



NEW MEXICO MST OUTCOMES TRACKING PROJECT

2005-2017 EVALUATION REPORT



UNIVERSITY of
DENVER

GRADUATE SCHOOL OF SOCIAL WORK
Center for Effective Interventions




UNM
SCHOOL of MEDICINE

Department of Psychiatry and Behavioral Sciences
Division of Community Behavioral Health

TABLE OF CONTENTS


Results Summary	2
Introduction.....	4
Multisystemic Therapy.....	4
New Mexico MST Outcomes Tracking Project.....	4
Background	4
Partners.....	4
Provider Agencies.....	5
Data Sources	6
Outcomes Tracking Project (OTP) Results	8
Youth Who Completed Standard MST Treatment	8
Sociodemographic Characteristics at Admission.....	8
Problem Severity at Admission	9
Longer-Term Outcomes.....	10
Changes in Five Instrumental Youth and Family Functioning Outcome Measures	13
Tools Needed to Fulfill Expected Roles in Society	14
MST for Youth with Problem Sexual Behavior (MST-PSB).....	15
Sociodemographic Characteristics at Admission.....	16
Problem Severity at Admission	17
Longer-Term Outcomes.....	17
Changes in Five Instrumental Youth and Family Functioning Outcome Measures	18
Tools Needed to Fulfill Expected Roles in Society	19
Cost-Benefit Analysis of MST: Summary	20
Juvenile Crime Outcomes	21
Behavioral Health Services Outcomes	22
Summary and Conclusions	23

RESULTS SUMMARY




Multisystemic Therapy (MST)

New Mexico, 2005-2017 Outcomes

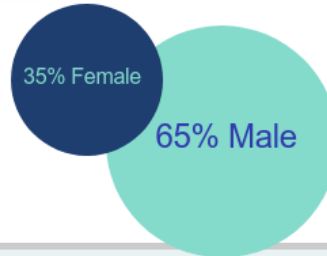


Department of Psychiatry and Behavioral Sciences
Division of Community Behavioral Health

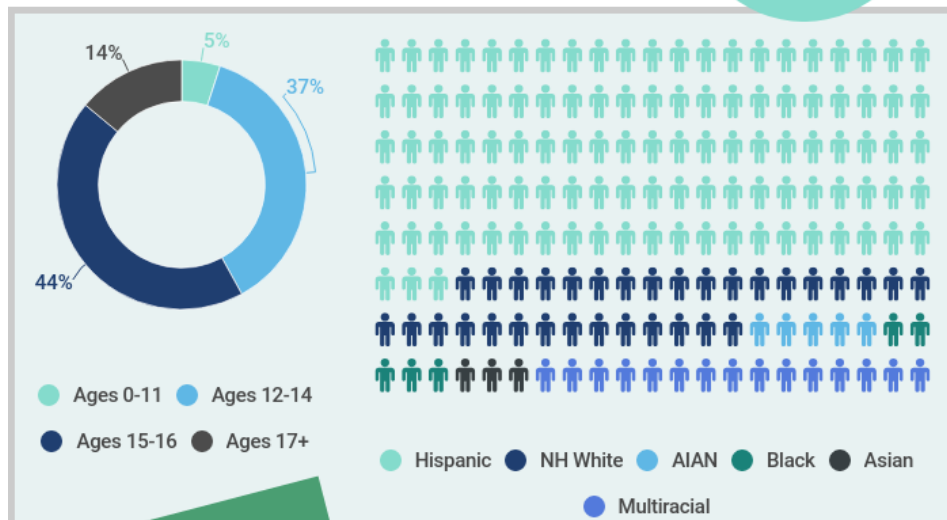


UNIVERSITY of DENVER
GRADUATE SCHOOL OF SOCIAL WORK
Center for Effective Interventions

MST is a therapeutic system involving youth with serious antisocial behavior and their families



5,394 youth completed standard MST in New Mexico from 2005 to 2017

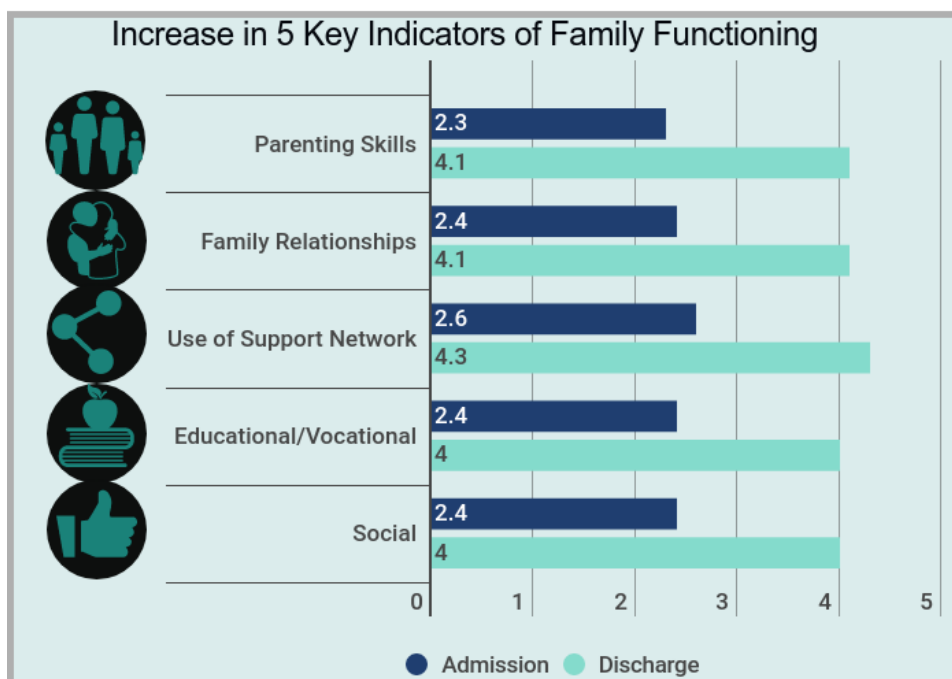
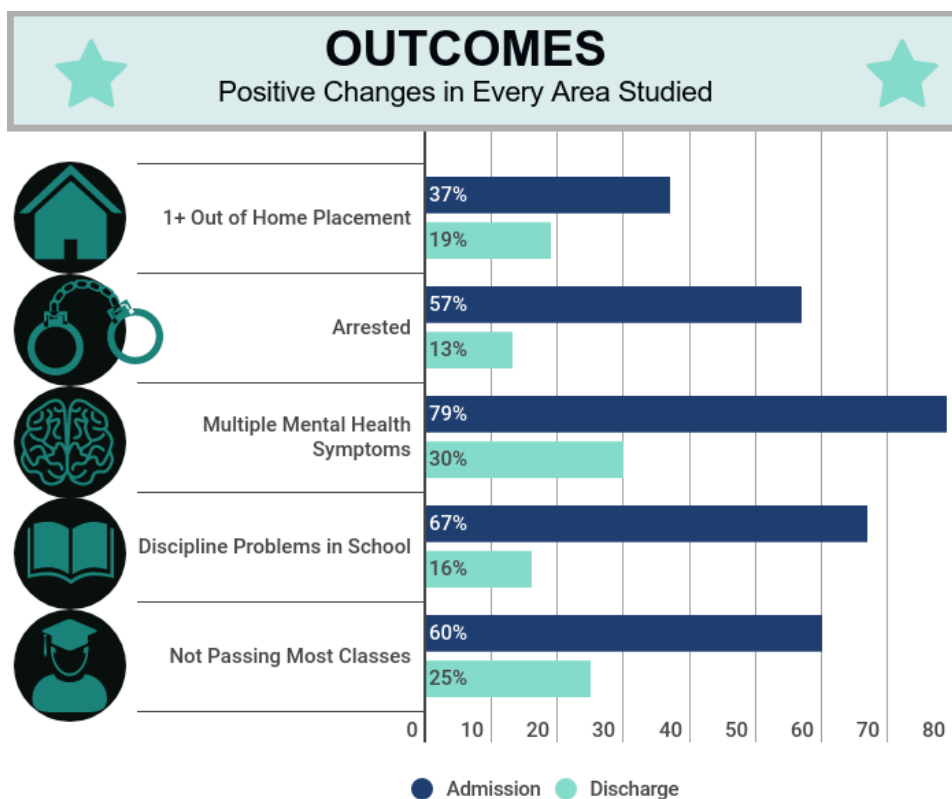


Cost/Benefit

↓ **\$124.7 million** in reduced crime rate expenses ↓
↓ **\$36.1 million** in reduced Medicaid expenses ↓

\$71,382 saved PER YOUTH PARTICIPANT

Every Dollar Spent on MST resulted in **\$5.87** in community benefits



INTRODUCTION

Multisystemic Therapy

Multisystemic Therapy (MST) is an intensive home-, family-, and community-focused treatment for youth with serious antisocial behavior and their families. MST has been shown to reduce the youth's criminal offending, out of home placements, and behavioral health issues and to improve family functioning. Developed by Dr. Scott Henggeler in the 1970s, MST teams are now located in 33 states (and the District of Columbia) and 15 countries outside the United States¹. In New Mexico, MST teams served 30.3% (10) of the state's counties between July 2005 and June 2017.

New Mexico MST Outcomes Tracking Project

BACKGROUND

Implementation of MST in New Mexico began in late 2003 with program evaluation funding provided by New Mexico's Children, Youth & Families Department (CYFD). In March 2005, the New Mexico Outcomes Tracking Project (NM-OTP) combined efforts and resources with Colorado's Center for Effective Interventions (CEI), which had contracted with Focus Research & Evaluation to create and pilot a statewide outcomes database for youth who received MST treatment in Colorado. The MST Institute (MSTI) joined the collaboration early in the development phase. In 2016, the University of New Mexico Health Sciences Center's Division of Community Behavioral Health (CBH) assumed the role of evaluator for the NM-OTP.

The collaboration ultimately produced the Colorado/New Mexico Enhanced MSTI Website. This site, which is available through the national MSTI website, allows clinicians easy and secure access to data entry and routine reporting. The NM-OTP provides demographic and outcome data regarding youth and families who have received MST services from New Mexico's MST provider agencies.

PARTNERS

This evaluation report is a joint product of the collaboration between these entities. Together, the partners developed the database and tracking system that provided the foundation for separately funded and reported MST evaluation efforts in New Mexico and Colorado.

- **CYFD** – provides co-leadership, coordination and funding for the program evaluation.
- **CEI** – provides support, training, and consultation to MST teams in New Mexico and surrounding western states. CEI shares leadership of the program evaluation.
- **MSTI** – a non-profit organization provides web-based database management information systems and quality assurance tools to programs implementing MST.
- **CBH** – provides support to MST providers for data collection and produces annual statewide and agency-specific outcome reports through ongoing collaboration with MSTI.

¹ Licensed Teams. MST Services, Inc. <http://mstservices.com/index.php/teams/licensed-teams>. Accessed on November 21, 2017.

PROVIDER AGENCIES

During July 2015-June 2017, six organizations were operating 23 MST Teams in their catchment areas. Of these, 4 teams were specialized MST-Problem Sexual Behavior (MST-PSB) Teams. The parent organization, number of teams and catchment areas are listed in Table 1. Owing to the funding mechanism for MST in NM, most of the youth were Medicaid eligible.

TABLE 1. NEW MEXICO'S MST PROVIDER ORGANIZATIONS, TEAMS, AND CATCHMENT AREAS

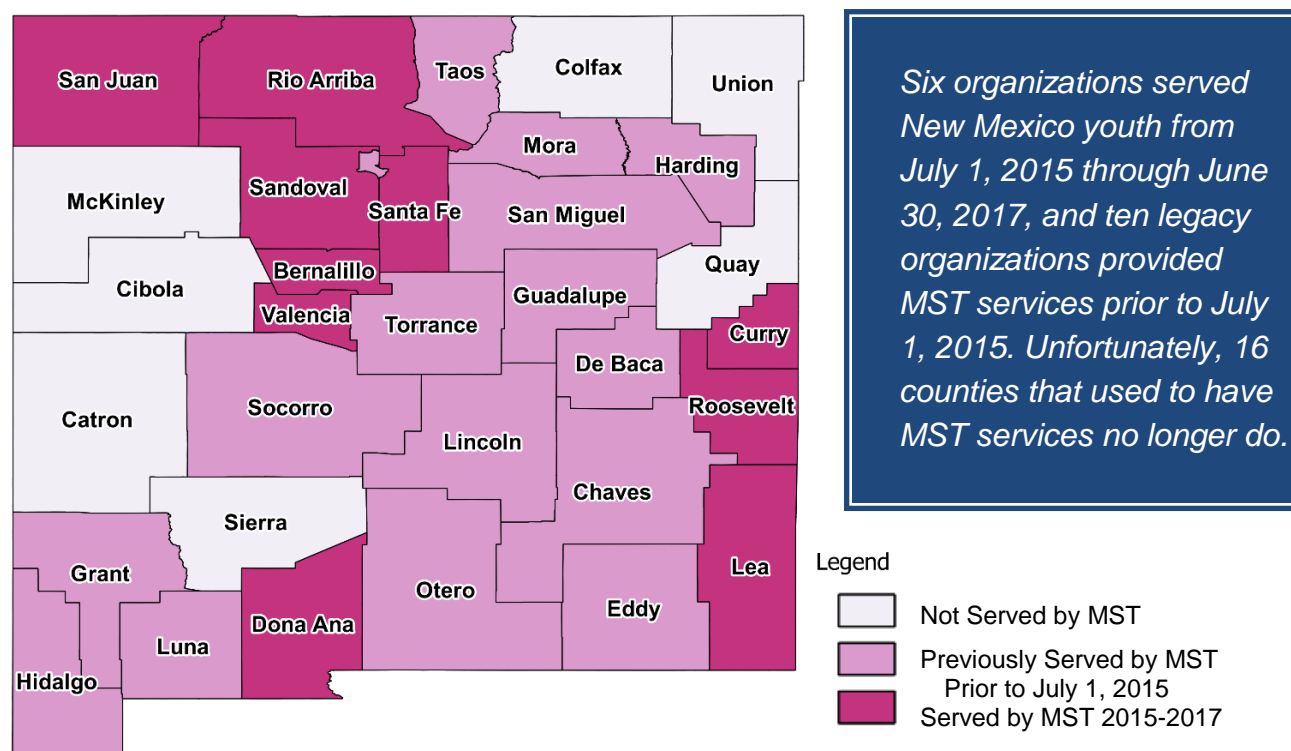
Provider Organizations	Teams	Catchment Areas
Guidance Center of Lea County*	1 Standard MST	Hobbs
La Clinica de Familia	1 Standard MST	Dona Ana County (including Las Cruces)
	1 MST-PSB	
Mental Health Resources	1 Standard MST	Clovis, Portales
Presbyterian Medical Services	7 Standard MST**	Santa Fe and NE New Mexico including Albuquerque, Rio Rancho & Los Lunas, Farmington
Southwest Family Guidance Center and Institute	7 Standard MST***	Albuquerque, Los Lunas, Las Cruces, Sandoval County, Rio Arriba County, Santa Fe, Valencia County
	3 MST-PSB	
University of New Mexico	2 Standard MST	Albuquerque

* This organization ceased providing MST services on February 15, 2017.

**Two of these teams ceased providing MST services on April 1, 2017.

***Two new teams began providing MST services on June 1, 2016.

Figure 1. Penetration of MST in New Mexico by County During 2015-2017



DATA SOURCES

Data are collected on all youth when they are admitted to and discharged from MST treatment. These data are entered into the **MSTI online database** by MST therapists and supervisors. An independent contractor, Advanced Behavioral Health, conducts telephone interviews with caregivers of youth who complete MST treatment at six- and twelve-months post discharge. The 5,562 youth who were admitted and discharged between July 1, 2005 and June 30, 2017 and who completed standard MST (n = 5,394) and MST-PSB (n = 168) treatment were included in this year's analyses. Six- and/or twelve-month post discharge follow-up data were collected for 2,759 (51%) of the youth receiving standard MST services; 1,508 (28%) had data at four time points (i.e., admission, discharge, and six and twelve months after discharge). Among youth who received MST services for problem sexual behavior, six- and/or twelve-month post discharge follow-up data were collected for 82 (49%) and 45 (27%) had data at all four time points. This database is the primary source of data for this report.

CYFD's Juvenile Justice Family Automated Client Tracking System (FACTS) database was utilized to examine juvenile justice filings for youth receiving MST services. Maintained within CYFD's Juvenile Justice Services (JJS) Unit, this database includes information about New Mexico youth involved with juvenile justice, including filings (i.e., petitions, referrals). Previous reports, based on outcomes from youth who completed MST by June 2012, have presented the results of economic analyses that compared the costs of MST to benefits resulting from reductions in: (a) JJS petitions in the FACTS database, or (b) Medicaid behavioral health claims in New Mexico's **Managed Care Organizations (MCO) Paid Claims Databases**. The results are summarized in this report as well (see pages 19-21).





OUTCOMES TRACKING PROJECT (OTP) RESULTS

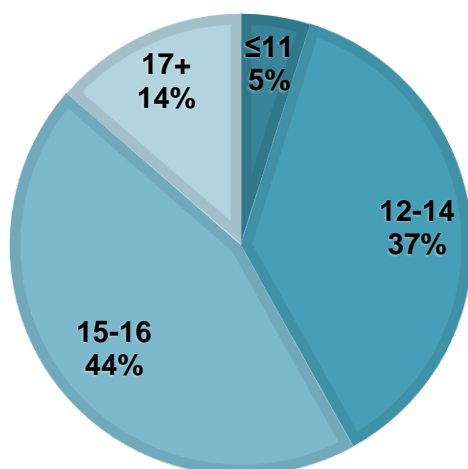
Youth Who Completed Standard MST Treatment

SOCIODEMOGRAPHIC CHARACTERISTICS AT ADMISSION

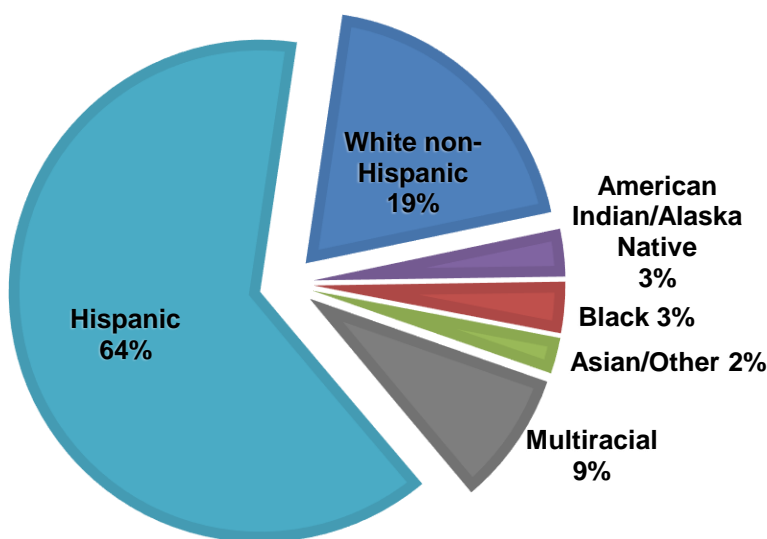
Notable characteristics of the youth who completed² MST treatment include:

- ❖ 65% male
- ❖ Average age at admission = 15.2 years
- ❖ 95% were living at home at the time of admission
- ❖ 64% of the youth were Latino/Hispanic

AGE IN YEARS AT ADMISSION (N=5,293)



RACE/ETHNICITY (N=5,393)



OF THE 6,400 NEW MEXICO YOUTH WHO ENROLLED IN MST TREATMENT DURING THE 12-YEAR EVALUATION PERIOD, 5,394 (84.3%) COMPLETED MST TREATMENT, WITH AN AVERAGE LENGTH OF STAY OF 4.5 MONTHS.

²Completion of MST was based upon the mutual agreement of the primary caregiver(s) and the MST Team and does not necessarily indicate successful treatment.

PROBLEM SEVERITY AT ADMISSION

The 5,394 youth who enrolled in and completed MST treatment demonstrated serious problems in many areas of their lives.

DURING THE THREE MONTHS BEFORE ADMISSION: 36% OF THE YOUTH HAD LIVED OUT OF HOME AT LEAST ONCE, INCLUDING 16% THAT WERE IN A CRIMINAL JUSTICE FACILITY.

During the year before admission:

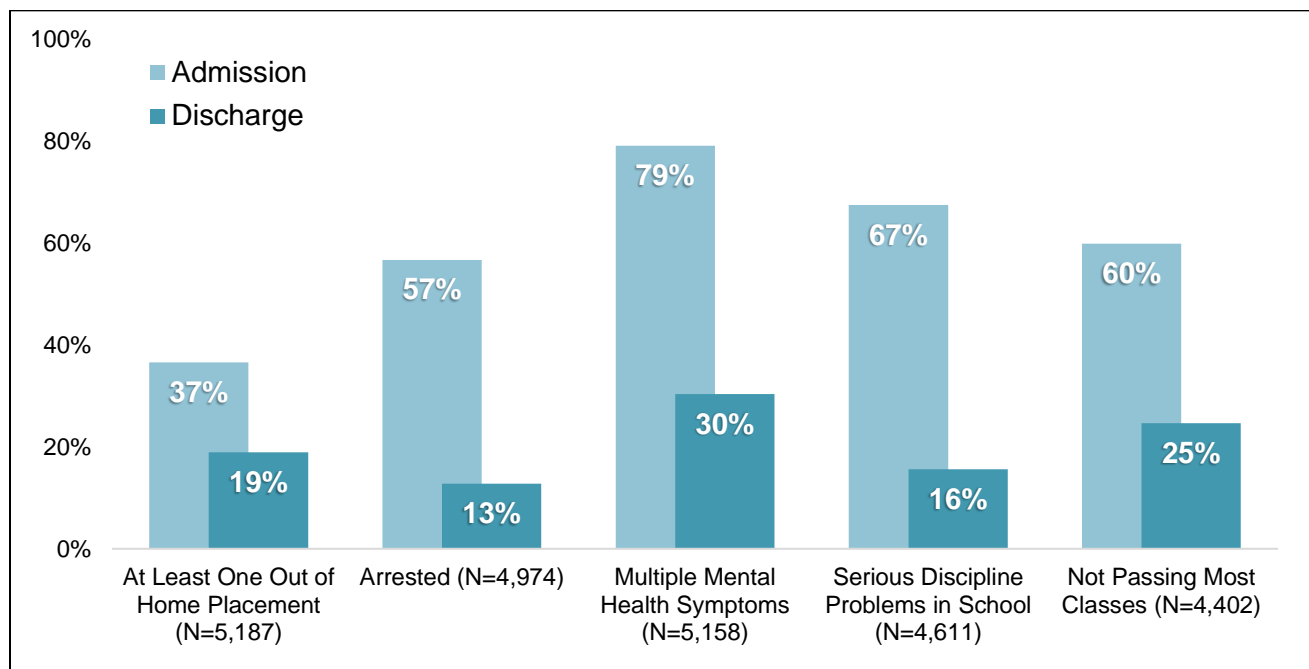
- ❖ 60% had not been passing most classes and 68% displayed multiple/chronic discipline problems in school.
- ❖ 68% exhibited serious discipline problems in school.
- ❖ 57% had been arrested.
- ❖ 79% experienced multiple mental health symptoms.
- ❖ 47% had co-occurring mental health and substance abuse problems.
- ❖ 35% had been prescribed psychiatric medications for behavioral health problems other than attention deficit disorder.
- ❖ 20% evidenced suicide-related thoughts or behaviors.
- ❖ 21% had been in residential treatment or hospitalized for psychiatric reasons during the year before enrollment.



LONGER-TERM OUTCOMES

Outcomes at Discharge

FIGURE 2. OUTCOMES FOR OUT OF HOME, ARRESTS, SCHOOL, AND MENTAL HEALTH SYMPTOMS FROM ADMISSION TO DISCHARGE FOR YOUTH WHO COMPLETED MST³



From admission to discharge, youth made positive changes in every outcome area studied, including out-of-home placement, legal involvement, mental health, and school status.

When a youth is admitted to and discharged from MST, therapists answer the following questions about outcomes during the year prior to treatment and the time during treatment:

- Did the youth live in any place besides at home with a parent or guardian in the past 90 days/during treatment?
- Was the youth arrested in the past year/during treatment?
- Did the youth have more than one mental health or behavior problems at the time of admission/discharge (including aggression, defiance, depression, attention deficiency, anxiety, post-traumatic symptoms, and suicidality)?
- Has the youth exhibited multiple/chronic disciplinary problems during the year prior to admission/during treatment?
- Has the youth passed most classes during the year prior to admission/during treatment?

³ Repeated measures analysis from Admission to Discharge was paired by youth, and only included youth with valid data at admission and discharge. The number of youth varies for each outcome because of missing data. All changes were statistically significant at the $\alpha=0.05$ level using the paired McNemar test.

Outcomes 6 and 12 Months after Discharge

Of the 5,394 youth with admission and discharge information, 1,508 (28%) had data from all four time points. While all 5,394 youth with admission and discharge information were included in the follow-up analysis⁸, it is important to note the differences in demographics and problem severity between those for whom follow-up information is available and those for whom it was not. Table 2 includes the results of a representativeness study between those with both 6- and 12-month post discharge data, and youth with no (or partial) follow-up data.

TABLE 2. COMPARISON OF DEMOGRAPHICS AND PROBLEM SEVERITY AT ADMISSION BETWEEN YOUTH WITH 6- AND 12-MONTH POST DISCHARGE DATA AND ALL OTHER YOUTH.

	All Follow-up Data		All Other Cases	
	N	Statistic	N	Statistic
Age (Mean (Median), [Range]) in years⁴	1,484	15.1 (15.4), [9-18]	3,809	15.2 (15.4), [9-19]
Female (%)⁵	1,508	34.3%	3,885	34.7%
Race/Ethnicity⁵				
<i>Hispanic (%)</i>	996	66.1%	2,426	62.5%
<i>White non-Hispanic (%)</i>	276	18.3%	769	19.8%
<i>American Indian/Alaska Native (%)</i>	30	2.0%	134	3.5%
<i>Black (%)</i>	38	2.5%	137	3.5%
<i>Asian/Other (%)</i>	24	1.6%	100	2.6%
<i>Multiracial (%)</i>	144	9.6%⁶	319	8.2%
<i>Total (%)</i>	1,508	100%	3,885	100%
Living outside Home (%)⁵	1,478	35.7%	3,760	36.8%
School Status⁵				
<i>Enrolled in K-12 (%)</i>	1,182	87.9%	2,888	85.9%
<i>Enrolled in GED Classes (%)</i>	44	3.3%	128	3.8%
<i>Dropped Out (%)</i>	73	5.4%	204	6.1%
<i>Expelled (%)</i>	36	2.7%	120	3.6%
<i>Graduated High School or Higher (%)</i>	10	0.7%	24	0.7%
<i>Total (%)</i>	1,345	100%	3,364	100%
Passing Most Classes (%)⁵	1,333	42.2%⁶	3,329	38.8%
Arrested (%)⁵	1,396	54.4%	3,578	57.6%⁶
Any Legal Issue (%)⁵	1,468	59.6%	3,736	63.6%⁶
Any Mental Health Symptoms (%)⁵	1,481	98.2%	3,761	97.7%
Mental Health Symptoms (Mean (Median, [Range]))⁷	1,481	2.9 (3), [0-6]	3,761	2.9 (3), [0-6]
Any Substance Abuse Problems (%)⁵	1,481	47.00%	3,761	48.36%
Substance Abuse Symptoms⁵				
<i>None (%)</i>	819	55.3%	2,044	54.4%
<i>One (%)</i>	366	24.7%	956	25.4%
<i>Two (%)</i>	296	20.0%	761	20.2%
<i>Total (%)</i>	1,481	100%	3,761	100%

⁴ Wilcoxon Two-Sample Test

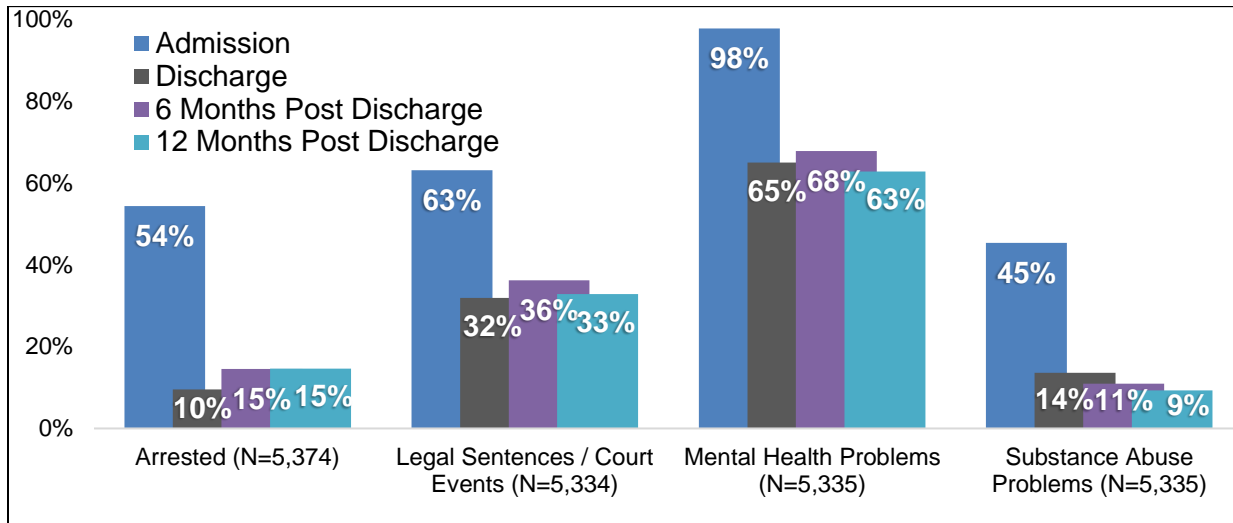
⁵ X² Test

⁶ Significantly different at the $\alpha=0.05$ level.

⁷ Independent T-test

The comparison study determined that youth with all follow-up data were significantly more likely to be multiracial and to be passing most classes, but significantly less likely to have been arrested or had any legal issue prior to admission. However, the two groups were similar in age, gender, living situation, school status, mental health, and substance abuse.

FIGURE 3. YOUTH WHO COMPLETED MST: OUTCOMES FOR ARRESTS, LEGAL EVENTS, MENTAL HEALTH, AND SUBSTANCE USE AT FOUR TIME POINTS⁸



The following outcomes for youth enrolled in MST treatment are assessed at four time points by therapists (at admission and discharge) and caregivers (6 and 12 months after discharge):

**LONGITUDINAL
ANALYSES
DEMONSTRATED
MAINTENANCE OF
GAINS IN LEGAL,
MENTAL HEALTH AND
SUBSTANCE ABUSE
STATUS TWELVE
MONTHS AFTER THEY
COMPLETED THE
PROGRAM.**

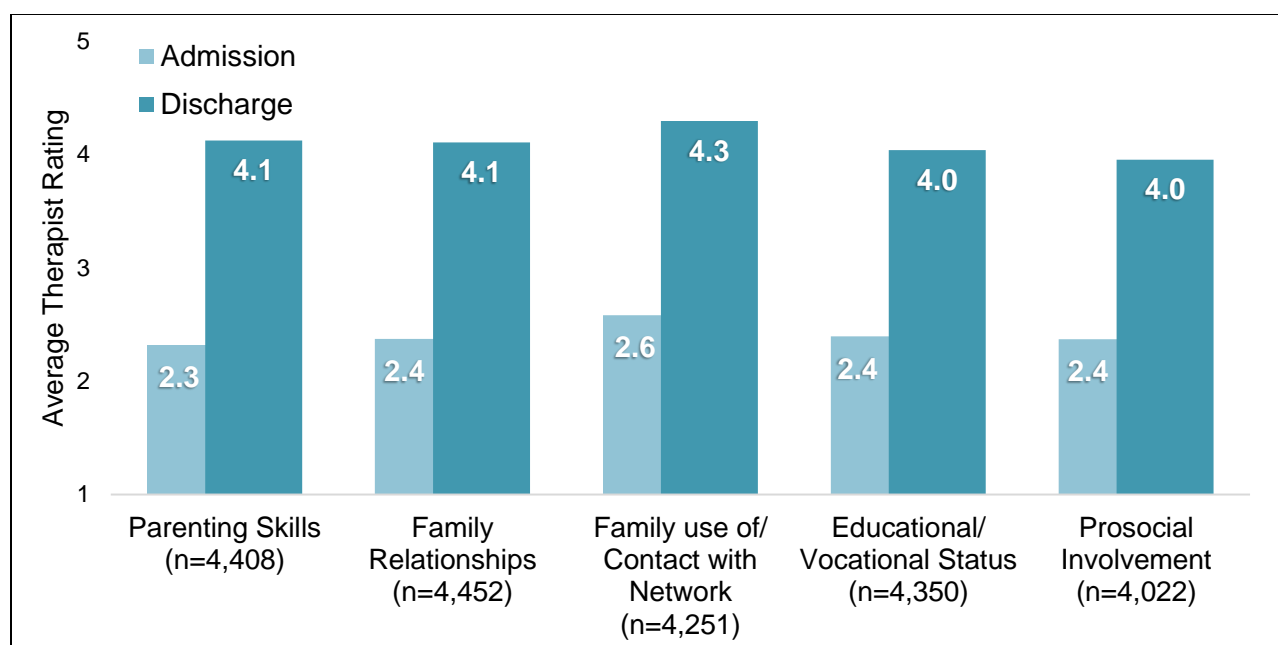
- Was the youth arrested in the past year/during treatment/in the past six months?
- Did the youth have any legal sentences or court events during the year before admission/during treatment/in the past six months (including juvenile detainment, adult incarceration, diversion program, probation, parole, court-ordered community service, electronic monitoring, or drug or mental health court)?
- Did the youth have any mental health or behavior problems at the time of admission/discharge/follow-up (including aggression, defiance, depression, attention deficiency, anxiety, post-traumatic symptoms, or suicidality)?
- Were there problems as a result of alcohol or drug use at the time of admission/discharge/follow-up (including traffic violations, fights, or missing work or school)?

⁸ Generalized mixed regression models were used to analyze the repeated measures of the four separate outcomes at every time point, allowing for paired effects by youth. For this reason, all youth with data at any time point were included in every model. Reductions from admission to discharge, 6 months, and 12 months were significant for all outcomes at the $\alpha=0.05$ level using a partial F test.

CHANGES IN FIVE INSTRUMENTAL YOUTH AND FAMILY FUNCTIONING OUTCOME MEASURES

MST views five measures of youth and family functioning as important mediators to attaining MST's three ultimate outcomes: living at home, no arrest, and in school/working. The Instrumental Outcome measures, which include parenting, family relationships, supportive networks, educational/vocational status, and youth involvement with prosocial peers, document the clinician's judgments regarding changes in the family's ecology that are predicted to be associated with positive outcomes. As Figure 4 shows, youth improved significantly on all Instrumental Outcome measures from admission to discharge.

FIGURE 4. YOUTH & FAMILY FUNCTIONING (THERAPIST RATINGS) ADMISSION TO DISCHARGE⁹



Caregivers are asked during six- and twelve-month post-discharge interviews to rate how the youth is functioning in each of the five Instrumental Outcome measures compared to the prior rating period on the following scale: (1) Much Worse, (2) Worse, (3) About the Same, (4) Better, or (5) Much Better. Table 3 displays the percentage of caregivers who reported that the youth was doing "Better" or "Much Better" at 6- and 12-months post discharge for each indicator. Most caregivers reported that the youth was doing "Better" or "Much Better" at both time periods across all five indicators.

TABLE 3. YOUTH & FAMILY FUNCTIONING PERCENT IMPROVED AT DISCHARGE AND 6 MONTHS POST DISCHARGE.

Time after Discharge	Following Rules	Family Relationships	Family Use of/Contact with Network	Educational/Vocational Status	Prosocial Involvement
6 months	79.1%	81.5%	66.6%	70.3%	71.3%
12 Months	77.5%	81.2%	66.7%	69.4%	69.4%

⁹ 5-point rating scale with higher numbers indicating better functioning. Repeated measures analysis from Admission to Discharge was paired by youth, and only included youth with valid data at admission and discharge. The number of youth varies for each outcome because of missing data. All changes were statistically significant at the $\alpha=0.05$ level using the Friedman test.

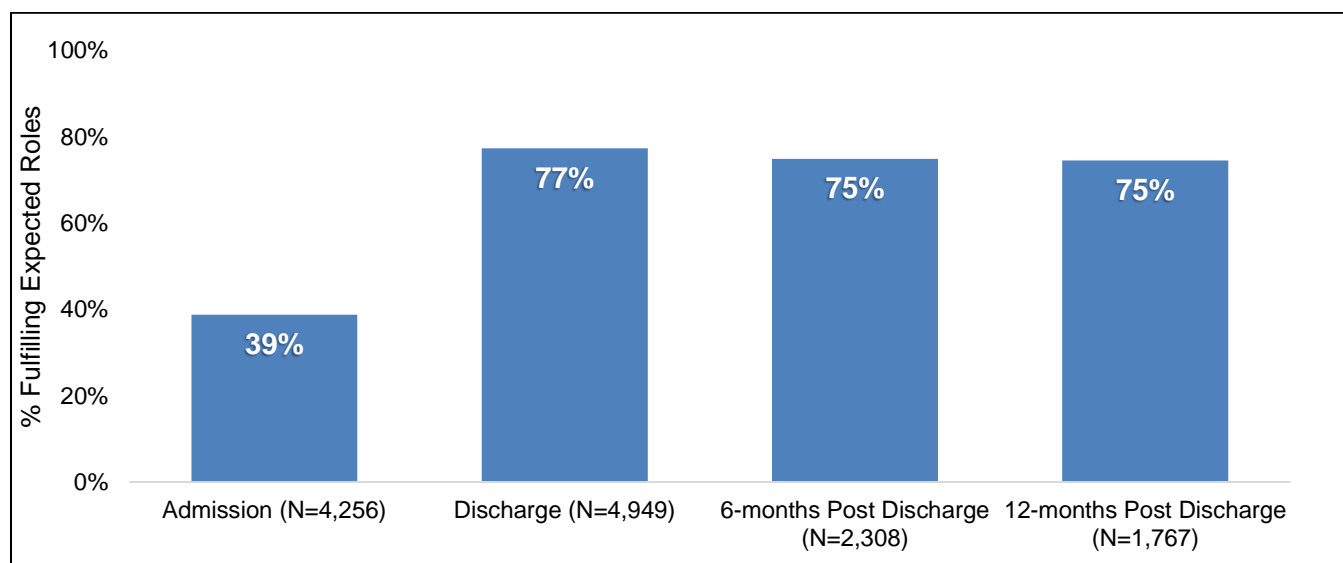
TOOLS NEEDED TO FULFILL EXPECTED ROLES IN SOCIETY

Information from the NM-OTP was compiled in order to look at the activities and achievements of youth who have completed MST before their treatment, at discharge, and at six and twelve months after their discharge. For the purposes of this evaluation, “Fulfilling Expected Roles” is defined as:

- 1) being enrolled in high school, GED, college, or vocational training classes AND passing most classes; or
- 2) graduated high school or received GED; or
- 3) working 20+/week.

The proportion of youth who were filling expected roles at each data collection point is displayed in Figure 5. This analysis does not take economic conditions or a youth’s age into account.

FIGURE 5. YOUTH WHO COMPLETED MST: YOUTH FULFILLING EXPECTED ROLES AT ADMISSION, DISCHARGE, 6 AND 12 MONTHS AFTER DISCHARGE (N=5,280) ¹⁰



FROM ADMISSION TO DISCHARGE, THESE NEW MEXICO YOUTH DEMONSTRATED SIGNIFICANT INCREASES IN THEIR FULFILLMENT OF EXPECTED ROLES. THESE GAINS WERE MAINTAINED THROUGH TWELVE MONTHS AFTER THEY COMPLETED THE PROGRAM.

¹⁰ A generalized mixed regression model was employed to analyze the repeated measure of fulfilling expected roles at every time point, allowing for paired effects by youth. For this reason, all youth with data at any time point were included in the model. Gains from admission to discharge, 6 months, and 12 months were significant for all outcomes at the $\alpha=0.05$ level using a partial F test.

MST for Youth with Problem Sexual Behavior (MST-PSB)



MST for problem sexual behaviors (MST-PSB) is a clinical adaptation of the intensive family- and community-based treatment model used in standard MST. Specifically, MST-PSB is designed to treat youth who are chronic and violent offenders who engage in criminal sexual behavior such as the sexual assault, rape or molestation of younger children. In order to qualify for the program, there also must have been a victim of the abuse other than the youth him- or herself.

The impetus to start MST-PSB in New Mexico resulted from two factors: 1) Treatment options for adolescents with problem sexual behaviors were essentially limited to residential facilities (i.e., high levels of care) and standard outpatient treatments (i.e., low levels of care); and 2) New Mexico's CYFD leadership was encouraged by the very positive impact standard MST was having on the youth served across the state. MST-PSB was first implemented in New Mexico in January 2009 by organizations that were already providing standard MST. The organizations providing MST-PSB then changed over time (see the charts on page 5 for recent and current providers). Historically, MST-PSB has been reimbursed at a slightly higher rate than standard MST owing to the former having a longer length of stay and higher intensity of service on average.

This section of New Mexico's Annual MST Evaluation report presents highlights from an analysis of the NM-OTP data available for 168 youth who completed MST-PSB during the evaluation period (85.7% of those who enrolled). Eighty-two (48.8%) of these youth also had at least one follow-up time point after discharge from MST-PSB. The results include differences in socio-demographic characteristics and problem severity at admission compared to youth who completed standard MST, changes in functioning from admission to discharge, and changes in fulfilling expected roles at four time points.

SOCIODEMOGRAPHIC CHARACTERISTICS AT ADMISSION

The youth who completed MST-PSB had an average length of stay/treatment of 6.4 months, compared to 4.5 months for those who completed standard MST. Demographically, they were younger, more frequently male, were more frequently passing most classes, and had less severe mental health and substance use problems at admission compared to those who completed standard MST (Figure 6).

FIGURE 6. COMPARISON OF DEMOGRAPHICS AND PROBLEM SEVERITY AT ADMISSION BETWEEN YOUTH WHO COMPLETED MST-PSB AND YOUTH WHO COMPLETED STANDARD MST

	MST-PSB		Standard MST	
	N	Statistic	N	Statistic
Age (Mean (Median), [Range]) in years¹¹	166	14.3 (14.4), [9-18]	5,293	15.2 (15.4), [9-19] ¹²
Living outside Home (%)¹³	145	31.0%	5,238	36.5%
Female (%)¹³	168	7.7%	5,393	34.6%¹²
Race/Ethnicity¹³				
<i>Hispanic (%)</i>	102	60.7%	3,422	63.5%
<i>White non-Hispanic (%)</i>	46	27.4%	1,045	19.4%
<i>Other (%)</i>	7	4.2%	463	8.6%
<i>Multiracial (%)</i>	13	7.7%	463	8.6%
<i>Total (%)</i>	168	100%	5,393	100%
School Status¹³				
<i>Enrolled in K-12 or GED Classes (%)</i>	118	95.2%	4,242	90.1%
<i>Dropped Out or Expelled (%)</i>	5	4.0%	433	9.2%
<i>Graduated High School, Completed GED, or Enrolled in College Courses</i>	1	0.8%	34	0.7%
<i>Total (%)</i>	124	100%	4,709	100%
Passing Most Classes (%)¹³	133	76.7%¹²	4,662	39.8%
Arrested (%)¹³	141	42.6%	4,974	56.7%¹²
Any Legal Issue (%)¹³	145	50.3%	5,204	62.5%¹²
Any Mental Health Symptoms (%)¹³	145	92.4%	5,242	97.8%¹²
Mental Health Symptoms (Mean (Median), [Range])¹⁴	145	2.5 (3), [0-6]	5,242	2.9 (3), [0-6]¹²
Any Substance Abuse Problems (%)¹³	145	15.9% ¹²	5,242	48.0%¹²
Substance Abuse Symptoms¹³				
<i>None (%)</i>	124	85.5%¹²	2,863	54.6%
<i>One (%)</i>	12	8.3% ¹²	1,322	25.2%¹²
<i>Two (%)</i>	9	6.2%	1,057	20.2%
<i>Total (%)</i>	145	100%	5,242	100%

¹¹ Wilcoxon Two-Sample Test

¹² Significantly different at the $\alpha=0.05$ level

¹³ X² Test

¹⁴ Independent T-Test

PROBLEM SEVERITY AT ADMISSION

During the year before admission, compared to standard MST youth, MST-PSB youth were:

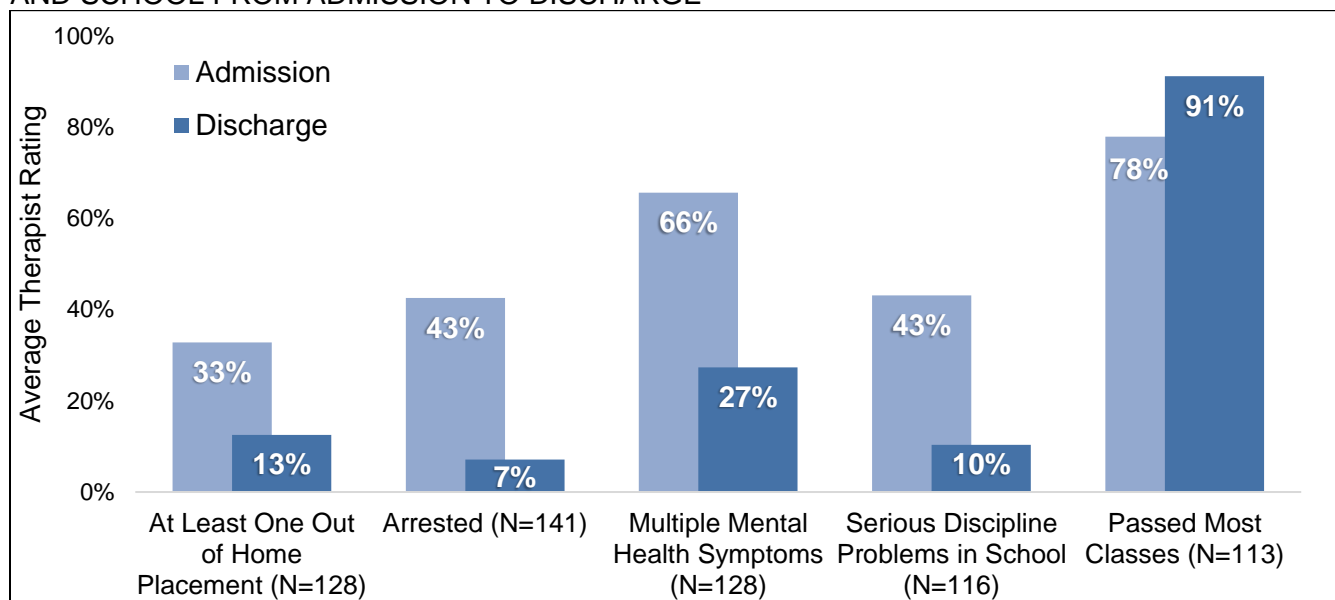
- More likely to have passed most classes at school, 77% compared to 40%
- Less likely to have multiple/chronic discipline problems in school, 41% compared to 68%
- Less likely to have both substance abuse and mental health problems; 16%, compared to 47%
- Less likely to have had legal problems three months before admission; 50% compared to 63%
- Less likely to have been arrested; 43% compared to 57%
- Less likely to have evidenced suicide-related thoughts or behaviors; 11% compared to 20%
- Less likely to have multiple mental health symptoms; 66% compared to 79%

Of note is that youth who completed MST-PSB compared to youth who completed standard MST exhibited about the same reported rates of prescribed psychiatric medications for behavioral health problems other than attention deficit disorder, 37% and 35%, respectively.

LONGER-TERM OUTCOMES

Outcomes at Discharge

FIGURE 7. YOUTH WHO COMPLETED MST-PSB: OUTCOMES FOR OUT OF HOME, ARRESTS, AND SCHOOL FROM ADMISSION TO DISCHARGE¹⁵



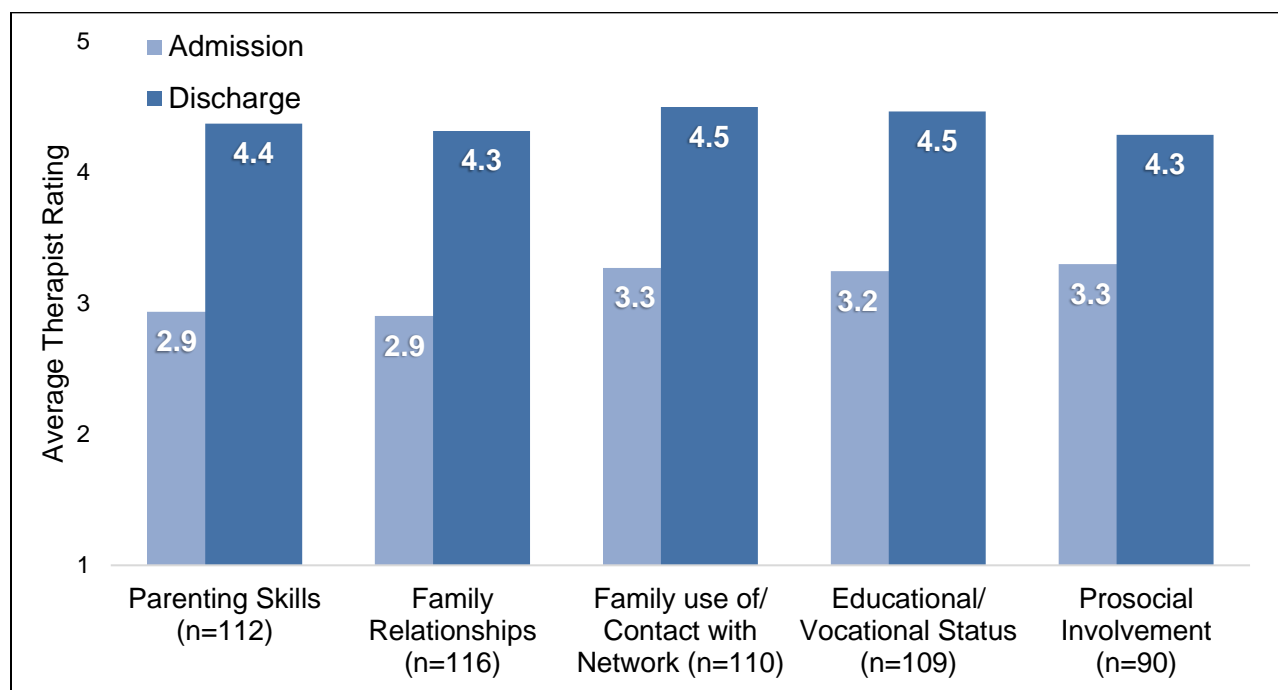
FROM ADMISSION TO DISCHARGE, MST-PSB YOUTH MADE POSITIVE CHANGES IN EVERY OUTCOME AREA STUDIED, INCLUDING OUT-OF-HOME PLACEMENT, LEGAL, MENTAL HEALTH, AND SCHOOL STATUS.

¹⁵ All analyses were paired and only included youth with valid data at admission and discharge. The number of youth varies because of missing data. All changes from admission to discharge were statistically significant at the $\alpha=0.05$ level using a paired McNemar's Test.

CHANGES IN FIVE INSTRUMENTAL YOUTH AND FAMILY FUNCTIONING OUTCOME MEASURES

Figure 8 displays the five Instrumental Outcome measures and youth's average scores at admission and discharge.

FIGURE 8. YOUTH & FAMILY FUNCTIONING (THERAPIST RATINGS) ADMISSION TO DISCHARGE¹⁶



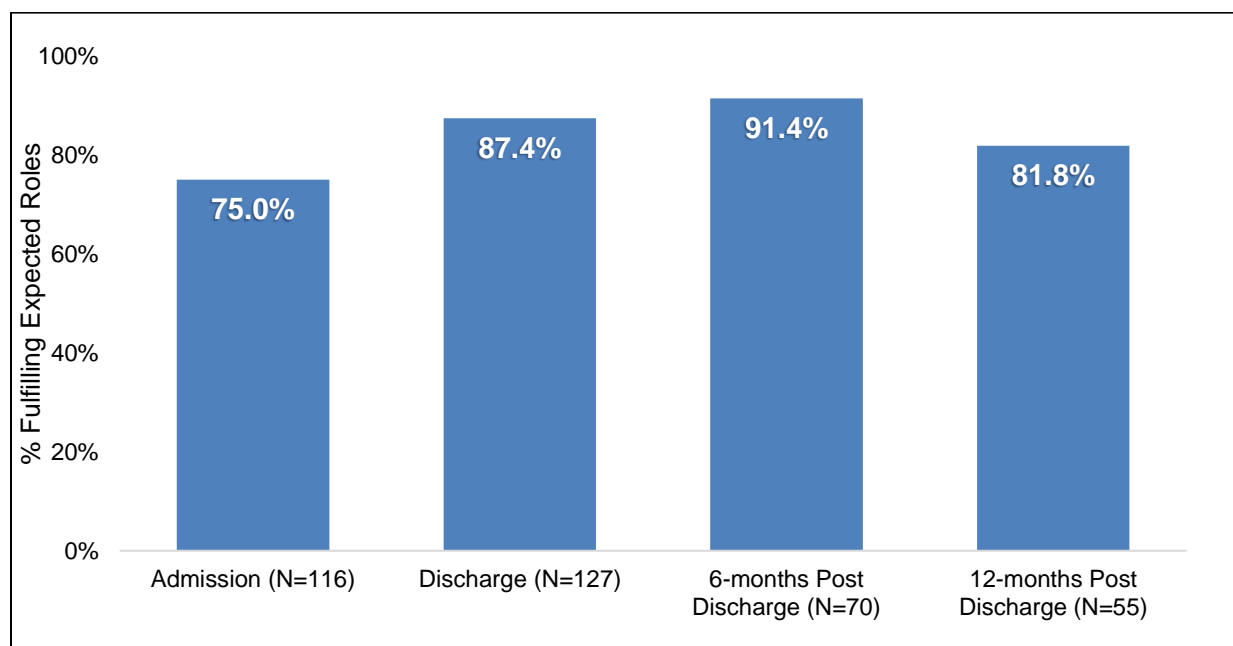
MST-PSB THERAPISTS RATED YOUTH AND FAMILIES, ON AVERAGE, AS FUNCTIONING SIGNIFICANTLY BETTER AT DISCHARGE ON ALL INDICATORS.

¹⁶ 5-point rating scale with higher numbers indicating better functioning. All changes demonstrated statistically significant improvement at $\alpha=0.05$ level using a Friedman test.

TOOLS NEEDED TO FULFILL EXPECTED ROLES IN SOCIETY

From admission to discharge, New Mexico youth who completed MST-PSB demonstrated increases in their fulfillment of expected roles based on the index developed to measure this domain from admission to discharge, and maintained at least some of these gains at 6- and 12-months post discharge.

FIGURE 9. YOUTH'S ABILITY TO FULFILL EXPECTED ROLES WHO COMPLETED MST-PSB AT ADMISSION, DISCHARGE, AND 6 AND 12 MONTHS AFTER DISCHARGE¹⁷



¹⁷ This graph represents a descriptive analysis only. Results have not been tested for statistical inference due to low numbers of follow-up.

COST-BENEFIT ANALYSIS OF MST: SUMMARY

The following results were adapted from a report published in 2015, “New Mexico MST Outcomes Tracking Project: Results for New Mexico’s MST Providers, July 2005-June 2015”. The full report contains more detailed results and can be requested by contacting the authors of this evaluation report¹⁸.

An economic costs and benefits analysis of MST was conducted in 2015 based on criminal adjudication data from JJS and behavioral health care expenses from New Mexico’s MCO Paid Claims databases. The sample for the cost-benefit analysis was comprised of 1,869 youth who: (a) completed MST; (b) had been discharged for two years or more by June 30, 2014; and (c) could be matched in both the JJS FACTS database and the MCO Paid Claims databases. The costs and benefits of MST were compared using two metrics: the net benefit and the benefit-cost ratio. The net benefit is the difference between benefits and costs, whereas the benefit-cost ratio is benefits divided by costs. A positive net benefit and a benefit-cost ratio greater than 1.00 are indicative of a cost-beneficial intervention.



¹⁸ Dopp A R, Saranga Coen A. New Mexico MST Outcomes Tracking Project: Results for New Mexico’s MST Providers, July 2005-June 2015. (2015) New Mexico’s Children, Youth & Families Department and the Center for Effective Interventions.

Juvenile Crime Outcomes

Reductions in Number of Petitions

For the purpose of this analysis, a petition was defined as any new, substantiated criminal filing with JJS by the District Attorney, as recorded in the FACTS database, not including detention or adult criminal filings. Average Petitions per Month (AP/M) were calculated for “Pre” (12 months), “During” (Mean = 4.6 months), and “Post” (Mean = 22.2 months) treatment.

Compared to the Pre period:

- Average AP/M decreased by 62% in the During period and by 67% in the Post period.
- Average AP/M decreased by 36% for both During and Post periods for felony petitions.
- Average AP/M decreased by 68% for felony assaults and by 69% in misdemeanor assaults in the Post period.
- Average AP/M decreased by 75% for felony property crimes in the Post period.

**ASSAULTS ACCOUNTED
FOR 38% OF THE PRE-
ADMISSION PETITIONS,
AND FELONY
PROPERTY CRIMES
ACCOUNTED FOR 36%.**

Net Benefits to Taxpayers and Crime Victims

For the purpose of this analysis, benefits were calculated by modeling the estimated savings to taxpayers by reducing Medicaid behavioral health claims and the estimated benefits to potential crime victims by preventing JJS petitions. These benefits were calculated using an adaptation of the Washington State Institute for Public Policy cost-benefit model¹⁹. Modeling the estimated benefits to taxpayers and crime victims resulted in the following conclusions:

- The estimated taxpayer benefits were almost \$4.4 million during MST treatment and over \$21.1 million following treatment, for a total of more than \$25.5 million in reduced taxpayer expenses, and
- Benefits to crime victims were estimated at over \$37.0 million dollars in the tangible domain and almost \$62.2 million in the intangible domain.

**THE COMBINED BENEFITS TO TAXPAYERS AND CRIME VICTIMS GREATLY
EXCEEDED TOTAL TREATMENT COSTS, WITH A RETURN OF \$4.55 FOR
EVERY DOLLAR SPENT.**

¹⁹ Aos, S., Phipps, P., Barnoski, R., & Lieb, R. (2001). The comparative costs of and benefits of programs to reduce crime. Olympia: Washington State Institute for Public Policy. Retrieved from <http://www.wsipp.wa.gov/pub.asp?docid=01-05-1201>

Behavioral Health Services Outcomes

Change in Average Charges (Expenses) per Month for Paid

Medicaid Behavioral Health Claims

Average Charges per Month (AP/M) were calculated for Pre (12 months), During (Mean = 4.6 months), and Post (22 months) treatment. Overall, AC/M for behavioral health services decreased from \$1,903,379 before MST treatment to \$639,235 after treatment.

The analysis of behavioral health claims showed:

- A 66% reduction in AC/M for all behavioral health services expenses from Pre to Post.
- A 67% reduction in AC/M for Residential Services expenses. Residential Services accounted for 71% of the pre-admission charges.
- A 77% reduction in Inpatient Services expenses and 52% reduction in AC/M for Outpatient Services expenses. Inpatient and Outpatient Services represented 11% and 10% of the pre-admission charges, respectively.
- A 76% reduction in expenses for Intensive Outpatient Services.

*FOR EVERY DOLLAR THAT
NEW MEXICO SPENT ON
MST TREATMENT, \$1.32
WAS RECOVERED IN
REDUCED BEHAVIORAL
HEALTH CLAIMS WITHIN
TWO YEARS AFTER YOUTH
COMPLETED MST
TREATMENT.*

MST treatment costs of almost \$27.5 million were exceeded by the cumulative savings in other areas (over \$124.7 million in reduce crime-related expenses and nearly \$36.1 million dollars in reduced Medicaid expenses), resulting in a net benefit of almost \$133.5 million. This represents a net benefit of \$71,382 per youth. The associated benefit-cost ratio was 5.87, suggesting that every dollar that New Mexico spent on MST treatment resulted in \$5.87 in benefits by reducing youth criminality and utilization of behavioral health services.

SUMMARY AND CONCLUSIONS

This year's report included the socio-demographic, problem severity and outcomes for New Mexico's standard MST and MST-PSB programs. The results of this twelve-year evaluation were very positive.

- Although the youth demonstrated very high rates of severity at admission across multiple life domains, repeated measures analyses conducted for youth who completed standard MST and for whom data was available at admission, discharge, and six and twelve months after discharge, showed statistically significant improvement from admission to discharge in all areas studied, including: school and legal issues, mental health and substance abuse problems, gaining tools needed to fulfill expected roles, and Instrumental Outcome measures of youth and family functioning. These gains were maintained for at least twelve months after youth were discharged from MST.
- The results of a cost analysis demonstrated significant savings of almost 12 million dollars as a result of reduced utilization of Medicaid-covered behavioral health services two years after youth completed standard MST services.

These findings demonstrate noteworthy successes across 26 counties representing New Mexico's geographic, ethnic, and economic diversity, and are consistent with other positive findings of outcomes of MST treatment with youth involved with juvenile justice nationally.

We also examined outcomes for 168 youth who completed MST-PSB.

- These youth also have high rates of problem severity at admission, but at a lower level than the youth completing standard MST treatment. More males participated in MST-PSB than females.
- The outcomes analysis also showed improvement in key areas during treatment, including school and legal issues, mental health and substance abuse problems, gaining tools needed to fulfill expected roles, and Instrumental Outcome measures of youth and family functioning.

Going forward, the partners will continue to work collaboratively to:

- Expand the use of New Mexico's internal and external databases to support and enhance the NM-OTP evaluation data;
- Develop new strategies to describe the impact of service utilization by youth who complete MST treatment;
- The next service area of focus will be expanded JJS data, including types of crimes youth committed, recidivism, and sentencing/detention data;
- Along with the expansion of MST-PSB, we are exploring other adaptations of MST, e.g., MST for Child Abuse and Neglect, MST-Psychiatric, being implemented in New Mexico;
- Continue to adapt the evaluation to meet the needs of MST providers and their stakeholders; and
- Advocate for sustained and increased resources for MST in New Mexico, including workforce development to ensure continued sustainability and growth in teams.

Acknowledgements

The authors would like to thank Anita Saranga Coen of Focus Evaluation and Alex Dopp of the University of Arkansas (previously of the University of Missouri) for their years of dedication to evaluating the NM-OTP. The methods and results created by this team will continue to be used and built upon for the duration of the evaluation project.

The authors would also like to thank David Bernstein, previously of the Center for Effective Interventions, for his coordination of the MST project in New Mexico, and Jeff Tinstman of the New Mexico Children, Youth & Families Department for his advocacy of MST in New Mexico over many years. As reported here, thousands of youth have benefited from the work of the providers, coordinators, and evaluators dedicated to this project.



Suggested Citation: Reno J. & Altschul D, *New Mexico MST Outcomes Tracking Project: 2005-2017 Evaluation Report. (2018) New Mexico Children, Youth & Families Department and the Center for Effective Interventions.*

Authors: Jessica Reno, MPH, and Deborah Altschul, Ph.D. Division of Community Behavioral Health, Department of Psychiatry and Behavioral Sciences, University of New Mexico Health Sciences Center.

For more information about NM-OTP please contact:

*Michael Hock, Adolescent Substance Use Reduction Effort Team Leader
Children's Behavioral Health Services Division, New Mexico Children, Youth & Families Department*
Michael.Hock@state.nm.us

*Suzanne Kerns, Ph.D., Executive Director
Center for Effective Interventions, University of Denver Graduate School of Social Work*
Suzanne.Kerns@du.edu