EMERGENCE HEALTH NETWORK MULTISYSTEMIC THERAPY (MST) COMMUNITY REPORT

MST is an evidence-based practice aimed at serving justice-involved youth with behavioral health diagnoses. The juvenile treatment program was established locally by EHN in order to fulfill a gap in children and adolescent services identified in the El Paso Community Behavioral Health Needs Assessment. Since the program's commencement in 2012, over 90 percent of individuals enrolled have avoided rearrests and stayed in school.

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INTRODUCTION

By way of the 1115 Waiver, Emergence Health Network (EHN) developed seven mental health initiatives in response to community needs that addressed 1) mental health capacity, 2) expansion of emergency services and 3) the implementation of evidence-based practices (EVBs). One of the initiatives was directed towards expanding specialized mental health treatment for children and adolescents through EVBs. As an EVB, the Multisystemic Therapy (MST) program was implemented to serve high risk youth with behavioral health diagnosis who had previous involvement with the justice system.

The program was developed in the 1990's and since has been tested by various independent research teams, which have concluded the same results about MST and its impact on high risk youth. The program's care-delivery model has led to the following results at national level according to their systematic review of community implementations:

- 54% few arrests over 14 year period
- 75% fewer violent felony arrests over 22 year period
- 54% fewer out-of-home placements
- 95% no reabuse incidents over 16-months after program completion
- 86% of youth living at home over 16-months after program completion

Locally, MST launched in fiscal year 2014, onboarding four masters-level therapists and one program manager. The program has served a total of 201 youth, an average of 50 per year, following best practices and industry standards, staffing up to five program participants per therapist throughout the duration of treatment, which lasts between three to five months.

The EHN community report on MST will describe the program's modality and local outcomes, in addition to reviewing other community program's for high risk youth.

MST PROGRAM MODALITY

MST is a short-term evidence-based therapy that builds upon the strengths of the adolescent by utilizing their family, friends and other long-term supports towards recovery. Utilizing these supports ensures that results can be sustained after completion of treatment. At the onset of service delivery, therapists conduct an impact analysis by analyzing the circumstances that place an at-risk youth for out-of-home placement or re-offense with the justice system. While considering the history of the adolescent's behaviors, the focus of intervention is the current situation, taking into account what is occurring to the adolescent.

All services are directed toward the adolescent remaining in the community. Treatment is provided in the youth's home, as opposed to traditional in-office settings. The model provides support to parents/guardians in changing the manner in which they supervise youth who are involved in the juvenile justice system. The MST therapist acts as linkage between various stakeholders (i.e. probation, courts, schools and other systems in which the youth and family are

involved). Representatives from the various systems, who interact with the youth and family, are involved in treatment, in order to support long-term changes.

MST therapists are highly skilled at engaging with families, even those who have historically refused services. Treatment is intensive and provided several times a week over the duration of the program, which lasts between three to five months. The number of sessions that therapists have with the youth and their families range from once per week to as many sessions as are required by the youth's current situation. Goals are established at the beginning of treatment and monitored on an ongoing basis. The focus of treatment is altering the circumstances driving the problem behavior, as opposed to focusing exclusively on the delinquent behavior itself.

Fidelity to the model is measured through ongoing monitoring of cases. Weekly structured clinical consultations provide the therapist with therapeutic tools and interventions to achieve desired outcomes of reduced recidivism, success in school and youth remaining in the community.

El Paso MST Program Outcomes

MST program outcomes are addressed in the table below; the variables measured are part of the national MST data archive. Data points are collected by the national MST Institute through a database shared with all MST programs. This ensures quality and fidelity to the national MST model and ensures the local program is achieving program milestones and outcomes. The data presented in the table below represents a score/report card, evaluating the success of the local program through various data points:

1. Ultimate Outcomes: Review of the program's outcomes
2. Case Closures: Review of data relating to completion of treatment
3. Adherence: Review of adherence to the MST evidence-based model
4. Operations: Review of the number of cases per therapist

Table 1. MST Outcomes Data FY 15-18

MST Outcomes Data FY15-18					
	FY 15	FY 16	FY 17	FY 18	All FYs Combined
	Score	**Score**	**Score**	**Score**	**Average**
Total cases discharged	48	46	54	53	50
Total cases with opportunity for full course treatment	44	41	49	50	46
Outcomes Data					
Percent of Youth Living at Home (Target: 90%)	86%	90%	82%	94%	88%
Percent of Youth in School/Working (Target: 90%)	93%	93%	84%	94%	91%
Percent of Youth With No New Arrests (Target: 90%)	93%	95%	92%	92%	93%
Case Closure Data					
Average length of stay in days for youth receiving MST (Target: 120)	130	128	113	107	119

Percent of youth completing treatment (Target: 85%)	91%	95%	88%	90%	91%
Percent of youth discharged due to lack of engagement (Target: <5%)	2%	0%	0%	6%	2%
Percent of youth placed (Target: <10%)	6%	4%	11%	4%	6%
Adherence Data					
Overall Average Adherence Score (Target: .61)	1	1	1	1	1
Percent of youth with average adherence above threshold (Target: 80%)	84%	77%	81%	82%	81%
Percent of youth with at least one TAM-R interview (Target: 100%)	89%	96%	89%	90%	91%
Percent TAM-R due that are completed (Target: 70%)	59%	73%	72%	68%	68%
Total cases with a valid TAM-R	50	51	55	54	53
Operations Data					
Average number of open cases per therapist (Target: 4 to 6)	8	5	7	5	6

Since the start of MST, 201 participants were treated by the program, with a program completion rate of 91 percent, indicating out of 201 adolescents, 181 completed treatment. The program averages about 50 program participants a year, which falls in line with therapist caseloads of five program participants at a time, for treatment periods of three to five months per participant.

Ultimate Outcomes Review

The ultimate outcomes review is specific to the El Paso population and is the most significant data related to the MST program. These data points are gathered during and after program completion. On average, 88 percent of youth in MST stayed living at home, 91 percent continued with their studies or obtained employment and 93 percent showed no rearrests during participation in MST. This is particularly significant, as locally no other alternate models have shown these types of outcomes for high risk youth.

Case Closure Review and Adherence Data

Case closure review refers to program completion rates, which average 91 percent. This indicates of the individuals that enrolled in MST, 91 percent remained in the program throughout their treatment plans. Other local alternative treatment programs (see table below) for high risk have an approximate 50 percent completion rate.

Adherence data refers to maintaining program adherence to the MST model, which involves completion of post treatment interviews and surveys. These measure the quality of the treatment provided to the program participant and their family. Face-to-face interviews have a 91 percent rate, whereas phone surveys experience a lower rate of 68 percent.

Alternate Treatment Programs for Justice Involved Youth

The El Paso County Juvenile Probation Department (JPD) provides several programs for high risk youth. Some of the most utilized programs include the following:

Detention is designed and structured to provide for safe and secure confinement of the adolescents while also addressing their physical, emotional and educational needs.

Challenge Academy is a 210 day residential program, designed for 14-17 year old youth who have exhausted the department's continuum of services and are in need of long-term behavioral modification or drug and alcohol treatment for dependency

Out-of-Home Placements refers to removing an adolescent from the home to provide them with services, which are typically provided out of town, as there is no residential treatment facility in El Paso.

Table 2. El Paso County Juvenile Probation Department Data FY15-18

El Paso County Juvenile Probation Department Data FY15-18			
Detention	**Total Records**	**Total Juveniles**	**Avg Length Stay (Days)**
2015	1330	739	14
2016	1256	713	15
2017	1174	706	15
2018	1137	689	14
Challenge Academy	**Total Juveniles**	**Avg Length Stay (Days)**	**Recidivated**
2015	34	212	11
2016	21	211	7
2017	54	182	10
2018	69	208	6
Out-of-Home Placements	**Total Juveniles**	**Avg Length Stay (Days)**	**Recidivated**
2015	19	192	9
2016	21	196	7
2017	37	199	7
2018	47	195	10

The table above displays the number of individuals in detention, the Challenge Academy and those provided out-of-home placement. Detention shows the fluctuation of youth encountering the justice system (JDP) in El Paso (those that are arrested and/or detained in JPD). On average 700 adolescents are entering the system with a length of stay of 15 days. The Challenge Academy serves approximately 200 individuals a year with recidivism rates that average 20 percent. Out-of-home placements have doubled since 2015, averaging a lower recidivism rate than Challenge at 8 percent.

These programs are compared to the services provided by MST as they serve the same population. The Challenge Academy provides similar type services to MST; however the program model and outcomes are less robust and comprehensive.

MST Performance Analysis

This segment of the report is to provide an analysis of the performance measures monitored for the MST program, in accordance with EHN's strategic plan and the national bench marks based on the MST institute. These areas include: (1) % of youth that remain at home, (2) % of youth with no new arrest, and (3) average length of treatment. The analyses performed used the data collected from the program inputs for FY15 through FY18. The specific analyses included descriptive statistics to determine the mean, standard deviation, and median of the data. This information is used to determine the placement of the input in relationship to the benchmark. A probability and regression analysis were used to provide a comparative analysis to the benchmark. This helps to determine the effectiveness and robustness of the EHN MST program for continuous improvement. The regression and probability analysis were, also, performed to determine the predictability of meeting the performance measure going forward.

Overall, the EHN MST program meet or exceeded the benchmark target, set by the MST Institute in the following areas:

- Average length of stay in days for youth receiving MST (Target: 120) - Better
- Percent of Youth with No New Arrests (Target: 90%) - Better
- Percent of Youth Living at Home (Target: 90%) - Equal

The results of the data analysis revealed the probability and predictability of each parameters listed in Table 1. The probability analysis indicates the likelihood that the subsequent year will yield the results indicated in Table 2.

- The Probability for percent of youth living at home likelihood to achieve the target of 90% is above 50% chance. The actual predictability is 93%, thereby achieving the target.
- The Probability for percent of youth with No new Arrest likelihood to achieve the target of 90% is at 100% chance. The actual predictability is 90%, thereby achieving the target.
- The Probability for the average length of stay (days) for youth receiving MST Likelihood to achieve the target of 120 is 100% chance. The actual predictability is 105 days, which is better than the target. If the client stays less days in the MST program, the impact of the treatment is assumed effective.

Table 3. Comparative Analysis of the MST Program Parameters

Program	EHN (2018)	Benchmark
Average length of stay in days for youth receiving MST (Target: 120)	**119** *(11.716)*	**127 (13.6)**
Percent of Youth With No New Arrests (Target: 90%)	**93.04%** *(0.015)*	**86.7%** (9.5)
Percent of Youth Living at Home (Target: 90%)	**88.06%** *(0.053)*	90.9% (7.6)
% Hospitalization	**No information available**	72% reduction in hospitalization

Source: Created from Quality analysis and MST Institute. The numbers in () are the standard deviation for the population

Table 4. Probability and Regression Analysis

	Percent of Youth Living at Home (Target: 90%)	**Percent of Youth with No New Arrests (Target: 90%)**	**Average length of stay in days for youth receiving MST (Target: 120)**
Mean	**0.881**	**0.930**	**119.453**
FY15	86.36%	93.18%	130.41
FY16	90.24%	95.12%	128.29
FY17	81.63%	91.84%	112.53
FY18	94.00%	92.00%	106.58
Probability Analysis (90% or above) @ $N_T = 4$, n_p @ probaility > 90%)	50%	100%	100%
Regression Analysis -*at target perimeters*	93%	93%	105

Source: Created from quality analysis

The descriptive statistical analysis was performed to determine the mean, median, and standard deviation of the data. The mean and median are indications of the expected average and 50th percentile youth in the program. The standard deviation is an indication of the dispersion of the average youth potential in the program with respect to the population. The three parameters provide a snapshot of the population distribution for the program. In comparison to the benchmark, the EHN MST program is more consistent and thereby a better indication of the effectiveness of the program.

Table 5. Descriptive Analysis

Descriptive Statistics	***Percent of Youth Living at Home (Target: 90%)***	***Percent of Youth With No New Arrests (Target: 90%)***	***Average length of stay in days for youth receiving MST (Target: 120)***
Mean	**0.881**	**0.930**	**119.453**
Standard Error	0.027	0.008	5.858
Median	**0.883**	**0.926**	**120.412**
Mode	#N/A	#N/A	#N/A
Standard Deviation	***0.053***	***0.015***	***11.716***
Sample Variance	0.003	0.000	137.270
Kurtosis	-0.891	0.549	-4.607
Skewness	-0.225	1.203	-0.190
Range	0.124	0.033	23.829
Minimum	0.816	0.918	106.580
Maximum	0.940	0.951	130.409

Sum	3.522	3.721	477.812
Count	4.000	4.000	4.000

Source: Created from quality analysis

Hospitalization (Research):
EHN has not reported any information on this measure, however, future analysis will include this information to better synchronize with the overall performance measures. Historically, inpatient hospitalization has been a primary approach for managing risk in suicidal adolescents. Research has indicated that the hospitalization has very often been disruptive and the efficacy of reducing suicide risk for adolescents has not been clearly substantiated. Several research studies indicated hospitalization may be iatrogenic and result in increased risk for subsequent hospitalizations and continued suicidal behavior (Lear & Pepper, 2018; Linehan, April 2016; Prinstein *et al*., 2008).

Schoenwald, Ward, Henggeler& Rowland (2000) reported that MST programs have shown a significant impact on preventing any hospitalization. In a study that included 113 adolescents in a randomized trial comparing home-based MST to hospitalization, the data indicated that for 57% of the participants in the MST condition and reduced the overall number of days hospitalized by 72%. The cost implications for the viability of MST as an alternative to hospitalization for youth requires further discussion.

CONCLUSION

The community report on the MST program demonstrates the effectiveness and success of the program at local and national levels. Based on the analysis of the MST program parameters, the data indicates that the EHN MST program has been effective in achieving the performance measures targets for the average length of stay in days for youth receiving MST, percent of youth with no new arrests, and percent of youth living at home. The ability to continue the program is vital for the families it serves, in addition to the general community at-large provided that youth receiving treatment show a decrease in arrests and increase in employment, staying in school and living at home. The expansion of the program can provide a stronger impact over this at-risk population with the hiring of additional therapists. Long term results yield youth transitioning into adulthood, remaining out of the justice system, which impacts community expenses as it relates to possible future incarcerations and interactions with law enforcement.

REFERENCES

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Lear, M. K., & Pepper, C. M. (2018). Family-based outpatient treatments: a viable alternative to hospitalization for suicidal adolescents. *Journal of Family Therapy*, *40*(1), 83-99.

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APPENDIX A: SUMMARY ANALYSIS TABLE OF ALL PROGRAM INPUTS

#	Overall Avg	Project Range	Std Dev (SD)	Measure	Previous Period 9/2/2013 - 9/1/2014	Previous Period 9/2/2014 - 9/1/2015	Previous Period 9/2/2015 - 8/31/2016	Current Period 9/1/2016 - 8/31/2017	Previous Period 9/1/2017 - 8/31/2018	Descriptive Statistics (Mean) - See *separate analysis tab*	Descriptive Statistics (STd Dev) - See *separate analysis tab*	Probability Analysis (90% or above) @ $N_T = 4$, $n_{p @}$ probability > 90%)	EHN Comparison to the Benchmark (2018 MST)
					Score	Score	Score	Score	Score			input===>	
				Total cases discharged	7	48	46	54	53	50	3.862	228	
				Total cases with opportunity for full course treatment	7	44	41	49	50	46	4.243		
	World Class (WC)Benchmark (MST INSTITUTE) 2018				Ratio of Full Opps to Discharged	91.67%	89.13%	90.74%	94.34%				
	Overall Avg	Project Range	Std Dev (SD)	**Ultimate Outcomes Review**									
1	**90.90%**	**66.7% to 100%**	**7.6**	**Percent of Youth Living at Home (Target: 90%)**	57.14%	86.36%	90.24%	81.63%	94.00%	88.06%	0.053	50.00%	Similar - more consistent (SD)
2	85.50%	55.3% to 100%	9.9	Percent of Youth in School/Working (Target: 90%)	71.43%	93.18%	92.68%	83.67%	94.00%	90.88%	0.048	75.00%	Better
3	86.70%	58.3% to 100%	9.5	**Percent of Youth With No New Arrests (Target: 90%)**	85.71%	93.18%	95.12%	91.84%	92.00%	93.04%	0.015	100.00%	Better
				Case Closure Data									
10	127	90.1 to 127.7	13.6	**Average length of stay in days for youth receiving MST (Target: 120 (*100 -140*))**	104.29	130.41	128.29	112.53	106.58	119.45	11.716	100.00%	
7	**88.60%**	**61.9% to 100%**	**8.7**	**Percent of youth completing treatment (Target: 85%)**	57.14%	90.91%	95.12%	87.76%	90.00%	90.95%	0.031	75.00%	Better
8	4.10%	0.0% to 20.0%	4.5	Percent of youth discharged due to lack of engagement (Target: <5%)	28.57%	2.08%	0.00%	0.00%	5.66%	1.94%	0.027	25.00%	Better
9	7.30%	0.0% to 27.8%	6.4	Percent of youth placed (Target: <10%)	14.29%	6.25%	4.35%	11.11%	3.77%	6.37%	0.033	75.00%	Better
				Adherence Data									
4	0.77	0.41 to 1	0.1	Overall Average Adherence Score (Target: .61)	0.821	0.835	0.781	0.793	0.809	0.805	0.023	100.00%	Better
5	78.60%	25% to 100%	16.7	Percent of youth with average adherence above threshold (Target: 80%)	93.10%	84.00%	77.27%	81.48%	81.82%	81.14%	0.028	75.00%	Better
6	73.00%	13.3% to 100%	19.4	Percent of youth with at least one TAM-R interview (Target: 100%)	100.00%	89.36%	95.56%	88.89%	90.20%	91.00%	0.031	50.00%	Better
				Percent TAM-R due that are completed (Target: 70%)	73.97%	59.02%	72.87%	71.81%	68.37%	68.02%	0.063	50.00%	
				Total cases with a valid TAM-R	19	50	51	55	54	52.5	2.380		
				Operations Data									
				Average FTE for active therapists (Target: 3 to 4)	2.00	2.00	3.00	2.00	3.00	2.5	0.577	50.00%	
				Average number of open cases per therapist (Target: 4 to 6)	3.01	8.04	4.78	7.14	5.06	6.26	1.588	50.00%	