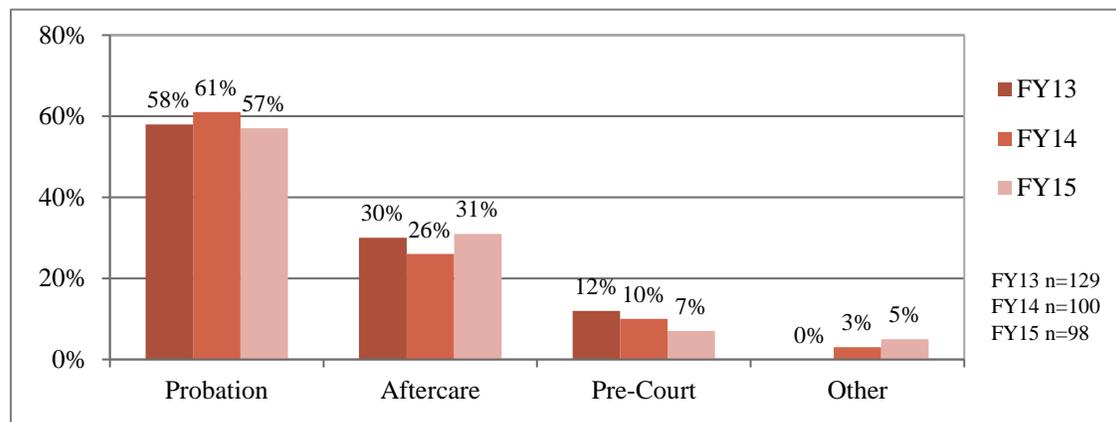
Figure 21. Prior DJS Involvement, Youth Who Started MST, FY13-FY15

	FY13	FY14	FY15
Total Number of Youth	155	133	122
Any Prior DJS Complaints	89%	84%	82%
Avg. # of Prior DJS Complaints (s.d.)	4.8 (4.3)	5.1 (4.4)	4.8 (3.6)
Avg. Age at First DJS Complaint (s.d.)	13.8 (2.0)	13.7 (1.7)	13.7 (1.9)
Any Prior DJS Committed Residential Placements	20%	17%	24%
Avg. # of Prior DJS Committed Residential Placements (s.d.)	1.3 (0.7)	1.5 (0.7)	1.5 (0.7)

Eighty percent (80%) of youth were actively involved with DJS when they started MST, which is consistent with prior fiscal years (83% in FY13; 75% in FY14). The type of DJS involvement/supervision has also remained similar over time (Figure 22). In the most recent reporting year, 57% of these youths were under probation, 31% aftercare (i.e., committed to DJS), 7% pre-court, and 5% other supervision.⁵ Of youth under probation or aftercare supervision, 21% were also involved, at some point during 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, 21 youths (24% of youth under aftercare or probation supervision) had been released from a committed residential placement within 30 days of starting MST.

⁵ Pre-Court supervision occurs at intake when a youth and his/her family enter 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 youths are often transitioned into probation or aftercare supervision.

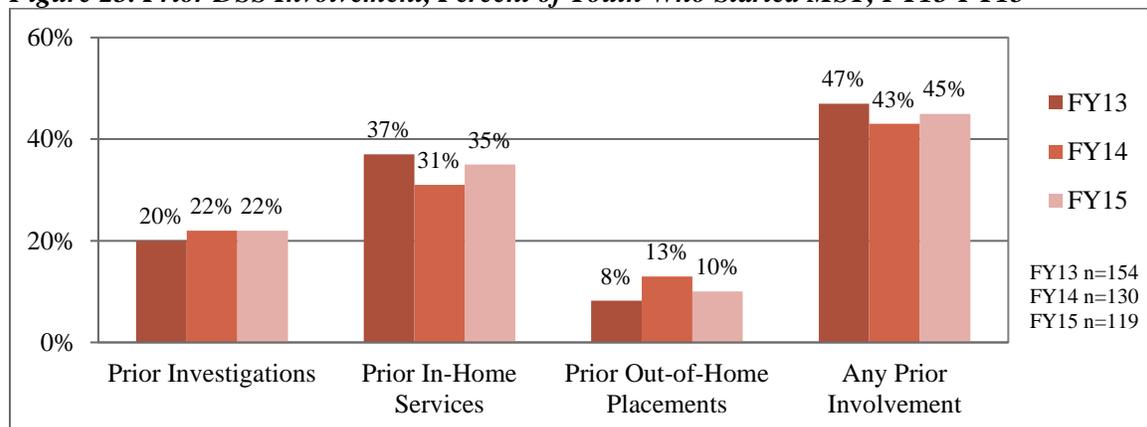
Figure 22. DJS Supervision Type, Percent of DJS-Involved Youth Who Started MST, FY13-FY15



Involvement with the Child Welfare System

Of youth who started MST in FY15, 45% had some form of prior contact with DSS (Figure 23). Prior to being referred to MST, 22% were part of a prior DSS investigation⁶, 35% had received in-home services, and 10% had been placed out of home. On average, youth were 9.3 years old at the time of their first in-home service and 8.0 years old at the time of their first out-of-home placement.

Figure 23. Prior DSS Involvement, Percent of Youth Who Started MST, FY13-FY15*



*Some youth could not be matched to DHR data due to missing identifiers (1 case in FY13, 3 in FY14, and 3 in FY15); it is possible these additional youths were involved with DSS.

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 24. Notably, youth with one or more prior DJS committed residential placement were significantly more likely to start treatment relative to those without prior placements. Also, rates of starting MST varied substantially by provider agency and jurisdiction; these data can be found in Appendix 1.

Figure 24. Factors Related to Youth Starting MST in FY15

Characteristics of youth who were more likely to start MST:

- ✓ Prior DJS committed residential placements
- ✓ Placed on the waitlist

Not statistically related to starting MST:

- x Gender
- x Race/Ethnicity
- x Age at the time of referral
- x Prior DJS complaints
- x Prior DSS involvement
- x Funding source

⁶ 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 undercounted.

MST Model Fidelity

The MST Quality Assurance System includes validated measures of clinical supervision practices and therapist adherence (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). Specifically, 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.

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 target 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. This target has not been met for the past three fiscal years, and TAM-R completion rate decreased from 93% in FY14 to 86% in FY15 (Figure 25). In FY15, a total of 438 TAM-R forms were completed and collected from 138 families, with an average adherence score of .75 (Figure 26). Just over three-quarters (77%) of the families with completed TAM-R forms in FY15 were served by a therapist who met or exceeded the target therapist adherence score of .61 (compared to 80% in FY14). 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 25. Percent of Families Completing at Least One TAM-R Form, FY13-FY15

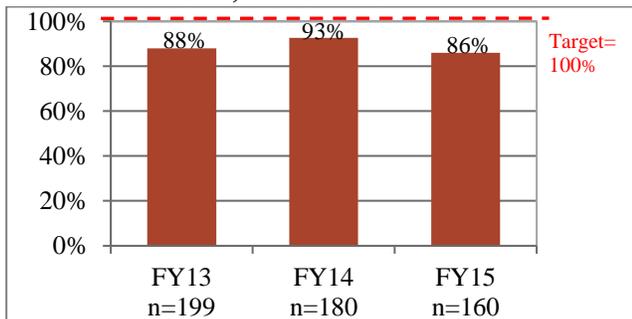
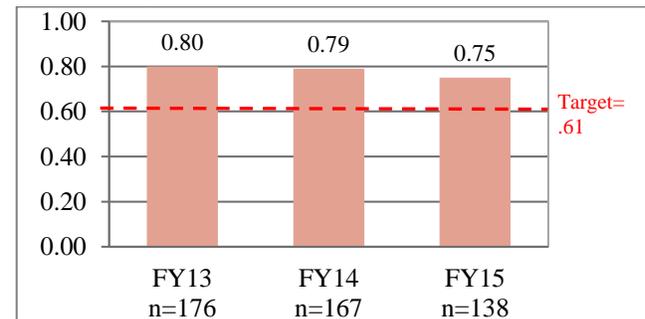


Figure 26. Average Therapist Adherence Score, FY13-FY15



MST Discharges & Outcomes

Of the 136 youths who were discharged from MST in FY15, 123 (90%) had the *opportunity for a full course of treatment*.⁷ The remaining 10% of cases did *not have the opportunity for a full course of treatment* (note that these cases are not included in subsequent analyses).⁸

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.

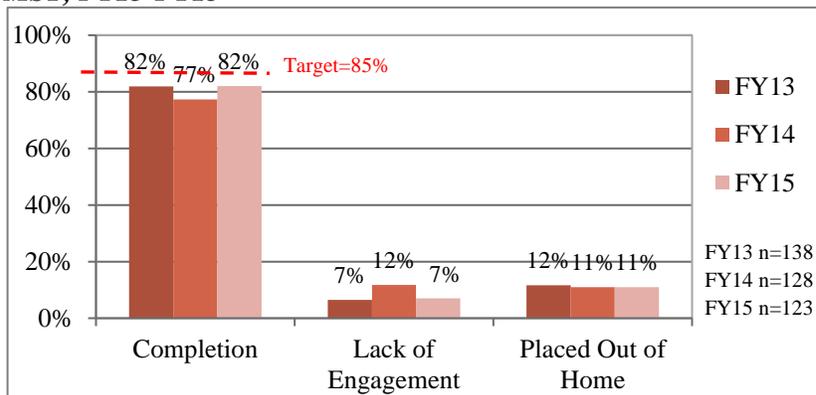
⁷ Discharge reasons for youth classified as *having the opportunity for a full course of treatment* include: completion (i.e., case closed by mutual agreement), lack of engagement, and placed out of home for an event during treatment.

⁸ Discharge reasons for youth classified as *not having the opportunity for the full course of treatment* include: youth/family moved, administrative reasons, and youth placed for an event that occurred prior to treatment. Of the 13 youths who did not have the opportunity for a full course of treatment in FY15, 5 were removed by the funding/referral source, 4 were administratively removed or withdrawn by the MST Program, 3 moved, and 1 was placed for a prior event.

Case Progress at Discharge

As shown in Figure 27, most youth completed MST in FY15 (82%, n=101). This represents an increase in the completion rate from FY14 (77%), though it falls slightly short of the 85% target. Eleven percent (11%) of youth discharged because they were *placed out of home for a new event during treatment* and 7% had not engaged in treatment; both of these outcomes slightly exceed their respective MST target rates (10% and 5%, respectively).

Figure 27. Discharge Reasons, Percent of Youth Discharged from MST, FY13-FY15

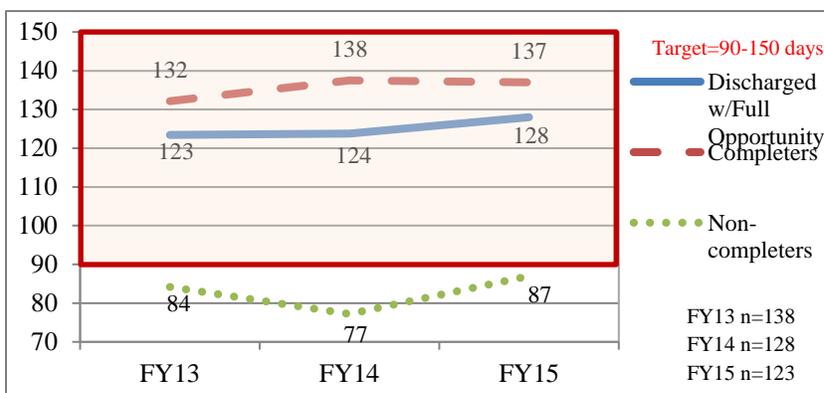


Bivariate analyses revealed that demographic characteristics of youth, including age, gender, and race/ethnicity, as well as their prior involvement with child welfare system, were not significantly related to program completion. However, youth who had prior committed residential placements with DJS were significantly less 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 128 days, which is well within the national purveyor's target of 90-150 days (Figure 28). The ALOS was significantly longer for youth who completed treatment (137 days) as compared to those who did not complete treatment (87 days).

Figure 28. Length of Stay in MST, Average Number of Days, FY13-FY15



The length of stay for youth discharged from MST in FY15 was statistically related to having prior involvement with DSS (longer lengths of stay) and having prior DJS committed residential placements (shorter lengths of stay). Length of stay did not vary significantly by youth's age, gender, race/ethnicity, having prior DJS complaints, or funding source. 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:

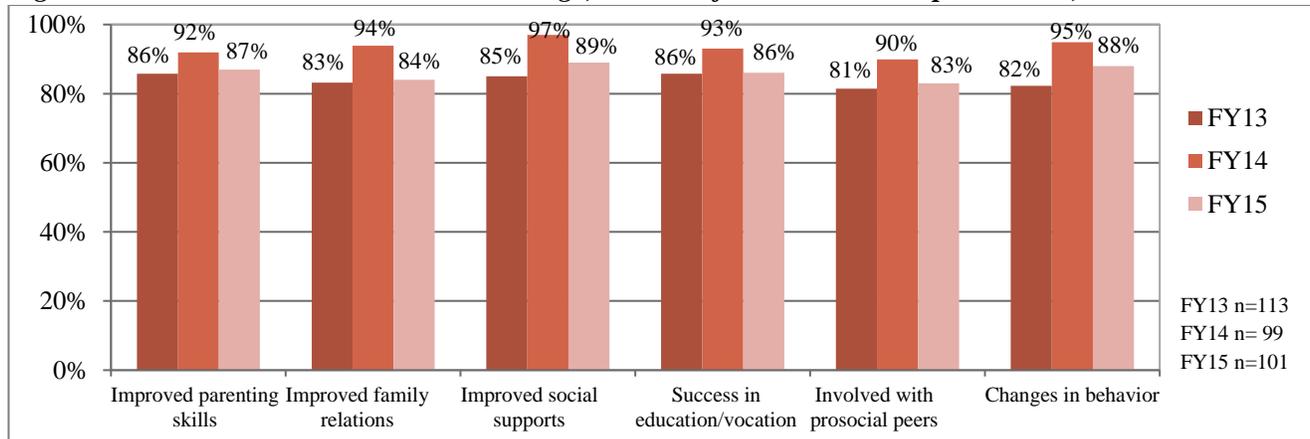
- 1) Primary caregiver(s) has improved the parenting skills necessary for handling subsequent problems;
- 2) Improved family relations related to drivers of the youth referral behavior;
- 3) Family has improved network of informal social supports in the community;
- 4) Youth is showing evidence of success 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, 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 29 shows the instrumental outcomes for youth who completed MST for the past three years. There were decreases in every instrumental outcome in the past fiscal year. Still, at least 80% of the youth received a positive indication for each of the instrumental outcomes, and more than two-thirds (68%) of youth showed improvement in all six domains.

Figure 29. Instrumental Outcomes at Discharge, Percent of Youth Who Completed MST, FY13-FY15

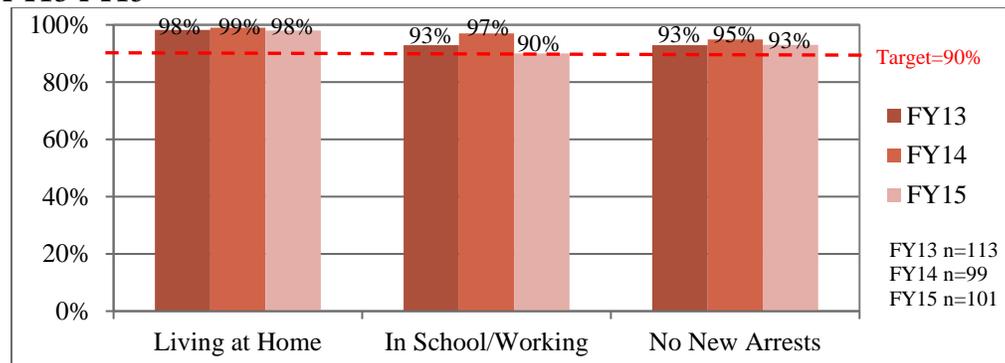


Ultimate Outcomes at Discharge

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 30 shows positive results overall in the ultimate outcomes for youth who completed MST in Maryland from FY13 through FY15. In the most recent year, the percentages of youth living at home (98%), in school/working (90%), and with no new arrests (93%) exceeded program targets (90%). Additionally, 82% of youth who completed MST in FY15 had positive results for all three ultimate outcomes.

Figure 30. Ultimate Outcomes at Discharge, Percent of Youth Who Completed MST, FY13-FY15



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 7% of completers had new arrests during treatment, data provided by DJS and DPSCS indicate that 25% of completers had been referred to DJS/arrested for a felony or misdemeanor offense while receiving MST in FY15. In addition, DJS data show that 15% of youth were admitted to a DJS detention facility during treatment.

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. To assess these outcomes post discharge, The Institute provided DJS and DPSCS with the name, gender, race/ethnicity, and date of birth of *all* youths who were discharged from MST in FY12, FY13, and FY14, 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 (3 youths in FY12 and 1 in FY14).⁹

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 or adult arrest for a misdemeanor or felony offense.

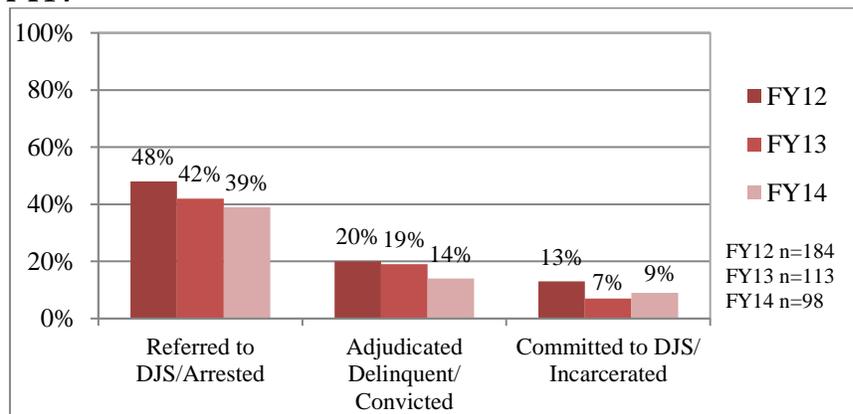
Adjudicated Delinquent/Convicted refers to any felony/misdemeanor complaint that is adjudicated delinquent at a judiciary hearing or any adult arrest that results in a guilty finding at a criminal court hearing.

Committed to DJS/Incarcerated refers to any commitment to DJS custody as a result of a felony/misdemeanor 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.

Of youth who completed MST in FY14, 39% were subsequently referred to DJS or arrested within one year of discharge—a decline relative to those who completed in FY12 (48%) and FY13 (42%; Figure 31). Smaller shares of youth were ultimately adjudicated delinquent/convicted (14% in FY14) and committed to DJS/incarcerated for these arrests (9% in FY14). In general, recidivism rates have declined for each subsequent cohort of youth.

Figure 31. Juvenile & Criminal Justice System Involvement within 12 Months Post Discharge, Percent of Youth Who Completed MST, FY12-FY14



According to bivariate analyses using all MST completers from FY12 through FY14, males, those with prior DJS complaints, and those with prior placements in committed residential care (DJS) were significantly more likely

⁹ 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.

than their counterparts to be referred to DJS/arrested within one year post-MST discharge. Age, race/ethnicity, and prior DSS involvement were not statistically related to having a subsequent referral to DJS/arrest.

Figure 32 summarizes subsequent involvement with DJS and/or DPSCS within 12 and 24 months for youth who completed MST in FY12, FY13, and FY14. These numbers suggest that justice system involvement was driven primarily by contacts with the juvenile justice system, though 27% of FY12 completers and 20% of FY13 completers were arrested in the adult system within two years of discharge. While there are generally decreasing trends over time, the percentages of youth with subsequent justice system contact within 24 months are high—59% of FY13 completers were referred to DJS/arrested, 27% were adjudicated delinquent/convicted, and 12% were subsequently committed to DJS/incarcerated. There were substantial differences in these percentages by jurisdiction (see Appendix 1).

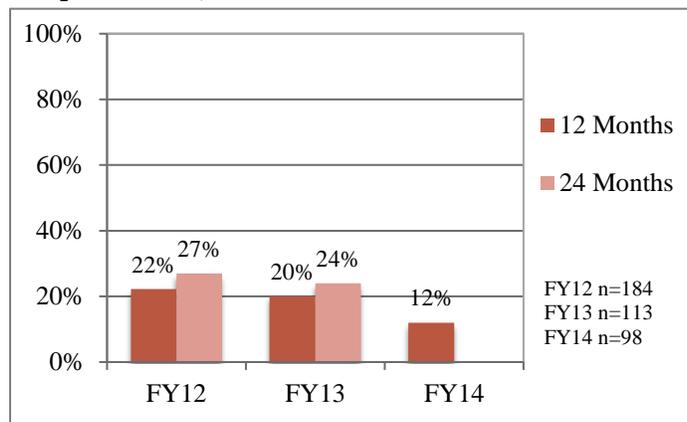
Figure 32. Juvenile & Criminal Justice System Involvement within 12 and 24 Months Post Discharge, Percent of Youth Who Completed MST, FY12-FY14

		FY12 (n=184)			FY13 (n=113)			FY14 (n=98)		
		Ref./ Arrest	Adj./ Convict.	Comm./ Incar.	Ref./ Arrest	Adj./ Convict.	Comm./ Incar.	Ref./ Arrest	Adj./ Convict.	Comm./ Incar.
DJS	12 Months	41%	15%	8%	37%	18%	7%	35%	13%	7%
	24 Months	50%	22%	10%	47%	22%	8%	--	--	--
DPSCS	12 Months	13%	5%	4%	7%	1%	0%	7%	2%	2%
	24 Months	27%	11%	10%	20%	5%	4%	--	--	--
DJS/ DPSCS	12 Months	48%	20%	13%	42%	19%	7%	39%	14%	9%
	24 Months	63%	30%	19%	59%	27%	12%	--	--	--

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 in FY14, approximately 12% were admitted to a DJS committed residential placement¹⁰ during the 12 months following treatment completion—a smaller share than previous cohorts. Further, 27% and 24% of the FY12 and FY13 completers, respectively, were admitted to a committed residential placement within a 24-month follow-up period (Figure 33).¹¹

Figure 33. DJS Committed Residential Placement within 12 and 24 Months Post Discharge, Percent of Youth Who Completed MST, FY12-FY14



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

¹¹ 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 youths who were discharged prior to the last day of FY14. DHR researchers matched these youths in their State Automated Child Welfare Information System to retrieve information about contact with the child welfare system post-MST discharge. Overall, 5% of youth who completed MST in FY12, 4% of completers in FY13, and 8% of completers in FY14 had some form of new DSS involvement within 12 months (Figure 34). Among the 98 youths who completed in FY14, six (6%) had an investigation, four (4%) began receiving in-home services, and three (3%) were placed out-of-home within 12 months of discharge from MST (Figure 35).

Figure 34. New Child Welfare Involvement within 12 and 24 Months Post Discharge, Percent of Youth Who Completed MST, FY12-FY14

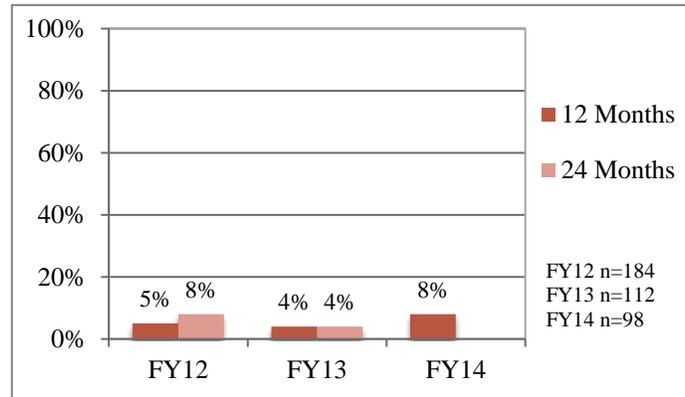


Figure 35. Child Welfare System Involvement within 12 and 24 Months Post Discharge, Percent of Youth Who Completed MST, FY12-FY14

	FY12 (n=184)			FY13 (n=112)			FY14 (n=98)		
	Investigation	In-Home Service	Out-of-Home Plcmt	Investigation	In-Home Service	Out-of-Home Plcmt	Investigation	In-Home Service	Out-of-Home Plcmt
12 Months	2%	3%	1%	1%	3%	0%	6%	4%	3%
24 Months	4%	4%	2%	1%	3%	0%	--	--	--

*Three youth in FY12, 1 in FY13, and 1 in FY14 could not be matched to DHR data due to missing identifiers.

Cost of MST in Maryland

Service Delivery Cost

In FY15, the total service delivery cost for providing MST in Maryland was \$2,131,602. This amount includes payments made to service providers from funders, as well as the amount contracted through The Institute to provide training, coaching, and fidelity monitoring. Although there were variations in costs across the different providers, on average, the cost of administering MST was \$15,674 per discharged youth (Figure 36).

Figure 36. Service Delivery Cost of MST in Maryland, FY15

Number of Discharged Youths	136
Avg. Service Delivery Cost per Youth	\$15,674
Total Service Delivery Cost	\$2,131,602

Cost Analysis for DJS-Funded Youth

One of the applications of MST is to prevent placement in more restrictive settings among high-risk youth. Although youth served by MST can be funded by a variety of sources (e.g., DJS, DSS, and CCIF), most are funded by DJS; thus, a simple analysis was conducted for DJS-funded youth to compare costs of MST with those of residential programs that serve comparable youth. The costs presented in this section are calculated as per diem rates and based solely on the contracted amounts between service providers and DJS, thereby excluding costs associated with training, coaching, and implementation data monitoring. The total estimated cost of care is based on these per diem rates multiplied by the average length of stay for each program—both important factors in overall costs. Findings are presented as averages by program type in Figure 37. Within the DJS residential service

array, treatment foster care programs, group homes, and therapeutic group homes serve youth who are most similar to the profiles of youth served by MST, and data for these programs are presented accordingly. In FY15, the average per diem rates were \$174 for treatment foster care programs, \$214 for group homes, and \$259 for therapeutic group homes. At the same time, the average MST per diem rate for DJS youth was considerably lower at \$121. Further, MST had a shorter average

Figure 37. Cost Analysis of MST and Placements for DJS-Funded Youth, FY15*

Program Type	Average Per Diem Rate	Average Length of Stay (Days)	Avg. Cost per Stay/Treatment
MST	\$121	120	\$14,463
Treatment Foster Care	\$174	386	\$63,057
Group Home	\$214	227	\$48,569
Therapeutic Group Home	\$259	227	\$58,610

*Per Diem Rate and Average Length of Stay were provided by DJS. The Average Cost per Stay/Treatment was calculated by multiplying the Per Diem Rate by the Average Length of Stay for each program. The numbers presented in this table represent averages for each program type.

length of stay relative to the residential programs. A comparison of total costs across program types shows that MST has the potential to result in substantial cost savings. For example, the MST cost for DJS youth was 25% of the cost per stay in therapeutic group homes and 23% the cost per stay in treatment foster care programs. This analysis should be considered with caution, however, for several key reasons. For one, it does not identify comparable youth across programs (e.g., it is possible that some of the residential programs serve higher risk youth and/or those who would not be eligible for MST). Also, the per diem rates and lengths of stay vary considerably within each program type and total costs may significantly lower or higher depending on the program—an average was presented merely to simplify the analysis. Third, as stated above, costs included in these calculations do not necessarily account for all costs required to operate these programs. Finally, a more comprehensive analysis would consider both positive and negative program outcomes, and their associated monetary benefits and costs. Notwithstanding, this analysis suggests that MST is significantly less costly than residential care for youth.

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