
# Bernalillo County Department of Behavioral Health Services: Updated Program Review

**May 2019**

**Sam Torres, M.A.**
**Sara Haugaard, B.A.**
**Paul Guerin, Ph.D.**

**Prepared for:**

**Bernalillo County Department of Behavioral Health Services**

UNIVERSITY OF NEW MEXICO, INSTITUTE FOR SOCIAL RESEARCH

**Introduction**

This report provides a preliminary review of five Bernalillo County Metropolitan Assessment Treatment Services (MATS) programs. These include the Public Inebriate Intervention Program (PIIP), the Addiction Treatment Program (ATP), the Detoxification and Treatment Program (Detox), the Supportive Aftercare Community Program (SAC), and the Milagro Mariposa Program (Mariposa). The purpose of the report is to describe

- the population of clients using these programs,
- the nature of the services clients receive (for example, how frequently individual clients are admitted and for how long they receive services),
- the cost savings that result from diversions to these programs from local emergency departments,
- the potential impact of program participation on clients' criminal justice system involvement, and
- the potential impact of participation in the SAC program on clients' behavioral health medical encounters.

The MATS facility is managed by the Bernalillo County Department of Behavioral Health Services (DBHS). The present review covers services received by MATS program clients in the programs being reviewed during the period of April 17, 2013 through June 30, 2018.

The report is divided into six sections. The first section, 'Background,' gives a description of each program that is discussed in this report. The second section 'Review of MATS Clients and Visits, April 2013-June 2018' is a review and discussion of MATS services as a whole. The third section 'Review of MATS Clients and Visits, by Program, April 2013-June 2018' is a review and discussion of MATS services separately by program. The fourth section, 'Cost Benefit,' estimates the amount of money saved through diversions to MATS from local hospital emergency rooms relative to operating costs for the PIIP and Detox programs. The fifth section, 'MDC Bookings Before and After Participation in MATS Programs,' explores the relationship between MATS clients' program participation and criminal justice system involvement by comparing their admissions into and lengths of stay in the Metropolitan Detention Center (MDC) before and after receiving services from MATS. The final section, 'Medical Encounters Before and After Participation in the SAC Program,' explores how SAC clients' behavioral health medical encounters changed before and after their program participation.

**Background**

The Bernalillo County DBHS offers substance abuse services to county residents on the MATS facility campus through a variety of programs. Five such programs—PIIP, ATP, Detox, SAC, and Mariposa—are the focus of the present report because they are the programs for which electronic data were readily available. In providing behavioral health services to residents, these programs divert people from hospital emergency rooms and the Metropolitan Detention Center and thereby create a cost savings for the county. The following paragraphs briefly describe each program.

PIIP operates seven days a week. The purpose of the program is to reduce admissions to local hospital emergency rooms or bookings into MDC for adult public inebriates by diverting them to observation and stabilization services (usually for up to 12 hours). PIIP also provides placement support services that

serve as a gateway into other DBHS treatment services. PIIP is located on the DBHS campus at 5901 Zuni, SE.

ATP is a jail-based assessment and treatment program at the MDC that provides services to inmates with addictions to alcohol or other drugs. ATP is a four-week long program, which uses the evidence-based Community Reinforcement Approach (CRA) therapy along with relapse prevention planning, psycho-educational programming, and living skills groups. Participants develop an aftercare service plan before the completion of the program. ATP offers gender specific groups and DWI prevention. Incarcerated individuals are typically referred to the ATP by courts.

Detox is a voluntary detoxification program that delivers services 24 hours a day 7 days a week. Those admitted to the program must be a resident of Bernalillo County, 18 years of age or older, and in need of detoxification from alcohol or dual substances. Those admitted to the program generally stay for 3 to 5 days with a maximum stay of 10 days with the option to extend the stay based on the client's needs.

SAC is a low intensity residential program designed to allow clients to remain in a supportive recovery environment after completing alcohol and drug detoxification. SAC is a voluntary program ranging in length from 30 to 180 days offered to qualifying New Mexico residents at no cost.

Mariposa provides housing, medical services, case management, and drug rehabilitation services to Pregnant and Post-Partum Women and their infants who are part of the Milagro program. Mariposa is an 8 bed residential program. Mariposa serves woman in the community as well as those transitioning out of MDC.

Both SAC and Mariposa programs offer intensive case management to clients as well as psycho-educational groups that use the CRA curriculum that focuses on integration back into the community as well as recovery. Both programs help establish clients with outpatient mental health services when needed.

**Review of MATS Clients and Visits, April 2013-June 2018**

Between April 2013 and June 2018, 13,118 individuals received services from MATS programs accounting for 53,744 visits, with the average client visiting MATS programs 4.1 times. Table 1 presents the count, percentage, and cumulative percentage for five ordinal categories representing how frequently individual clients visited MATS programs during the study period. More than three-quarters of clients (10,033 individuals or 76.5%) visited a MATS program once or twice, but 10.7% visited three or four times and another 7.1% visited anywhere from five to nine times. The remaining 5.8% visited MATS programs on 10 occasions or more. Although they made up less than 0.5% of the total clientele, 62 individuals visited MATS for services more than 100 times and tallied 13,765 separate visits, or 25.6% of the total admissions to MATS.

*Table 1. Number and Percent of Visits to MATS Programs*

| Number of Visits | Count | Percent |
|---|---|---|
| 1 | 7,690 | 58.6 |
| 2 | 2,343 | 17.9 |
| 3-4 | 1,398 | 10.7 |
| 5-9 | 925 | 7.1 |
| 10+ | 762 | 5.8 |

Table 2 shows the total number of clients as well as the total, average per client, minimum, and maximum number of visits to MATS programs by year. Counts are artificially low in 2013 and 2018 because they do not comprise a full calendar year: 2013 is from April 17 through the end of the year while 2018 is through June 30. Among the years that include a full 12 months, 2014 had the highest number of total clients at 4,219 individuals, while 2017 had the highest number of total visits (12,418 visits) and average number of visits (3.74 per client). The largest number of visits within a single year by an individual occurred during 2015 with 227 visits. During the time period there were 17,917 clients. This count is greater than the total number of unique individuals because 4,799 clients visited MATS programs in multiple years and are thus counted more than once in Table 2.

*Table 2. Total Clients and Total, Average, Minimum, and Maximum Visits to MATS, by Year*

| Year | Total Clients | Total Visits | Average Visits per Client | Minimum | Maximum |
|---|---|---|---|---|---|
| 2013 | 918 | 1,378 | 1.5 | 1 | 28 |
| 2014 | 4,219 | 10,171 | 2.4 | 1 | 162 |
| 2015 | 3,961 | 11,589 | 2.9 | 1 | 227 |
| 2016 | 3,573 | 11,558 | 3.2 | 1 | 154 |
| 2017 | 3,322 | 12,418 | 3.7 | 1 | 222 |
| 2018 | 1,924 | 6,630 | 3.5 | 1 | 137 |

Figure 1 charts the total clients, total visits, and average visits per client for 2014 through 2017. Over the four-year period the total number of clients declined from 4,219 to 3,322 (a 21.3% decrease), while the total number of visits increased from 10,171 to 12,418 (a 22.1% increase) and the average number of visits per client rose from 2.4 to 3.7 (a 55.2% increase). These changes indicate an increasing concentration of visits among a smaller number of individual clients over time.

*Figure 1. Total Clients, Total Visits, and Average Visits per Client, 2014-2017*

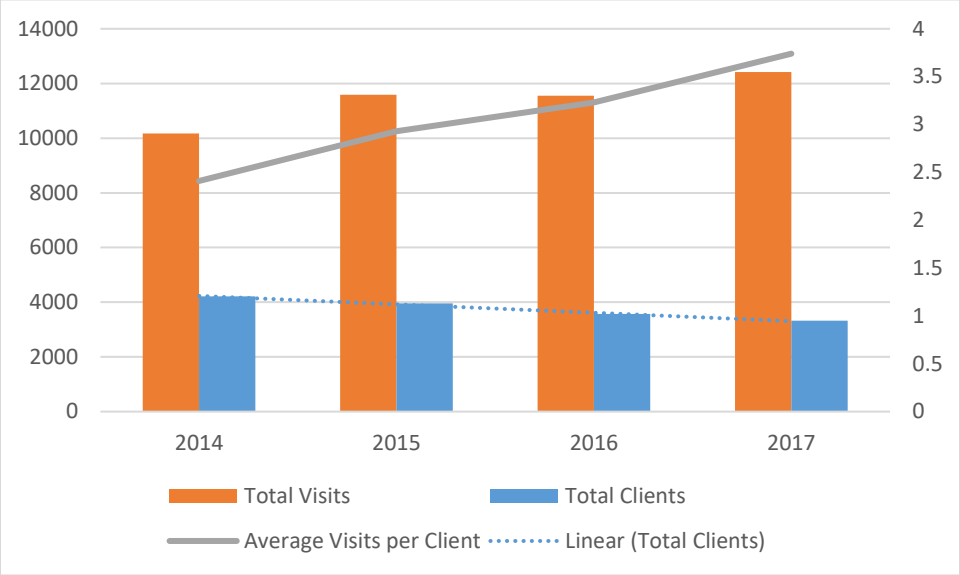


Figure 2 depicts trends in the unique and total number of visits to MATS programs by month. Following the approach of a period review of the PIIP program (June 2016), the unique visit trend in Figure 2 counts one visit per client per month. Thus, if the same person visited once per month for multiple months, each of these is unique, whereas these visits plus any additional visits within the same month are included in the total. The number of unique and total MATS visits were obtained in two steps: (1) initially aggregating raw visit data to get the count of visits by client and month/year, and (2) further aggregating these data to get the count of unique clients and their total visits by month/year.

Figure 2 indicates two general patterns of visits to MATS. First, the number of unique visits is relatively stable (especially between 2014 and 2017 when data on the full calendar years were available) while the number of total visits shows greater variation throughout the study period. Second, the variation in total visits is consistent with seasonal ebbs and flows. Within each year, the total number of visits peaks during the cooler months of October through March and troughs during the warmer months of April through September.

*Figure 2. Unique and Total Visits to MATS Programs, April 2013-June 2018*

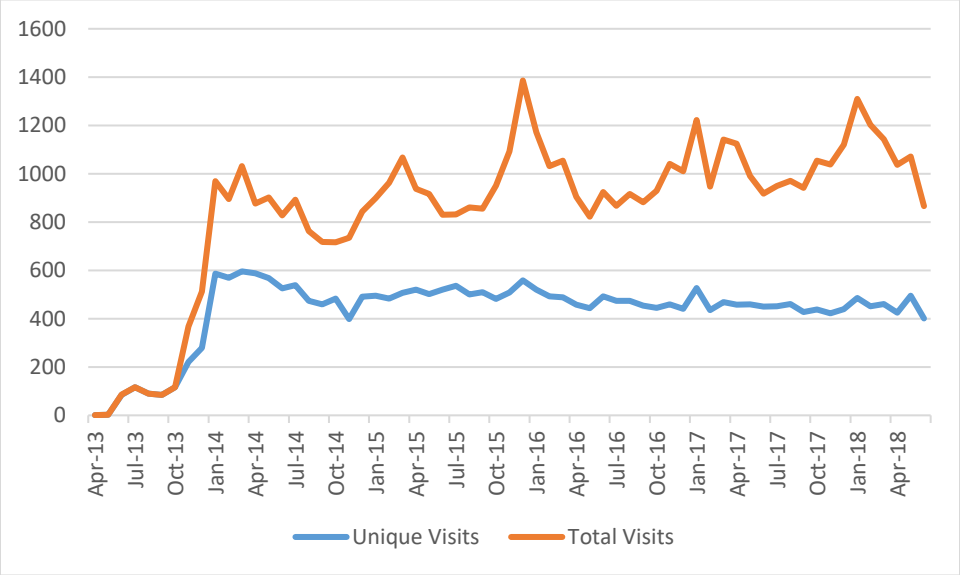


Table 3 presents the total number of clients and total, average, minimum, and maximum number of visits to MATS by month for calendar year 2017. January had the highest number of clients and visits at 527 and 1,222, respectively, while December saw the largest average number of visits at 2.6 visits per client. The greatest number of visits during any single month occurred in March with 29 visits.

*Table 3. Total Clients and Total, Average, Minimum, and Maximum Visits, by 2017 Month*

| Month of 2017 | Clients | Total Visits | Average Visits per Client | Minimum | Maximum |
|---|---|---|---|---|---|
| Jan | 527 | 1,222 | 2.3 | 1 | 25 |
| Feb | 436 | 947 | 2.2 | 1 | 23 |
| Mar | 469 | 1142 | 2.4 | 1 | 29 |
| Apr | 458 | 1124 | 2.5 | 1 | 26 |
| May | 459 | 991 | 2.2 | 1 | 22 |
| Jun | 450 | 918 | 2.0 | 1 | 23 |
| Jul | 451 | 950 | 2.1 | 1 | 27 |
| Aug | 461 | 971 | 2.1 | 1 | 21 |
| Sep | 427 | 941 | 2.2 | 1 | 22 |
| Oct | 438 | 1,054 | 2.4 | 1 | 25 |
| Nov | 422 | 1,038 | 2.5 | 1 | 25 |
| Dec | 440 | 1,120 | 2.6 | 1 | 26 |

Figure 3 depicts graphically the trends in clients, visits, and average visits per client presented in tabular form in Table 3. The seasonal variation seen for the full study period is again evident for the months of

2017, with the total number of visits increasing through April, falling until July and then rising again through December. Over the entire year, however, the number of clients, visits, and average number of visits per client remained stable. Between January and December the number of clients fell from 527 to 440 (a 16.5% decrease), the number of visits fell from 1,222 to 1,120 (an 8.3% decrease), and the average number of visits rose from 2.3 to 2.6 (a 9.9% increase).

*Figure 3. Total Clients, Total Visits, and Average Visits per Client, by 2017 Month*

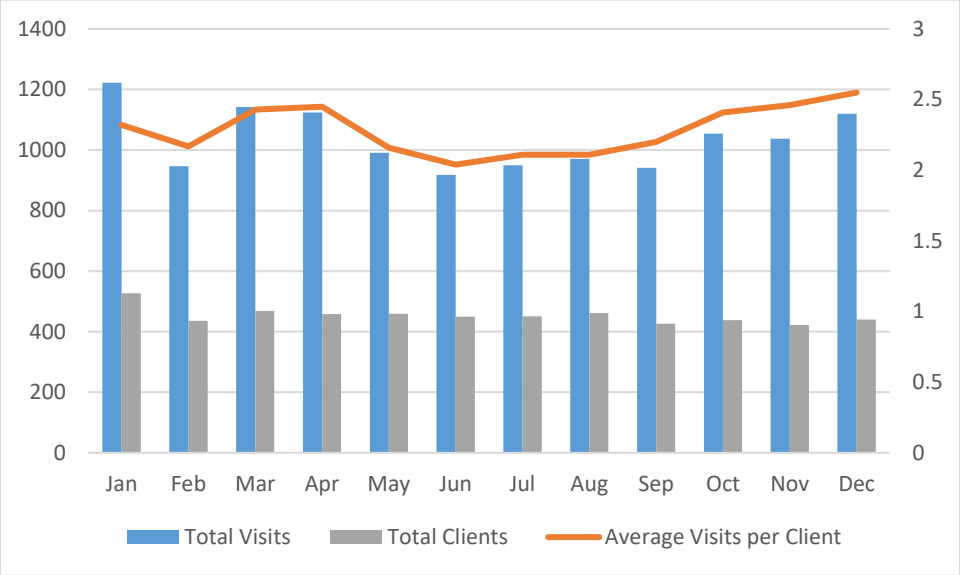


Figure 4 charts trends in clients, visits, and average visits per client by day of week for April 2013 through June 2018. During the approximately 63-month period both clients and visits were highest on Wednesdays (comprising 6,783 individuals and 11,856 visits) and lowest on Sundays (2,301 and 5,936, respectively). The average number of visits per client was highest on Saturdays (2.6) and lowest on Wednesdays (1.8). Figure 4 shows that the total number of clients and visits were generally highest on weekdays, especially Tuesday through Thursday, while the average number of visits per client was generally highest during the weekend.

*Figure 4. Total Clients, Total Visits, and Average Visits per Client, by Day of Week*

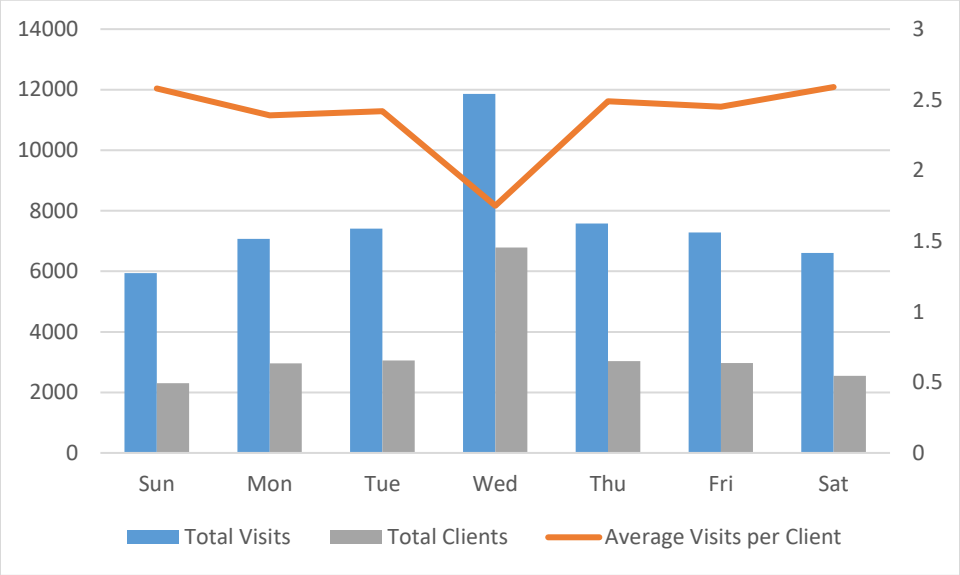


Figure 5 charts the distribution of MATS clients by gender while Table 4 presents the total, average, minimum, and maximum number of visits by gender. Nearly three-quarters of the clients who received services from MATS between April 2013 and June 2018 were male (72%), while 28% were female and less than 1% each reported a transgender or unknown gender identity. Yet despite the smaller proportions of clients they comprise, the average number of visits per client was greatest for transgendered persons (7.6 visits), and the largest number of admissions by any single individual during the study period was for a female client (536 visits).

*Figure 5. Percentage of MATS Clients by Gender, April 2013-June 2018*

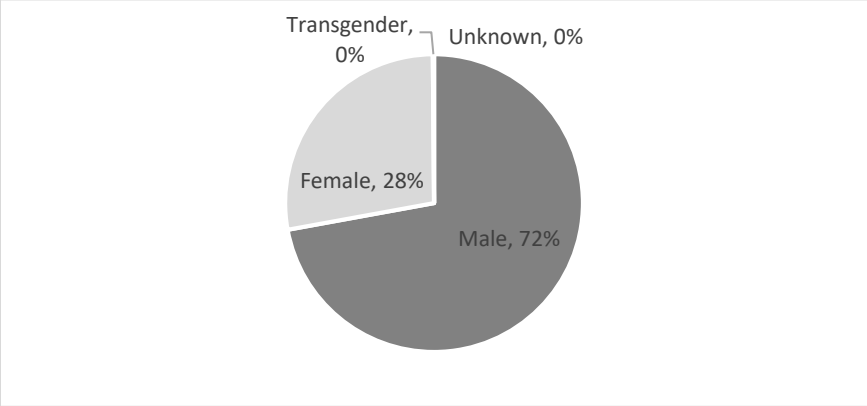

*Table 4. Total Clients and Total, Average, Minimum, and Maximum Visits, by Gender*

| | Total Clients | Total Visits | Average Visits per Client | Minimum | Maximum |
|---|---|---|---|---|---|
| Male | 9,463 | 4,2531 | 4.5 | 1 | 470 |
| Female | 3,638 | 11,082 | 3.0 | 1 | 536 |
| Transgender | 17 | 129 | 7.6 | 1 | 51 |
| Unknown | 1 | 2 | 2 | 2 | 2 |

Figure 6 charts the distribution of MATS clients by race/ethnicity while Table 5 presents the total, average, minimum, and maximum number of visits by race/ethnicity. Figure 6 indicates that the majority of clients were Hispanic (46%), Caucasian (30%), or Native American (18%), but smaller proportions of African Americans, Asians/Pacific Islanders, or individuals of other racial/ethnic identities also received services during the study period. With nearly 12 visits per client on average, the visitation frequency for Native Americans was considerably higher than for any other racial/ethnic group. A Native American client also accounted for the greatest number of visits accrued by a single individual (536 visits). However, approximately 8% of clients (1,055 individuals) did not report a racial/identity, so the tabulations presented in Figure 6 and Table 5 below should be interpreted with caution.

*Figure 6. Percentage of MATS Clients by Race/Ethnicity, April 2013-June 2018*

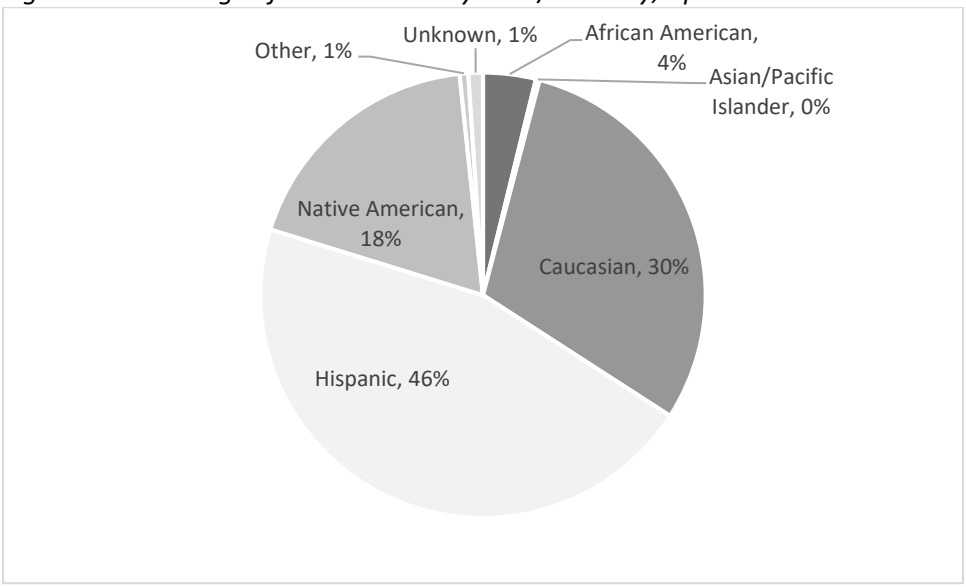

*Table 5. Total Clients and Total, Average, Minimum, and Maximum Visits, by Race/Ethnicity*

| | Total Clients | Total Visits | Average Visits per Client | Minimum | Maximum |
|---|---|---|---|---|---|
| African American | 464 | 1,485 | 3.2 | 1 | 203 |
| Asian/Pacific Islander | 33 | 76 | 2.3 | 1 | 8 |
| Caucasian | 3,642 | 9,695 | 2.7 | 1 | 292 |
| Hispanic | 5,538 | 14,233 | 2.6 | 1 | 352 |
| Native American | 2,249 | 25,900 | 11.5 | 1 | 536 |
| Other | 76 | 175 | 2.3 | 1 | 30 |
| Unknown | 128 | 260 | 2.0 | 1 | 23 |

Figure 7 charts the distribution of MATS clients by four age categories while Table 6 presents the total, average, minimum, and maximum number of visits by age. More than one-third of clients were between the ages of 26 and 35 (34%), about half were age 36 or older (23% in the 36-45 age group and 25% in the 46+ age group), and the remainder were between age 18 and 25 (18%). The age 46 and over group comprised both the individual with the greatest number of visits (536 visits) and the largest average number of visits per client (7.1 visits). The total number of clients represented across the age categories in Table 6 is 13,614, and this is greater than the total number of unique clients because a small proportion of clients (< 4%) aged out of one category into the next during the study period.

*Figure 7. Percentage of MATS Clients by Age, April 2013-June 2018*

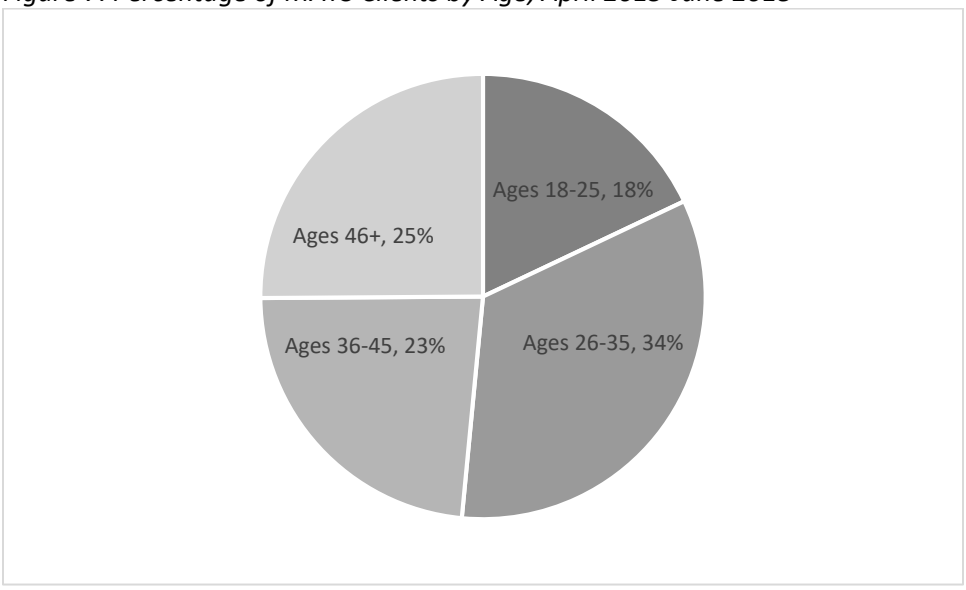

*Table 6. Total Clients and Total, Average, Minimum, and Maximum Visits, by Age*

| | Total Clients | Total Visits | Average Visits per Client | Minimum | Maximum |
|---|---|---|---|---|---|
| 18-25 | 2,445 | 4,295 | 1.8 | 1 | 81 |
| 26-35 | 4,569 | 12,727 | 2.8 | 1 | 250 |
| 36-45 | 3,182 | 12,434 | 3.9 | 1 | 250 |
| 46+ | 3,418 | 24,275 | 7.1 | 1 | 536 |

The number, percentage, and cumulative percentage of visits to MATS programs by referral source are presented in Table 7. About two-thirds (66.5%) were not referred by any agency at all and instead volunteered or were referred by a relative. At 9%, the next largest referral source was a court referral. Another 16.1% were referred either by a hospital (7.2%), law enforcement agency (5.4%) or emergency service provider (3.5%).

*Table 7. Number and Percent of Visits to MATS Programs, by Referral Source*

| | Count | Percent |
|---|---|---|
| Self/Relative/Volunteer | 35,737 | 66.5% |
| District Court/Drug Court/Metro Court | 4,851 | 9.0% |
| PIIP | 3,489 | 6.5% |
| APD | 2,788 | 5.2% |
| UNM Hospital | 2,343 | 4.4% |
| Albuquerque Ambulance | 1,765 | 3.3% |
| Presbyterian Hospital | 1,079 | 2.0% |
| MATS | 700 | 1.3% |
| Lovelace Hospital | 283 | 0.5% |
| Other | 175 | 0.3% |
| Veterans Hospital | 145 | 0.3% |
| Law Enforcement | 139 | 0.3% |
| AFD/Paramedics | 113 | 0.2% |
| Turquoise Lodge | 106 | 0.2% |
| Molina | 22 | 0.0% |
| Outpatient | 9 | 0.0% |

The number, percentage, and cumulative percentage of visits to MATS programs by length of stay are presented in Table 8. More than three-quarters (75.2%) lasted 1 day or less, 8.2% lasted 2 or 3 days, 8.1% last from 4 to 20 days, and 7.5% had a duration ranging from three weeks to just under one month (21-30 days). The remaining 0.9% of visits lasted from one month to more than 8 months. Program duration data were not available for 76 visits.

*Table 8. Number and Percent of Visits to MATS Programs, by Length of Stay in Days*

| | Count | Percent |
|---|---|---|
| 1 or Less | 40,401 | 75.2% |
| 2-3 | 4,385 | 8.2% |
| 4-20 | 4,377 | 8.1% |
| 21-30 | 4,028 | 7.5% |
| 31-100 | 332 | 0.6% |
| 101+ | 145 | 0.3% |

**Review of MATS Clients and Visits, by Program, April 2013-June 2018**

This section reviews visitation, demographic, referral, and service duration data for clients disaggregated by the five MATS programs. Table 9 presents the total number of clients and total number, average number, and range of visits by MATS program. A total of 16,281 clients are represented across the five programs but, as was the case in Table 2 across years, if an individual received services from more than one program he or she is counted more than once. These clients accounted for 53,721 visits to MATS programs.[1] The total number of clients was greatest for the Detox program (6,590 clients), the total number of visits was greatest for PIIP (34,620 visits), and both were least for Mariposa (57 each). The average number of visits was also highest for PIIP (6.4 per client) and lowest for SAC and Mariposa (both at 1 visit per client). The Detox and PIIP programs had the highest counts of clients and visits because they offer short-term services to a broad range of clients and repeated program admissions are common. By contrast, SAC, Mariposa, and ATP are programs with longer durations of service delivery and more specific client bases, which result in lower numbers of clients and visits.

*Table 9. Total Clients and Total, Average, and Range of Visits, by Program*

| | Total Clients | Total Visits | Mean Visits per Client | Median Visits per Client | Visits Range |
|---|---|---|---|---|---|
| PIIP | 5,399 | 34,620 | 6.4 | 1 | 1-535 |
| ATP | 4,063 | 4,854 | 1.2 | 1 | 1-5 |
| Detox | 6,590 | 14,014 | 2.3 | 1 | 1-53 |
| SAC | 172 | 176 | 1.0 | 1 | 1-2 |
| Mariposa | 57 | 57 | 1.0 | 1 | 1 |

To facilitate comparison of how frequently the average client visited each program with admissions to MATS services generally, Figure 8 charts the average number of visits per client by program and for all of

[1] This visit count is 23 visits short of the 53,744 shown in Tables 1-3. The source of this disparity is 23 clients that were originally assigned to a sixth program (called "Triage") that was never implemented. Since the program(s) these clients visited is not known, their visit count is excluded from Table 4.

MATS services. PIIP was the only program that had a greater average number of visits per client than did MATS generally during the study period. The other four programs had their visits distributed more widely across individual clients.

*Figure 8. Average Visits per Client, April 2013-June 2018, by Program*

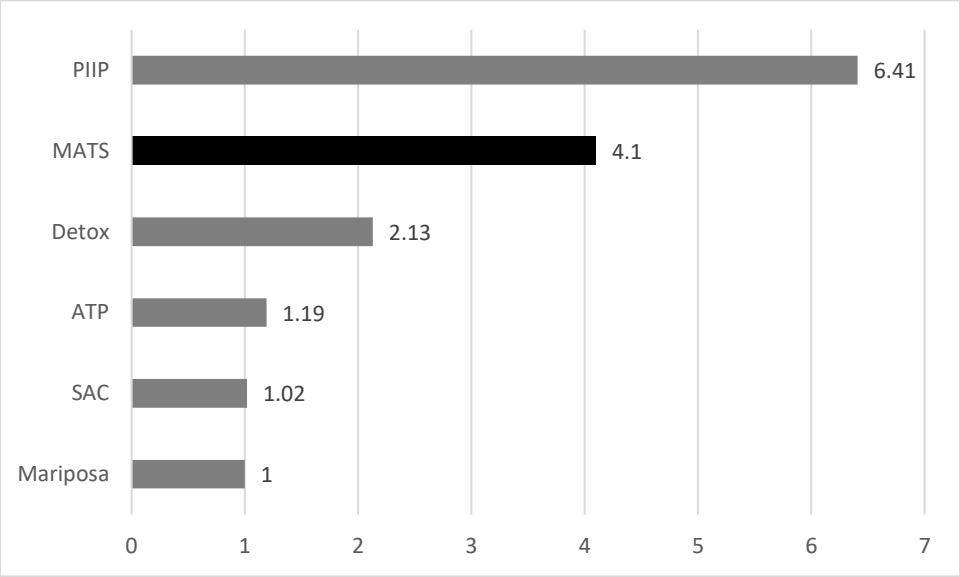


Figure 9 charts the percentages of total clients and total visits each MATS program constituted. Of the 16,281 clients represented across the five programs, Detox made up the largest share at 41%, followed by PIIP at 33%, ATP at 25%, SAC at 1%, and Mariposa at less than 1%. Among the 53,721 total visits PIIP had the largest share at 65%, followed by Detox at 26%, ATP at 9%, and both SAC and Mariposa at less than 1%.

*Figure 9. Percentage of Total Clients versus Total Visits, by Program*

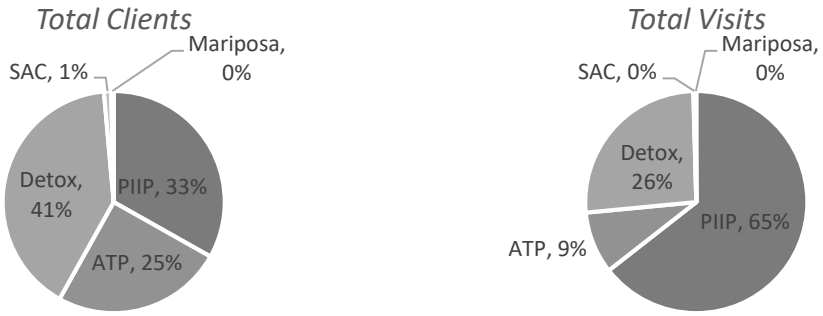


Table 10 shows the genders of each individual clients that the specific DBHS program admitted. Of the six programs one is gender specific which is Mariposa which caters to pregnant women. The other four programs have a higher number of males than females. Between all of the programs, they have a similar

percentage gap between male and female clients excluding Mariposa. PIIP had the highest percent of male clients with 76.2%, ATP with 72.6%, Detox with 70%, and SAC with 67%.

*Table 10. Gender of Program Clients*

| | Male | | Female | | Transgender | |
|---|---|---|---|---|---|---|
| | Count | Percent | Count | Percent | Count | Percent |
| PIIP | 4,113 | 76.2% | 1,274 | 23.6% | 11 | 0.2% |
| ATP | 2,948 | 72.6% | 1,114 | 27.4% | 1 | 0% |
| Detox | 4,615 | 70% | 1,967 | 29.8% | 8 | 0.1% |
| SAC | 116 | 67.4% | 56 | 32.6% | - | - |
| Mariposa | 1 | 1.8% | 56 | 98.2% | - | - |

Table 11 shows the number of referrals to each DBHS program by referring agency. A referral is only counted as a diversion if the referral source is from an agency that would have otherwise resulted in an emergency room visit or jail booking. We only calculated the cost of diversions from emergency room visits and not jail bookings. Determining if a referral from law enforcement would have otherwise resulted in an arrest is difficult because not every contact a citizen has with an officer results in an arrest. The rows highlighted grey in Table 11 show the agencies that are counted as diversions. Diversions such as these create a large cost saving for Bernalillo County. PIIP's most common referring agency after self with 24,600 (71.1%) referrals was Albuquerque Police Department with 2,702 (7.8%). Detox's most common referring agency after self with 10,922 (77.9%) was UNM Hospital with 793 (5.7%).

*Table 11. Total Referrals from Other Agencies*

| Referring Agency | PIIP | | Detox | | ATP | | SAC | | Mariposa | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Count | Percent | Count | Percent | Count | Percent | Count | Percent | Count | Percent |
| AFD/Paramedics | 105 | 0.3 | 8 | 0.1 | - | - | - | - | - | - |
| Albuquerque Ambulance | 1,606 | 4.6 | 156 | 1.1 | - | - | - | - | - | - |
| APD | 2,701 | 7.8 | 83 | 0.6 | - | - | - | - | 3 | 5.1 |
| District Court/ Drug Court/ Metro Court | 1 | 0 | 6 | 0 | 10,244 | 99.9 | - | - | - | - |
| Law Enforcement | 111 | 0.3 | 27 | 0.2 | - | - | - | - | - | - |
| Lovelace Hospital | 198 | 0.6 | 84 | .6 | - | - | - | - | - | - |
| MATS | 168 | 0.5 | 528 | 3.8 | - | - | 3 | 1.9 | - | - |
| Molina | 12 | .1 | 7 | 0 | - | - | 3 | 1.9 | - | - |
| Other | 72 | 0.2 | 94 | 0.7 | 10 | 0.1 | - | - | 1 | 1.7 |
| Outpatient | - | - | 6 | 0 | - | - | - | - | - | - |
| PIIP | 2,645 | 7.6 | 842 | 6 | - | - | - | - | - | - |
| Presbyterian Hospital | 783 | 2.3 | 294 | 2.1 | - | - | - | - | - | - |
| Self/Relative/ Volunteer | 24,601 | 71.1 | 10,926 | 78 | - | - | 154 | 96.2 | 46 | 78 |
| Turquoise Lodge | 8 | 0 | 81 | 0.6 | - | - | - | - | 1 | 1.7 |
| UNM Hospital | 15,404 | 4.4 | 793 | 5.7 | - | - | - | - | 8 | 13.5 |
| Veterans Hospital | 66 | 0.2 | 79 | 0.6 | - | - | - | - | - | - |
| Total | 48471 | 100 | 14014 | 100 | 10254 | 100 | 160 | 100 | 59 | 100 |

The following table reports the total number of diversions from hospitals to PIIP and the Detox program by month. PIIP and Detox are used for these calculations because they the programs that can include diversions from hospitals. Very importantly, we only count the first visit by a client in a month as a diversion. All other visits in a month by the same client are not included in the calculation. This was done in order to account for diversions to the programs by one of the listed hospital emergency room diversion sources that are not clearly diversions. We have used this method in the past and in discussions with DBHS program staff we believe that at times transports occur that are not diversions. We believe PIIP has become the destination of choice for inebriated individuals who prior to PIIP if they did not meet the criteria for admission to a local hospital emergency room would have been seen on location only. Table 12 counts referrals from AFD/Paramedics, Albuquerque Ambulance, Lovelace Hospital, Presbyterian Hospital, UNM Hospital, and Veterans Administration Hospital. We believe that at times referrals that originate from one of the referral sources counted for diversions is not correctly listed. This primarily occurs when referrals are listed as self-referrals when they were dropped off by a diversion source.

*Table 12. Total Number of Hospital Diversions by Month in 2017*

| Month | PIIP | | Detox | |
|---|---|---|---|---|
| | Count | Percent | Count | Percent |
| January | 69 | 10.9 | 48 | 10.9 |
| February | 53 | 8.4 | 28 | 6.4 |
| March | 60 | 9.5 | 34 | 7.7 |
| April | 38 | 6.0 | 38 | 8.6 |
| May | 48 | 7.7 | 40 | 9.1 |
| June | 45 | 7.1 | 35 | 8.0 |
| July | 66 | 10.5 | 38 | 8.7 |
| August | 60 | 9.5 | 46 | 10.5 |
| September | 41 | 6.5 | 40 | 9.1 |
| October | 44 | 7.0 | 39 | 8.9 |
| November | 61 | 9.7 | 31 | 7.1 |
| December | 46 | 7.3 | 22 | 5.0 |
| Total | 631 | 100.0 | 439 | 100.0 |

Table 13 shows the length of stay in days for each DBHS program. Each DBHS program is structured differently with a unique service, target population, and design length of stay. For the following calculations suspicious data were removed. These included a stay at Detox for over 1,000 days, negative lengths of stay at PIIP, as well as multiple negative lengths and lengths over 1,000 days in ATP.

*Table 13. Mean and Median Number of Days in Program*

| | Mean | Median | Mode | Min | Max |
|---|---|---|---|---|---|
| PIIP | .7 | 1 | 1 | 0 | 9 |
| ATP | 26.7 | 27 | 27 | 0 | 745 |
| Detox | 2.6 | 2 | 1 | 0 | 14 |
| Sac | 111.8 | 103 | 20 | 0 | 278 |
| Mariposa | 136.5 | 136 | 79 | 2 | 420 |

Table 14 shows the age categories for individuals in DBHS programs. The majority of people that DBHS served were above the age of 18, however there was a very small percentage of individuals who were under the age of 18. Ages are grouped into four categories. Not shown is the '17 and Under' category, only 11 individuals were under 18, all of which were admitted to PIIP. None of the DBHS programs are age-specific so client ages were distributed across most age groups for all of the programs. The largest age group for PIIP clients was the 46+ age group with 1827 (33.9%) individuals. The largest age group at ATP was the 26-35 age range with 2,126 (52.3 %) individuals. The largest age category of clients at Detox was 26-35 with 2,136 (32.4%) individuals. The greatest age group for SAC clients was the 26-35 age group with 69 (46.2%) individuals. Mariposa's largest category was 26-35 with 32 clients (56.1%).

*Table 14. Age of Individual Program Participants*

| Age | 18-25 | | 26-35 | | 36-45 | | 46+ | |
|---|---|---|---|---|---|---|---|---|
| | Count | Percent | Count | Percent | Count | Percent | Count | Percent |
| PIIP | 537 | 9.9% | 1545 | 28.7% | 1,478 | 24.4% | 1,827 | 33.9% |
| ATP | 1,061 | 26.1% | 2,126 | 52.3% | 794 | 13.6% | 324 | 8% |
| Detox | 1,090 | 16.5% | 2,136 | 32.4% | 1,506 | 22.8% | 1,857 | 28.2% |
| SAC | 23 | 14.7% | 69 | 46.2% | 34 | 21.8% | 27 | 17.3% |
| Mariposa | 19 | 33.3% | 32 | 56.1% | 6 | 9.9% | - | - |

Table 15 shows the race/ethnicity of individuals in DBHS programs. PIIPs largest race group was Hispanic with 1,660 (34.6%), closely followed by Native American with 1,616 (33.7%). ATP's most common race group was Hispanic with 2,083 (51.4%) Detox's most common race group is Hispanic with 2,950 (44.8%). Mariposas most common race group was Hispanic with 34 (54.4%). The largest race group for SAC was Caucasians with 67 (39%).

*Table 15. Race/Ethnicity of Individual Program Participants*

| | African American | | Asian/Pacific Islander | | Caucasian | | Hispanic | | Native American | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % |
| PIIP | 184 | 3.8 | 12 | 0.3 | 1,266 | 26.4 | 1,660 | 34.6 | 1,616 | 33.7 | 26 | 0.5 |
| ATP | 186 | 4.6 | 8 | 0.2 | 1,223 | 30.2 | 2,083 | 51.4 | 443 | 10.9 | 0 | 0 |
| Detox | 198 | 3 | 22 | 0.3 | 2,020 | 30.7 | 2,950 | 44.8 | 785 | 11.9 | 0 | 0 |
| SAC | 10 | 5.8 | 2 | 1.2 | 67 | 39 | 66 | 38.4 | 24 | 14 | 1 | 0.6 |
| Mariposa | 2 | 3.5 | - | - | 19 | 33.3 | 34 | 54.4 | 4 | 7 | 0 | 0 |

Missing – 149

**Cost Benefit**

The cost benefit is determined by calculating the investment in the program defined as the costs for implementing the program and the operational costs of the program. The point of view of this cost benefit calculation is from the perspective of Bernalillo County and the Department of Behavioral Health Services which operates the programs. The benefits are compared with the program costs to determine the effectiveness of the program. It is important to note this calculation does not take into account the social benefits of the program, including how the lives of clients served by the program have improved.

Table 12 emergency room diversion totals are used to calculate the cost savings of emergency room visits had the client not been diverted to the PIIP and/or the Detox program. These counts are provided in Table 16 along with an estimated cost savings and cost benefit. The estimated cost savings was calculated by multiplying the number of visits counted as diversions by the average cost of an

emergency room admission. The average cost of an emergency room admission ($1,843) was derived from the cost of an emergency room admission to Albuquerque hospitals used in a study completed by the ISR for the City of Albuquerque in late 2013 (City of Albuquerque Heading Home Initiative Cost Study Report Phase 1, Guerin and Tonigan, 2013). It would be useful to update this cost and to use a cost that only includes emergency room admissions for detoxification.

The diversion numbers are a conservative estimate for several reasons. First, only the first visit for each individual in a month is counted as a diversion. Second, the diversion cost is from 2013 and so is 5 years old. Third, we are not able to count any diversions that were not counted as from one of the referral sources listed earlier. Based on our experience we believe some referrals that are counted as self-referrals could be from a diversion source.

The cost of emergency room diversions was calculated by multiplying the total number of emergency room diversions in a year by the estimated cost of an emergency room visit ($1,843). Using this formula the cost of emergency room diversions to PIIP was $1,162,933 and the cost of emergency room diversions to the Detox program was $809,077. The cost savings is calculated by subtracting the operating cost of the program from the cost of emergency room diversions. PIIP had a cost saving of $1,008,933 and the Detox program had a cost saving of $890,923. The Detox program has an operating cost that is larger than the savings realized from diverting individuals from a local emergency room. While there is a benefit, it is smaller than the cost of program. The cost benefit for every $1 spent on the Detox program was $0.48. The cost benefit for PIIP was $6.55, which means that for every $1 spent there was a benefit of $6.55. The cost benefit for every $1 spent was determined with the following formula:

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

*Table 16. Hospital Diversion Cost Avoidance and Cost Benefit 2017*

| | Annual Program Cost | Total Diversions | Cost Savings from ER Diversions | Cost Savings | Cost Benefit for Every $1 spent |
|---|---|---|---|---|---|
| PIIP | $154,000 | 631 | $1,162,933 | $1,008,933 | $6.55:$1.00 |
| Detox | $1,700,000 | 439 | $809,077 | $-890,923 | $0.48:$1.00 |

In the future a sensitivity analysis and break-even analysis will be conducted to provide more detailed information on the cost benefit and additional information for policy decision making. We also hope to develop a plan to conduct a pre- post-cost benefit analysis of the Detox program using emergency room data to help further understand the issue of detoxification and diversions from emergency departments that includes the prevention of future admissions through detoxification and case management.

**MDC Bookings Before and After Participation in MATS Programs**

This section of the report reviews the extent of MATS clients' involvement with Bernalillo County's MDC during the study period. We specifically explore whether and how the frequency and length of stay of clients' bookings changed pre- and post-participation in the MATS programs, which required merging

MATS program participant data with jail data. However, since there was no variable that reliably and uniquely identified individuals in both data sets, we performed a probabilistic or "fuzzy" match based on each client's first name, last name, and date of birth.

*Data and Method*

Fuzzy Match Method

To perform the fuzzy match, we conducted a one-to-many merge of individual participants in MATS programs with jail bookings using the *matchit* operator in Stata. *Matchit* performs a variety of string-based matching techniques to gauge the similarity of two string variables, making it ideal for joining observations when the string variables are not necessarily identical (Raffo, 2015). The default matching method for *matchit* is a bi-gram vector decomposition algorithm, which decomposes text strings into elements ("grams") of 2 characters on a moving-window basis and measures the similarity of the elements.

For example, consider the two strings "John Smith" and "Jon Smith." A bi-gram vector decomposition algorithm would break the strings down into grams of two characters each as shown below (where "_" refers to a blank space). Note that the first string contains 9 grams while the second contains 8 grams, but the two strings share 7 grams.

John Smith: Jo, oh, hn, n_, _S, Sm, mi, it, th
Jon Smith: Jo, on, n_, _S, Sm, mi, it, th

Vector decomposition algorithms are more effective than phonetic algorithms when imperfect matches are based on permutations rather than homophones, and we encountered mismatches of the former kind in our data (e.g., "John Smith" and "John Smiht") more often than those of the latter (e.g., "Jon Ackerman" and "John Ackermann"). Additionally, bi-gram methods have been found to perform better than decomposition methods with larger grams (e.g., 3-gram or 4-gram algorithms) or edit-distance methods like Levenshtein's distance (Phua, Lee, & Smith-Miles, 2007).

The operator returns a similarity score for each observation ranging from 0 to 1, where 1 represents perfect similarity and declines when the match is less similar. We accepted observations as matches when the *matchit* similarity score was greater than or equal to .8 and when the date of birth matched exactly. This threshold allowed us to treat as matches persons with common name spelling discrepancies (e.g., "Torres" and "Torrez"), name extensions or abbreviations ("Alexander" and "Alex"), and first/last name permutations ("Mary Sue" and "Sue Mary") if their birthdays matched. At the same time, the threshold required treating as distinct those observations which may represent the same individual but indicate a name change (due, for example, to marriage, whereby "Sally Jones" becomes "Sally Smith").

Presentation of MATS Program Participant Bookings

For each MATS program, individual-level data were merged with admission-level data for bookings into MDC occurring between July 2011 and December 2018. We matched participants to their bookings, if any, for all 172 participants in the SAC program and all 57 participants in the Mariposa program.

Given the large number of participants in the ATP and Detox programs, we obtained a random sample of 200 individuals from each program and matched these persons to their respective bookings within the timeframe. In the future we can match a larger proportion from each program to bookings data.

Our analyses are based on fewer persons per program, however, because not every MATS participant was booked into MDC during the July 2011 through December 2018 period.

Information on bookings includes charge class and crime type. To simplify presentation, we present our analyses by two charge classes (misdemeanor or felony) and three crime categories (drug, property, or violent). Table 17 indicates how 16 out of a total 23 crime types were collapsed into three categories. Seven additional types—weapons, DWI, judicial interference, public order, traffic, other, and unknown—were excluded for the sake of brevity, although arrests for these crimes are still included in aggregate bookings counts. The jail data also include bookings coded as probation violation, felony warrant, misdemeanor warrant, and court appearance, but since these do not indicate new offenses they are excluded from the samples on which our analyses are based.

*Table 17. Classification of Crime Types into Crime Categories*

| **Drug** | **Property** | **Violent** |
|---|---|---|
| Drug Possession | Arson | Assault |
| Drug Trafficking | Burglary | Battery |
| | Fraud | Homicide |
| | Larceny Theft | Kidnapping |
| | Motor Vehicle Theft | Robbery |
| | Stolen Property | Sexual Offenses |
| | Other Property Offenses | Other Violent Offenses |

To ensure comparability in pre- and post-program durations, our analyses compare frequencies and lengths of stay within the same quantity of time before and after program participation for each client. This was done by calculating the quantity of time comprised by the post-program period (i.e., between the date of each client's first discharge from the respective program and December 31, 2018) and counting backward by this amount from the client's date of first admission to obtain the start date of the pre-program period. The number of bookings and lengths of stay were then obtained within the pre- and post-program periods.

The analyses we present below include descriptive statistics on MATS participants' bookings and lengths of stay during their pre- and post-program periods for the April 2013 through June 2018 timeframe. These statistics are presented by program first in total and then disaggregated by charge class and crime category (i.e., misdemeanor or felony drug, property, or violent offense). In the aggregate, we present the mean and median values as measures of central tendency and the maximum value to indicate the range (all individuals included in the merged data had at least 1 booking lasting 1 full day or less, so

these serve as the minimum frequency and length of stay values for each program). When analyses are disaggregated by charge class and crime category, we restrict our descriptive statistics to the mean and maximum values for simplicity.

The aggregate bookings and lengths of stay analyses also comprise paired sample t-tests for the ATP and Detox programs. The paired-sample t-tests allow us to examine whether the difference in the average number of bookings and lengths of stay before and after individuals' participation in MATS extends to the population from which each random sample was drawn. Paired-sample t-tests are appropriate when observations are independent and the difference scores between variables are normally distributed within the population. The latter requirement can be assumed when sample counts are sizeable (i.e., N > 30) (Geert van den Berg, n. d.).

*Total Booking Frequencies and Lengths of Stay*

Table 18 displays the mean, median, and maximum number of bookings into MDC accumulated by MATS clients since their first program discharge until December 31, 2018 (the post-program period) and during the same amount time prior to their first program admission (the pre-program period). The median pre- and post-program periods across clients of the SAC, Mariposa, ATP, and Detox programs were 20.4, 26.7, 45.3, and 38.2 months, respectively.

The mean and median numbers of bookings during the pre-program period were consistently greater than their corresponding values within the post-program period for the SAC, Mariposa, and ATP programs, suggesting MATS participants are typically accumulating fewer arrests after their program participation than before it. The smallest relative decline in means is evident for Mariposa participants where mean bookings fell from 3.9 to 3.4 (an 11% decrease) and the largest relative decline is evident among ATP participants where mean bookings fell from 4.2 to 3.4 (an 18% decrease). However, the arrest frequency of Detox participants typically rose following their program participation. Compared with a mean of 2.9 bookings during their pre-program period, Detox participants logged 3.7 bookings on average during their post-program period (a 28% increase).

*Table 18. Descriptive Statistics for MDC Booking Frequencies Pre- and Post-Participation in MATS, by Program*

| | Pre-Program Booking Frequencies | | | | Post-Program Booking Frequencies | | | |
|---|---|---|---|---|---|---|---|---|
| | Clients | Mean | Median | Max | Clients | Mean | Median | Max |
| SAC | 44 | 2.2 | 2 | 9 | 36 | 1.9 | 1 | 6 |
| Mariposa | 30 | 3.9 | 2 | 11 | 23 | 3.4 | 2 | 11 |
| ATP | 196 | 4.2 | 4 | 14 | 156 | 3.4 | 2 | 19 |
| Detox | 67 | 2.9 | 2 | 13 | 57 | 3.7 | 2 | 48 |

Table 19 presents the same descriptive statistics as above for MATS participants' lengths of stay (in days) in MDC during the pre- and post-program periods (lengths of stay for separate bookings were summed by individual before being averaged across individuals). As was the case with booking frequencies, the mean and median lengths of stay in the jail fell from the early to the later timeframe for SAC, Mariposa, and ATP participants but rose over the same period for Detox participants. Again, the smallest relative

decline is evident for Mariposa participants where the mean length of stay fell from 117 days to 111 days (a 5% decrease) while the largest relative decline is evident for SAC participants where the mean length of stay fell from 58 days to 28 days (a 52% decrease). Among Detox participants, the average length of stay inclined from 73 days in the pre-program period to 89 days in the post-program period (a 22% increase).

*Table 19. Descriptive Statistics for MDC Booking Lengths of Stay (in days) Pre- and Post-Participation in MATS, by Program*

| | Pre-Program Booking Lengths of Stay | | | | Post-Program Booking Lengths of Stay | | | |
|---|---|---|---|---|---|---|---|---|
| | Clients | Mean | Median | Max | Clients | Mean | Median | Max |
| SAC | 44 | 58 | 19 | 414 | 36 | 28 | 4 | 327 |
| Mariposa | 30 | 117 | 90 | 360 | 21 | 111 | 63 | 511 |
| ATP | 196 | 166 | 118 | 795 | 156 | 135 | 81 | 720 |
| Detox | 67 | 73 | 10 | 581 | 57 | 89 | 14 | 742 |

Table 20 presents the results of paired sample t-tests comparing the average number of bookings between the pre-and post-program periods for ATP and Detox participants. The mean numbers of bookings differ from those presented in Table 2 because they are computed only for participants who accumulated bookings within both the pre- and post-program periods. Using the conventional alpha level, we reject the null hypothesis that two mean values on a given variable for paired samples are equal if $p < .05$. We can therefore reject the null hypothesis only in the case of ATP. For this program alone, we find evidence that clients accumulated fewer bookings after participation, $t(155) = 3.9$, $p = .00$.

*Table 20. Paired t-Tests for Differences in Mean Booking Frequencies Pre- and Post-Participation in MATS, by Programs for which Random Samples were Drawn*

| | Clients | Pre-Program Mean | Post-Program Mean | Difference in Means | t score | p value |
|---|---|---|---|---|---|---|
| ATP | 156 | 4.5 | 3.4 | 1.1 | 3.9 | .00 |
| Detox | 36 | 3.8 | 5.1 | -1.3 | -1.1 | .29 |

Table 21 shows the results of paired sample t-tests comparing the average lengths of stay between the pre-and post-program periods for ATP and Detox participants. Once again, we can reject the null hypothesis of no difference between the sample average lengths of stay only for ATP participants. Clients in this program spent more days in jail on average during the pre-program period than during the post-program period, $t(155) = 2.5$, $p = .01$.

*Table 21. Paired t-Tests for Differences in Mean Booking Lengths of Stay (in days) Pre- and Post-Participation in MATS, by Programs for which Random Samples were Drawn*

| | Clients | Pre-Program Mean | Post-Program Mean | Difference in Means | t score | p value |
|---|---|---|---|---|---|---|
| ATP | 156 | 173 | 135 | 38 | 2.5 | .01 |
| Detox | 36 | 110 | 122 | 12 | -0.3 | .74 |

*Booking Frequencies and Lengths of Stay Disaggregated by Charge Class and Crime Category*

Table 22 presents the average and maximum booking frequencies and lengths of stay for SAC program clients within each of the time periods disaggregated by charge class and crime category. Among both misdemeanor and felony offenses, bookings for drug and property crimes declined on average between the before and after periods while the mean bookings count for violent crimes rose. However, the absolute arrest counts are small with the average never exceeding 0.5 during either period (recall that average booking counts in Table 18 typically fell between 2 and 4 for each program). Mean lengths of stay decreased from the pre- to the post-program period irrespective of charge class and crime category, although the averages are less reliable given the small counts on which they are based.[2]

*Table 22. Descriptive Statistics for MDC Booking Frequencies and Lengths of Stay (in days) Pre- and Post-Participation in SAC*

| | Pre-Program Frequencies | | | Post-Program Frequencies | | | Pre-Program Lengths of Stay | | | Post-Program Lengths of Stay | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Clients | Mean | Max | Clients | Mean | Max | Clients | Mean | Max | Clients | Mean | Max |
| **Misd.** | | | | | | | | | | | | |
| Drug | 37 | 0.1 | 2 | 31 | 0.0 | 1 | 2 | 2 | 2 | 1 | 1 | 1 |
| Prop. | 37 | 0.3 | 3 | 31 | 0.1 | 1 | 8 | 25 | 124 | 4 | 7 | 27 |
| Viol. | 37 | 0.4 | 7 | 31 | 0.5 | 3 | 5 | 100 | 251 | 10 | 9 | 66 |
| **Felony** | | | | | | | | | | | | |
| Drug | 37 | 0.1 | 2 | 31 | 0.0 | .00 | 1 | 3 | 3 | 0 | - | - |
| Prop. | 37 | 0.3 | 2 | 31 | 0.2 | 3 | 7 | 11 | 29 | 4 | 9 | 15 |
| Viol. | 37 | 0.4 | 4 | 31 | 0.5 | 3 | 10 | 49 | 154 | 12 | 47 | 280 |

Table 23 presents the average and maximum booking frequencies and lengths of stay for Mariposa program clients within each of the time periods disaggregated by charge class and crime category. Except for misdemeanor violent and felony property crimes, average booking frequencies and lengths of stay among Mariposa clients declined from pre- to post-program participation. In either time period, the mean booking count only reached 1 for two charge type/crime category combinations.

[2] In the disaggregated tables, average lengths of stay are based only on MATS program clients who had a non-zero number of bookings into MDC for each charge class/crime type combination. This approach prevents mean lengths of stay from being distorted by many instances of clients spending "0" days in jail when in fact they were never booked for an offense within the specified charge class/crime type.

*Table 23. Descriptive Statistics for MDC Booking Frequencies and Lengths of Stay (in days) Pre- and Post-Participation in Mariposa*

| | Pre-Program Frequencies | | | Post-Program Frequencies | | | Pre-Program Lengths of Stay | | | Post-Program Lengths of Stay | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Clients | Mean | Max | Clients | Mean | Max | Clients | Mean | Max | Clients | Mean | Max |
| **Misd.** | | | | | | | | | | | | |
| Drug | 24 | 0.2 | 1 | 17 | 0.1 | 1 | 4 | 16 | 39 | 1 | 11 | 11 |
| Prop. | 24 | 0.5 | 4 | 17 | 0.1 | 2 | 4 | 56 | 110 | 1 | 48 | 48 |
| Viol. | 24 | 0.0 | 1 | 17 | 0.2 | 3 | 1 | 17 | 17 | 1 | 27 | 27 |
| **Felony** | | | | | | | | | | | | |
| Drug | 24 | 1.0 | 5 | 17 | 0.6 | 4 | 12 | 61 | 325 | 5 | 37 | 111 |
| Prop. | 24 | 0.3 | 2 | 17 | 1.0 | 5 | 5 | 34 | 78 | 7 | 85 | 446 |
| Viol. | 24 | 0.4 | 3 | 17 | 0.4 | 2 | 6 | 73 | 197 | 4 | 51 | 107 |

Table 24 presents the average and maximum booking frequencies and lengths of stay for ATP program clients within each of the time periods disaggregated by charge class and crime category. Among misdemeanor offenses, average bookings and lengths of stay decreased for drug and violent crimes from the pre- to post-periods while each measure remained stable over the two periods for property crimes. Among felony offenses, mean admissions to the jail rose following program participation regardless of crime category, whereas mean lengths of stay increased only for drug crimes. The range of bookings is greater than for the previous two programs as the maximum for misdemeanor property crimes following program discharge was 9 arrests, but averages are comparable to SAC with mean bookings never exceeding 0.7 in either period.

*Table 24. Descriptive Statistics for MDC Booking Frequencies and Lengths of Stay (in days) Pre- and Post-Participation in ATP*

| | Pre-Program Frequencies | | | Post-Program Frequencies | | | Pre-Program Lengths of Stay | | | Post-Program Lengths of Stay | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Clients | Mean | Max | Clients | Mean | Max | Clients | Mean | Max | Clients | Mean | Max |
| **Misd.** | | | | | | | | | | | | |
| Drug | 181 | 0.1 | 2 | 121 | 0.1 | 1 | 19 | 12 | 89 | 5 | 3 | 11 |
| Prop. | 181 | 0.2 | 3 | 121 | 0.2 | 9 | 26 | 40 | 220 | 14 | 41 | 206 |
| Viol. | 181 | 0.4 | 8 | 121 | 0.3 | 5 | 41 | 60 | 392 | 17 | 18 | 105 |
| **Felony** | | | | | | | | | | | | |
| Drug | 181 | 0.4 | 3 | 121 | 0.4 | 3 | 45 | 45 | 409 | 28 | 70 | 302 |
| Prop. | 181 | 0.5 | 5 | 121 | 0.7 | 5 | 62 | 65 | 460 | 49 | 60 | 475 |
| Viol. | 181 | 0.6 | 5 | 121 | 0.6 | 4 | 67 | 118 | 795 | 44 | 119 | 501 |

Table 25 presents the average and maximum booking frequencies and lengths of stay for Detox program clients within each of the time periods disaggregated by charge class and crime category. Consistent with the aggregate over-time changes in arrests presented in Table 18, average booking counts increased between the pre- and post-program periods for every charge class and crime category combination except misdemeanor drug offenses. In contrast, mean lengths of stay rose for felony offenses but declined for each type of misdemeanor offense. The range and average booking

frequencies are greater than for the previous programs, as the mean and maximum counts for misdemeanor property offenses during the post-program period reached 1.1 and 36, respectively.

*Table 25. Descriptive Statistics for MDC Booking Frequencies and Lengths of Stay (in days) Pre- and Post-Participation in Detox*

| | Pre-Program Frequencies | | | Post-Program Frequencies | | | Pre-Program Lengths of Stay | | | Post-Program Lengths of Stay | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Clients | Mean | Max | Clients | Mean | Max | Clients | Mean | Max | Clients | Mean | Max |
| **Misd.** | | | | | | | | | | | | |
| Drug | 54 | 0.2 | 3 | 46 | 0.1 | 2 | 6 | 27 | 135 | 2 | 16 | 30 |
| Prop. | 54 | 0.5 | 5 | 46 | 1.1 | 36 | 16 | 34 | 154 | 10 | 30 | 226 |
| Viol. | 54 | 0.2 | 2 | 46 | 0.3 | 3 | 9 | 29 | 87 | 9 | 20 | 68 |
| **Felony** | | | | | | | | | | | | |
| Drug | 54 | 0.2 | 2 | 46 | 0.3 | 3 | 9 | 39 | 209 | 8 | 65 | 282 |
| Prop. | 54 | 0.3 | 3 | 46 | 0.5 | 4 | 12 | 43 | 161 | 10 | 84 | 295 |
| Viol. | 54 | 0.2 | 2 | 46 | 0.6 | 7 | 7 | 66 | 244 | 11 | 151 | 672 |

**Medical Encounters Before and After Participation in the SAC Program**

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' medical encounters changed before and after their program participation. As with the jail data, this analysis required performing a one-to-many merge of individual-level participant data with admission-level medical encounter data.

*Data and Method*

Medical encounter data were obtained from the statewide Health Information Exchange maintained by the New Mexico Health Information Collaborative (NMHIC). After creating a unique numeric identifier for each SAC client, names and identifiers were sent to the NMHIC with a request for data. The NMHIC provided medical encounter history for each client and returned the data to the ISR with patient records linked to the unique numeric identifiers but de-identified by name. The merge was then completed using the unique numeric identifier.

Medical encounter data were provided for all 172 SAC clients during the period of January 2013 through April 2019. Medical encounters are categorized in the NMHIC data by encounter type (i.e., emergency, inpatient, outpatient, procedure, or rehabilitation) and detail type (diagnosis or procedure), if known. We attempted to select all medical encounters with a behavioral health disorder diagnosis according to available detail type codes. Specifically, for encounters with a diagnosis coded according to the International Statistical Classification of Diseases, Injuries, and Causes of Death, either Ninth Revision (ICD-9) or Tenth Revision (ICD-10), we selected all cases according to the following criteria:

- ICD-9
    - All codes from 290 to 319 were categorized as indicating behavioral health disorders.

    - Of these, codes >= 291 but < 293, or >= to 303 but < 306, were categorized as indicating substance use disorders.
    - All others were categorized as indicating mental health disorders.
- ICD-10
    - All codes with the prefix "F" were categorized as indicating behavioral health disorders.
    - Of these, codes with a numeric suffix >= 10 but < 20 were categorized as indicating substance use disorders.
    - All others were categorized as indicating mental health disorders.

If encounters with a diagnosis were not coded according to the ICD or were missing a detail type code, we manually coded them as to whether they indicated a behavioral health disorder and, if so, whether the disorder was a substance use or mental health disorder. This was accomplished using detail type descriptions or admit reason descriptions if the former were not available. Coding choices were repeatedly verified by 2 ISR staff members to ensure interrater reliability. We believe our coding approach was conservative because our strategy of relying on detail type descriptions (if available) meant that we often coded encounter diagnoses as unrelated to behavioral health even when chronic alcohol or drug use may have been involved (e.g., when descriptions read "fall from slipping, tripping, or stumbling," "vomiting alone," or "dizziness and giddiness").

We employ an approach similar to that used to examine the bookings data and compare descriptive statistics for counts of medical encounters between clients' first discharge from SAC and April 3, 2019 (the post-program period) and during the same quantity of time prior to clients' first admission to SAC (the pre-program period). We present the mean, median, and maximum numbers of encounters during each period by encounter type. We exclude procedure and rehabilitation types because procedures are listed separately from encounters in the data (i.e., they take place during an encounter if they occur but do not represent new hospital admissions) and together procedure and rehabilitation cases make up less than 1% of our selected medical encounters. Our analysis therefore focuses on emergency, inpatient, and outpatient encounters, first in total and then disaggregated by substance use and mental health disorder diagnoses.

*Total Behavioral Health, Substance Use, and Mental Health Disorder Medical Encounters*

Between January 2013 and April 2019, 146 of the SAC clients received medical services across 4,250 encounters involving a behavioral health disorder diagnosis. Among the 4,250 total encounters, 1,169 (or 28%) included a mental health disorder and 2,910 (or 68%) included a substance use disorder. The remaining 171 or 4% of encounters contained enough information for us to classify them as behavioral health related, but we could not reliably determine whether they specifically involved a mental health or substance use disorder (e.g., their admit reason description read "Counseling" or simply "Behavioral Health").

Table 26 cross-tabulates medical encounter disorder types by their encounter type as emergency, inpatient, or outpatient. For those behavioral health encounters we could reliably classify as involving a mental or substance use disorder, emergency department services represented about three of every five encounters (59% of mental health disorder encounters and 64.5% of substance use disorder

encounters), making them the most common encounter type. They were followed by outpatient visits which represented 22.8% of mental health disorder encounters and 19.5% of substance use disorder encounters. Among behavioral health disorder encounters whose specific diagnosis we could not determine, however, outpatient visits were the most common at 90.1%.

*Table 26. SAC Participant Behavioral Health Medical Encounters by Disorder Type and Encounter Type*

| | Mental Health Disorder | | Substance Use Disorder | | Behavioral Health Disorder – Unknown Type | |
|---|---|---|---|---|---|---|
| | Count | Percent | Count | Percent | Count | Percent |
| Emergency | 689 | 59.0 | 1878 | 64.5 | 4 | 2.3 |
| Inpatient | 213 | 18.2 | 465 | 16.0 | 13 | 7.6 |
| Outpatient | 267 | 22.8 | 567 | 19.5 | 154 | 90.1 |
| Total | 1169 | 100.0 | 2910 | 100.0 | 171 | 100.0 |

Table 27 presents the mean, median, and maximum counts of behavioral health encounters across SAC program clients, by disorder type and in total, during clients' pre- and post-program periods. (The median duration of these periods across clients was 708 days or nearly 2 years.) The median number of all behavioral health encounters declined from 9 encounters during the pre-program period to 8 encounters during the post-program period. The mean count rose from 17 to 18 over the same timeframes, although the difference in size and direction of change compared with the median values likely results from the large increase in maximum counts. Among mental health encounters the mean count rose from 4 to 5 encounters pre- to post-program while the median remained at 1. Both the mean and median number of substance use encounters held stable across the periods at 12 and 5, respectively.

*Table 27. Descriptive Statistics for Behavioral Health Encounters by Disorder Type Pre- and Post-Participation in SAC*

| | Pre-Program Frequencies | | | | Post-Program Frequencies | | | |
|---|---|---|---|---|---|---|---|---|
| | Clients | Mean | Median | Max | Clients | Mean | Median | Max |
| Mental Health | 113 | 4 | 1 | 43 | 123 | 5 | 1 | 149 |
| Substance Use | 113 | 12 | 5 | 97 | 123 | 12 | 5 | 222 |
| Total | 113 | 17 | 9 | 153 | 123 | 18 | 8 | 403 |

The trends evident in Table 27 would be consistent with most clients receiving medical services at a similar rate before and after completing the SAC program alongside a minority of individuals with exceptionally high behavioral health encounter frequencies increasing their use in the post-program period. Table 28 explores this possibility by disaggregating the descriptive statistics in the bottom row of Table 27 by four encounter frequency ranges. As expected, average counts of medical encounters are essentially stable between the pre- and post-program periods for clients with 1-5 encounters or 6-19 encounters, but they increase after completion of the SAC program for clients with at least 20 encounters in either period. For individuals with 20-49 behavioral health encounters, the mean increased from 28 to 30 (a 7% increase), and the median from 27 to 31 (a 15% increase), from the pre- to post-program periods. For individuals with 50 behavioral health encounters or more, the mean rose from 75 to 110 (a 47% increase), and the median from 68 to 73 (a 7% increase).

*Table 28. Descriptive Statistics for Total Behavioral Health Encounters by Encounter Frequency Ranges Pre- and Post-Participation in SAC*

| | Pre-Program Frequencies | | | | Post-Program Frequencies | | | |
|---|---|---|---|---|---|---|---|---|
| Encounters | Clients | Mean | Median | Max | Clients | Mean | Median | Max |
| 1-5 | 43 | 2 | 2 | 5 | 57 | 2 | 2 | 5 |
| 6-19 | 43 | 11 | 11 | 19 | 37 | 11 | 10 | 18 |
| 20-49 | 15 | 28 | 27 | 47 | 19 | 30 | 31 | 41 |
| 50+ | 12 | 75 | 68 | 153 | 10 | 110 | 73 | 403 |

Table 29 displays the mean, median, and maximum counts of total behavioral health encounters across SAC program clients during the pre- and post-program periods by encounter type. Descriptive statistics for inpatient visits show the least change between the pre- and post-program periods, with the mean and median holding their values and the maximum counts approximately doubling in size. However, despite the near threefold increase in range over the two periods for emergency and outpatient visits, the mean count of the former decreased from 11 to 10 encounters while the mean count of the latter increased from 3 to 4 encounters. The median count of emergency encounters also fell from 4 to 3 encounters and the median count of outpatient encounters held stable at 1 encounter.

*Table 29. Descriptive Statistics for Total Behavioral Health Encounters by Encounter Type Pre- and Post-Participation in SAC*

| | Pre-Program Frequencies | | | | Post-Program Frequencies | | | |
|---|---|---|---|---|---|---|---|---|
| | Clients | Mean | Median | Max | Clients | Mean | Median | Max |
| Emergency | 113 | 11 | 4 | 118 | 123 | 10 | 3 | 289 |
| Inpatient | 113 | 3 | 0 | 26 | 123 | 3 | 0 | 59 |
| Outpatient | 113 | 3 | 1 | 35 | 123 | 4 | 1 | 81 |

Table 30 shows the mean, median, and maximum counts of mental health encounters across SAC program clients during the pre- and post-program periods by encounter type. The mean counts of mental health encounters increased slightly across the program periods for each encounter type, partially reflecting the increase in range over the two timeframes. Among the median counts only the emergency visit value showed change following completion of the SAC program, decreasing from 2 to 1; the median counts of inpatient and outpatient visits held stable at 0.

*Table 30. Descriptive Statistics for Mental Health Encounters by Encounter Type Pre- and Post-Participation in SAC*

| | Pre-Program Frequencies | | | | Post-Program Frequencies | | | |
|---|---|---|---|---|---|---|---|---|
| | Clients | Mean | Median | Max | Clients | Mean | Median | Max |
| Emergency | 66 | 4 | 2 | 38 | 79 | 5 | 1 | 112 |
| Inpatient | 66 | 1 | 0 | 8 | 79 | 2 | 0 | 16 |
| Outpatient | 66 | 1 | 0 | 8 | 79 | 2 | 0 | 22 |

Table 31 shows the mean, median, and maximum counts of substance use encounters across SAC program clients during the pre- and post-program periods by encounter type. This table replicates the patterns evident for all behavioral health encounters presented in Table 29. Here again, despite the sizeable increases in range across the two periods, the mean emergency visit count decreased from 9 to

8 encounters while the mean outpatient visit increased from 2 to 3 encounters. The median emergency visit count also decreased from 4 to 3 encounters and the median outpatient visit count remained at 1 encounter. The mean and median inpatient visit counts held at 2 and 0 encounters, respectively.

*Table 31. Descriptive Statistics for Substance Use Encounters by Encounter Type Pre- and Post-Participation in SAC*

| | Pre-Program Frequencies | | | | Post-Program Frequencies | | | |
|---|---|---|---|---|---|---|---|---|
| | Clients | Mean | Median | Max | Clients | Mean | Median | Max |
| Emergency | 104 | 9 | 4 | 82 | 116 | 8 | 3 | 176 |
| Inpatient | 104 | 2 | 0 | 22 | 116 | 2 | 0 | 45 |
| Outpatient | 104 | 2 | 1 | 24 | 116 | 3 | 1 | 40 |

**Conclusion**

This review of five Metropolitan Assessment Treatment Services programs—PIIP, ATP, Detox, SAC, and Mariposa—for the period of April 17, 2013 through June 30, 2018 described several key areas of interest to the Bernalillo County Department of Behavioral Health Services. These areas included characteristics of the client population, patterns of service use, extent of client overlap with the criminal justice system, and emergency department or jail diversion-generated cost savings. For the client population characteristics and patterns of service use areas, the report described both MATS clients and services generally and then specifically by program.

Regarding MATS services in their entirety, clients were predominantly male and Hispanic, yet visit frequency concentrated most among transgender and Native American individuals. They also tended to be in young or middle adulthood, but visits were more common among clients over 45 years of age. In most cases clients referred themselves to MATS services or were referred by the courts, and their duration of services was 30 days or less. 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 the number of unique and total visits evinced relative stability over the study period, the decreasing number of clients alongside the increasing number of visits since 2014 suggests an increasing concentration of visits among a smaller number of individual clients over time.

Many of the same broad patterns of client characteristics are evident when MATS services are disaggregated by program. Across the five programs, Hispanics comprised the largest racial/ethnic group and, among the four programs offering services to both men and women, male participants were the most common. With the exception of PIIP (where most clients were over 45 years of age), the majority of clients were in young or middle adulthood; and except for ATP (to which most clients were referred by the courts), most participants volunteered or were referred by a relative. Length of stay by program did differ across programs, however; PIIP, Detox, and ATP participants usually received services for less than 30 days, whereas the typical program duration for SAC and Mariposa participants was between three and four months. With 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 with 34,620 visits (65%). Each program had an average number of visits per client less than for MATS generally except for PIIP, to which clients were admitted 6.4 times on average.

Analysis of referrals to the PIIP and Detox programs in 2017 that were likely diversions from local emergency departments indicated that PIIP generated a savings of $1,008,933, while Detox generated a

savings of $890,923. PIIP returns $6.55 for every $1 dollar spent, whereas the Detox program returned $0.48 for every $1 spent. However, for a variety of reasons including because the cost savings analysis only included each individual's first visit to PIIP or the Detox program per month, the cost savings estimates are conservative and may well have been greater than reported here. In the future, we plan on conducting more sophisticated cost analyses including sensitivity and break-even analyses. We also plan to conduct a pre- post-cost benefit analysis of the Detox program using emergency room data to help further understand the issue of detoxification and diversions from emergency departments that includes the prevention of future admissions through detoxification and case management.

The last two sections of the report considered client outcomes before and after participation in the MATS programs. We found that average frequencies and lengths of stay for bookings into MDC were generally reduced after MATS clients' program participation than during the period prior to their first admission. However, Detox participants accumulated a greater number of arrests on average during the post-program period than the pre-program period, and among clients of the ATP and Detox programs arrested during both periods only the ATP program showed a difference in mean booking counts and lengths of stay that extended statistically to the population of clients. When bookings were disaggregated by charge class and crime category, we found that arrests and lengths of stay were somewhat more likely to decrease from the pre- to post-program period for misdemeanors than felonies and for property or drug crimes than violent crimes, although mean and maximum values were small relative to counts presented in the aggregate. While we caution that these trends should be interpreted conservatively, the generally consistent patterns we observed suggest participation in the MATS programs is associated with a reduced likelihood of recidivism as measured by arrests.

Finally, we discovered that 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 the SAC program. When medical encounters were disaggregated by encounter type, we found that average emergency visits decreased, outpatient visits increased, and inpatient visits remained stable. These trends suggest some high-frequency utilizers of behavioral health services who relied on emergency department services prior to their participation in the SAC program may have benefitted from greater access to outpatient services after completing the program. Additionally, this pattern appears to characterize clients seen for substance use disorders more than those receiving services for mental health disorders; the latter saw more stability than change in medical encounters from the pre- to post-program periods. Again, while we advise cautious interpretations of our findings, these patterns indicate participation in the SAC program may help some individuals with substance use disorders connect with outpatient services before their conditions require emergency intervention. This finding deserves further study to better understand the characteristics of this change among this small group of frequent users and the lack of change among most SAC clients.

**References**

Geert van den Berg, R. (N. d.). *SPSS Paired Samples T Test.* Retrieved March 12, 2019, from https://www.spss-tutorials.com/spss-paired-samples-t-test/.

Phua, C., Lee, V., & Smith-Miles, K. (2007). The personal name problem and a recommended data mining solution. In *Encyclopedia of Data Warehousing and Mining* (2nd ed., pp. 1524-1531). Hershey, PA: Information Science Reference, IGI Global.

Raffo, J. (2015). *Matchit: new .ado to merge datasets using different string similarity methods (i.e. fuzzy match).* Retrieved February 12, 2019, from https://www.statalist.org/forums/forum/general-stata-discussion/general/1040086-matchit-new-ado-to-merge-datasets-using-different-string-similarity-methods-i-e-fuzzy-match.