Bernalillo County Department of Behavioral Health Services MATS Programs Review

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In this brief: The goal of this study was to describe the nature and impact of services utilized by clients of five DBHS MATS Campus Programs between April 2013 and June 2018.

The full report can be found at: http://cara.unm.edu/reports/index.html

Highlights:

- A total of 13,118 clients accounted for 53,744 visits to MATS programs over a five year period.

- The average client visited MATS programs 4.1 times.

- MATS clients decreased as visits increased between 2014 and 2017, suggesting a rising concentration of visits among a smaller number of clients.

- Most clients were male, Hispanic, and 35 years of age or younger.

- The Detox program accounted for the largest share of total clients over the study period (41%).

- The PIIP program accounted for the largest share of total visits over the study period (65%).

- In 2017, PIIP generated $1,325,731 and Detox generated $615,593 in savings through likely diversions from emergency room visits.

Continued:

Report in Brief: DBHS MATS Campus Programs Review

This report reviews five Metropolitan Assessment Treatment Services (MATS) programs for the period of April 17, 2013 through June 30, 2018: the Public Inebriate Intervention Program (PIIP), Addiction Treatment Program (ATP), Detoxification and Treatment Program (Detox), Supportive Aftercare Community Program (SAC), and Mariposa Program (Mariposa). MATS is managed by the Bernalillo County Department of Behavioral Health Services (DBHS) and provides substance abuse treatment services. The study purpose was to describe the nature and impact of services utilized by clients of the five programs.
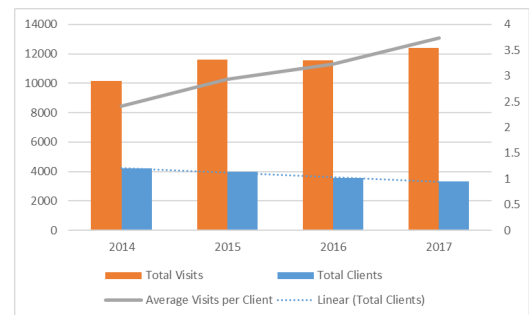
MATS Programs Background

The purpose of PIIP is to reduce emergency room admissions and arrests for adult public inebriates by diverting them to observation and stabilization services (usually for up to 12 hours). PIIP also provides placement support to serve as a gateway into other services.

ATP is a jail-based program at MDC that provides services to inmates with substance use disorders. ATP is four weeks in duration and uses Community Reinforcement Approach therapy along with relapse prevention planning, psycho-educational programming, and living skills groups.

Detox is a voluntary detoxification program. Those admitted must be in need of detoxification from alcohol or dual substances and generally stay for 3 to 5 days with the option to extend the stay based on clients' needs.

SAC is a low intensity residential program designed to allow clients to remain in a supportive recovery environment after completing detoxification. SAC is a

Figure 1. Total Clients, Visits, and Average Visits Per Client for MATS, 2014-2017

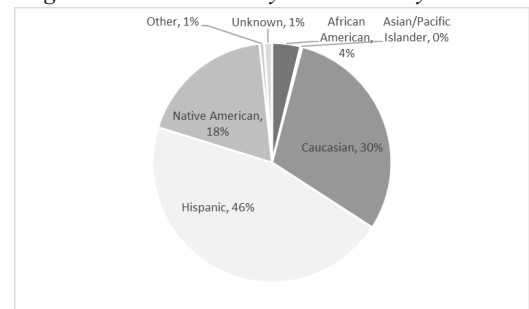voluntary program ranging in length from 30 to 180 days.

Mariposa provides housing, medical services, case management, and drug rehabilitation to pregnant and post-partum women and their infants who are part of the Milagro program. Mariposa serves women in the community as well as those transitioning out of MDC.

Total MATS Clients and Visits

Between April 2013 and June 2018, a total of 13,118 clients accounted for 53,744 visits to MATS (averaging to 3,769 clients and 11,434 visits per full calendar year), with the average client visiting 4.1 times.

Over the full four-year period from 2014 to 2017 the total number of clients declined from 4,219 to 3,322, while the total number of visits

Figure 2. MATS Clients by Race/Ethnicity

- In 2017, every $1 invested in the PIIP and Detox programs returned $7.31 and $0.36 of value, respectively, in diversions from emergency room visits.

- ATP, Mariposa, and SAC clients had fewer bookings and shorter lengths of stay in MDC on average after completing their respective programs.

- Bookings declined for MATS clients primarily for misdemeanor drug and property crimes.

- Medical encounters increased after participation in the SAC program among a small group of highly frequent utilizers of behavioral health services.

- On average, emergency behavioral health medical encounters decreased and outpatient encounters increased among SAC clients upon completion of the program.

- Behavioral health medical encounters declined among SAC clients primarily for substance use disorders.

Table 1. Total Clients, Total Visits, and Average Visits Per Client, by Program

Program	Total Clients	Total Visits	Average Visits per Client
ATP	4,063	4,854	1.2
Detox	6,590	14,014	2.3
Mariposa	57	57	1.0
PIIP	5,399	34,620	6.4
SAC	172	176	1.0

increased from 10,171 to 12,418 and the average number of visits per client rose from 2.4 to 3.7 (Figure 1). These changes suggest an increasing concentration of visits among a smaller number of individual clients over time.

The number of visits by unique clients each month held stable at approximately 500 visits while total visits peaked in the winter of each year. Most clients during the study period were male (72%) and either Hispanic (46%), Caucasian (30%), or Native American (18%) (Figure 2). A majority were age 35 or younger (52%). Average visits per client were highest among Native American clients (11.5 visits) and clients age 46 or over (7.1 visits).

More than two-thirds of clients volunteered for MATS services or were referred by a relative, with the next most frequent referral sources being courts (9%) or hospitals (7%). Three-quarters spent 1 day or less receiving

services from MATS during a single visit and 24% spent between 2 days and one month receiving services. The remaining 1% received MATS services for longer than one month.

Clients and Visits by Program
The total number of clients over the study period was greatest for Detox at 6,590 clients (or 41% of all clients), while the total number of visits was greatest for PIIP at 34,620 visits (or 65% of all visits) (Table 1). The average number of visits per client was highest for PIIP at 6.4.

The gender, racial/ethnic, and age composition of clients in each program largely replicated that for MATS generally with a few exceptions. Mariposa is comprised of only females because the program serves pregnant women specifically, and Caucasians comprised the largest share of clients served by SAC at 39%.

ATP is unique among the programs in that most clients are referred by the courts. Each program also has a distinct visit duration: clients typically receive services from PIIP for less than 1 day, from Detox for 3-5 days, from ATP for four weeks, and from SAC and Mariposa for one to six months.

Cost-Benefit
Cost-benefit analyses of PIIP and Detox were conducted given the large number of clients and referral sources for these programs. First, the total cost-benefit was determined by comparing the cost savings to the annual operating cost of each program to calculate each program's return on investment (see "Methodology" box). Second, cost benefits to two groups were

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Methodology

Our review utilized three data sources. First, program data included number of clients and visits by program; duration of services; referral source; and client demographics including age, gender, and race/ethnicity. These data covered April 2013 through June 2018.

Second, bookings data included number of individuals and their bookings into MDC; highest charge for each booking; and charge class and crime type. These data covered July 2011 through December 2018 and were merged with the program data on first name, last name, and date of birth using the *matchit* operator for Stata.

Third, medical data included number of patients and their medical encounters for SAC clients; whether encounters were emergency, inpatient, or outpatient; and whether they involved a diagnosis or procedure. We used ICD codes and manual coding procedures to

select all encounters with a behavioral health disorder diagnosis. These data covered January 2013 through April 2019 and were matched to SAC clients by the New Mexico Health Information Collaborative (NMHIC).

To determine cost benefits we calculated each program's cost savings. Cost savings represent the money saved through diversions that would otherwise have resulted in emergency room visits. We counted as diversions referrals from hospitals, by APD/AFD, or via ambulance, and we only count the first visit per client per month as a diversion. Our estimate of the cost of an emergency room visit of $2,101 was derived from a prior study estimate for 2013 inflated to 2018 dollars. We then compared cost savings to annual operating costs through the following formula:

$$((\text{Emergency Room Cost} * \text{\# of Diversions}) - \text{Annual Operating Cost}) / \text{Annual Operating Cost}$$

Table 2. Mean and Median MDC Booking Counts and Lengths of Stay Pre- and Post-Participation in MATS, by Program

	Booking Counts				Bookings Length of Stay (in Days)			
	Pre-Program		Post-Program		Pre-Program		Post-Program	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
ATP	4.2	4	3.4	2	166	118	135	81
Detox	2.9	2	3.7	2	73	10	89	14
Mariposa	3.9	2	3.4	2	117	90	111	63
SAC	2.2	2	1.9	1	58	19	28	4

calculated separately: (a) hospitals, based on the number of emergency room visits avoided by uninsured patients; and (b) the three New Mexico Managed Care Organizations (MCOs), based on the number of monthly premiums from Medicaid they retained for emergency room visits avoided by insured patients.

Based on referrals believed to be diversions from emergency departments, PIIP generated $1,325,731 and Detox generated $615,593 in savings during 2017. Comparing these cost savings to annual operating costs indicates every $1 invested in PIIP returned $7.61 of value while every $1 invested in Detox returned $0.36 of value.

DBHS administrators estimated 17% of clients in 2018 were uninsured. Multiplying this proportion by the cost of emergency room visits avoided through diversions to PIIP yields a cost savings of $225,374, of which $186,800 can be attributed to known local hospitals. The corresponding estimates for Detox were $104,651 in total and $94,650 to known hospitals. Together, the two programs generated a cost savings of $281,450 to hospitals during 2017.

For the remaining 83%, diversions resulted in cost savings to MCOs in the form of retained per-member-per-month (PMPM) premium payments. For PIIP, multiplying this proportion by the total number of first diversions per individual per month and an estimated PMPM payment of $500 yielded a cost savings of $261,865. For Detox, the corresponding estimate was $121,595. Together, the two programs generated a cost savings of $383,460 to MCOs during 2017.

Finally, break-even analyses were conducted using the total number of visits and the fixed versus variable costs for each program. These analyses indicated that in 2017, the cost savings generated by PIIP exceeded its operating costs after 72 diversions, while the cost savings generated by Detox would exceed its operating costs after 739 diversions.

MATS Program Participation and Jail Bookings
This section of the report explores how the frequency and length of stay of clients' bookings into MDC changed pre- and post-participation in MATS. Client data were merged with bookings data for all participants of SAC and Mariposa and for random samples of 200 participants each of ATP and Detox.

Pre- and post-program periods are unique to each client but identical in duration to ensure comparability. They were determined in two steps. First, the quantity of time between the

date of each client's first discharge from the respective program and December 31, 2018 was calculated as the post-program period. Next, the pre-program period was obtained by counting backward by this amount from the client's date of first admission to the program. The number of bookings and lengths of stay were then obtained within the pre- and post-program periods.

Average booking counts and lengths of stay during the pre-program period were greater than or equal to their corresponding values in the post-program period for ATP, Mariposa, and SAC, suggesting clients are accumulating fewer and less serious arrests after participating in these programs (Table 2). However, average booking counts and lengths of stay for Detox participants rose following completion of the program. Paired-sample t-tests for ATP and Detox samples indicated differences in means before and after program completion, for both booking counts and length of stay, were statistically significant at $p < .05$ for ATP. Thus the decline in average bookings and length of stay from the pre- to post-program period extends to the population of ATP clients only. Disaggregating bookings by charge and crime type indicated total decreases primarily reflect changes in bookings for misdemeanor drug and property offenses.

SAC Program Participation and Behavioral Health Medical Encounters
Given the SAC program's aim of client reintegration into the community freed from substance abuse or dependence following alcohol or drug detoxification, this section of the report explores how SAC clients' behavioral health medical encounters changed

Table 3. Mean Mental Health and Substance Use Medical Encounters Pre- and Post-Participation in SAC, by Encounter Ranges

Encounter Range	Pre-Program Mean	Post-Program Mean
Mental Health		
1-2	1.5	1.3
3-6	4.3	3.8
7-14	9.3	9.3
15+	25.1	37.8
Substance Use		
1-2	1.6	1.3
3-6	4.1	4.0
7-14	10.7	9.5
15+	36.2	39.0

Table 4. Mean Mental Health and Substance Use Medical Encounters Pre- and Post-Participation in SAC, by Encounter Type

	Pre-Program Mean	Post-Program Mean
Mental Health		
Emergency	4	5
Inpatient	1	2
Outpatient	1	2
Substance Use		
Emergency	9	8
Inpatient	2	2
Outpatient	2	3

before and after their program participation. Pre- and post-program periods identical in length were constructed for each client following the same procedures as with the bookings data.

Between January 2013 and April 2019, SAC clients had 4,250 behavioral health encounters primarily at Lovelace and Presbyterian hospitals and clinics. Among the 4,250 total encounters, 1,169 (or 28%) included a mental health disorder, 2,910 (or 68%) included a substance use disorder, and 171 (4%) included an unspecified behavioral health disorder diagnosis.

For the approximately 85% of SAC clients who had 14 or fewer mental health encounters either before or after completing the program, their average number of encounters remained nearly stable from the pre- to post-program period (Table 3). The approximately 75% of clients with 14 or fewer substance use encounters in either period showed similar stability in means. Yet participants with at least 15 mental health or substance use encounters in either period showed sizable increases in their utilizations of behavioral health services after completing SAC. For these participants average mental health encounters increased from 25.1 to 37.8 across the periods, while average substance use encounters rose from 36.2 to 39. These patterns are consistent with most clients receiving medical services at a similar rate before and after completing SAC alongside a minority of individuals with high behavioral health encounter frequencies increasing their use in the post-program period.

If high-frequency utilizers of medical services were receiving more medical encounters after participating in SAC than before, then larger maximum numbers of services could be expected to raise the average number of encounters for all clients in the post-program period. This may partially account for greater mean numbers of mental health encounters in the post-program period across emergency, inpatient, and outpatient visits (Table 4).

However, despite the increased range during the post-SAC period, average emergency visits declined, inpatient visits held stable, and outpatient visits rose for substance use encounters. This pattern may result from some SAC clients who primarily received behavioral health services from local emergency departments before the program obtaining more services through outpatient encounters upon completing SAC.

Conclusion

The purpose of this study was to describe the nature and impact of services utilized by clients of five DBHS MATS Campus

Programs between April 2013 and June 2018. Together, 13,118 individuals received services from MATS programs accounting for 53,744 visits, and clients visited MATS programs 4.1 times on average. Although unique and total visits were relatively stable, the decreasing number of clients alongside the increasing number of visits since 2014 suggests a rising concentration of visits among a smaller number of individuals over time.

Clients were predominantly male and Hispanic. They tended to be in their young or middle adulthood, self-refer or be referred by a relative, and spend 30 days or less per admission receiving services. Average visits per client were highest among Native American clients and clients at least 46 years of age. These characteristics were mirrored in each individual program with a few exceptions: Mariposa is comprised only of female clients and Caucasians comprised the largest share of SAC clients. At 6,590 participants, the Detox program accounted for the largest number of clients (41%) and the PIIP program accounted for the largest number of admissions at 34,620 visits (65%).

Through likely diversions from emergency departments during 2017, PIIP generated a savings of $1,325,731, while Detox generated a savings of $615,593. PIIP returns $7.31 for every $1 dollar spent, whereas the Detox program returned $0.36 for every $1 spent. The total savings for PIIP can be broken down into $186,800 to hospitals and $261,865 to MCOs; the breakdown for Detox is $94,650 to hospitals and $121,595 to MCOs.

Average numbers and lengths of stay for bookings into MDC were reduced after clients' participation in ATP, Mariposa, and SAC, compared with the period prior to their first admission. However, Detox participants accumulated a greater number of arrests on average during the post-program period. Only the ATP program showed a difference in mean booking counts and lengths of stay that extended statistically to the population of clients. Decreases observed for each program primarily reflect decreases in bookings for misdemeanor drug and property offenses.

Although frequencies of medical encounters for individuals with behavioral health disorders were generally unchanged for most SAC clients, a small group of highly frequent utilizers of behavioral health services received even more services after participating in SAC. Among the full population average emergency visits decreased, outpatient visits increased, and inpatient visits remained stable for participants with substance use disorders. These trends suggest some high-frequency utilizers of substance use health services who relied on emergency department services prior to their participation in SAC benefitted from greater access to outpatient services upon completing the program.

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