



THE UNIVERSITY OF
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**Bernalillo County Department of
Behavioral Health Services: MATS
Programs Review, January 2014 –
August 2019**

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**Sam Torres, M.A.
Paul Guerin, Ph.D.**

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UNIVERSITY OF NEW MEXICO, INSTITUTE FOR SOCIAL RESEARCH

Introduction

The purpose of this report is to review the operation and impact on receipt of subsequent medical treatment of a subset of Bernalillo County Metropolitan Assessment Treatment Services (MATS) programs for the period covering January 2014 through August 2019. The report specifically describes the population of clients served, characteristics of services received, and potential impact of the programs on future receipt of general medical and behavioral health services. Managed by the Bernalillo County Department of Behavioral Health Services (DBHS), the MATS Campus programs provide behavioral health services to Bernalillo County residents with the goal of reducing the incidence of crises and substance use disorders. By providing these services, the programs divert residents from contact with hospital emergency rooms and the Metropolitan Detention Center and thereby generate cost savings for the county (Torres et al., 2019).

The present report focuses on the five MATS programs for which electronic data are readily available: 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). Data on the ATP and Detox programs were additionally supplemented with medical encounter information obtained from the New Mexico Health Information Collaborative (NMHIC) to investigate how clients' encounters with healthcare services changed before and after their participation in the programs.

Programs Background

A brief description of the purpose and structure of each program is provided below.

- PIIP reduces emergency room admissions and arrests for adult public inebriates by diverting them to up to 12 hours of observation and stabilization services. 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. Admitted clients must require 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 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.

MATS Clients and Visits, January 2014-August 2019

From January 2014 through August 2019, 14,333 individuals received services from the MATS Campus programs and accounted for 65,387 program visits.¹ Table 1 presents the number and percent of clients for five ranges of increasing visitation frequency over the study period. Nearly three-quarters (74.3%) participated in or received services from any of the MATS Campus programs one or two times, but 11.4% visited 3-4 times, 7.9% visited 5-9 times, and 6.5% visited 10 times or more. Less than 1% (.6%) of clients registered at least 100 visits and together comprised 19,096 visits, or 29.2% of the total. The average client visited MATS for services 4.6 times.

Table 1. Number and Percent of Clients by Visit Frequency Range

Range	Count	Percent
1	7,991	55.8
2	2,656	18.5
3-4	1,627	11.4
5-9	1,128	7.9
10+	931	6.5
Total	14,333	100

The total number of clients and visits by year, as well as descriptive statistics describing the distribution of visits across clients, are presented in Table 2. Individual clients are counted more than once in this table if they visited MATS in multiple years. From the beginning of 2014 to yearend 2018 (the last year with visit data for all 12 months), the total number of clients decreased by 21.2% (from 4,139 in 2014 to 3,261 in 2018). Over the same period the total visits increased by 18.4% (from 10,258 in 2014 to 12,148 in 2018) and the average visits per client rose from 2.5 to 3.7. Presented graphically in Figure 1, these changes are consistent with a trend where a small group of individuals has accounted for a larger share of all visits to MATS since 2014 through 2017, with the average leveling off by 2018.

¹ Over the 01/2014 to 08/2019 period, two months' worth of data for visits to the Mariposa program and seven months' worth of data for visits to the SAC program are missing. These data are unavailable because visits were not entered into the DBHS database for Mariposa until March of 2014 and for SAC until August of 2014.

Table 2. Total Clients, Visits, and Visits per Client Descriptive Statistics, by Year

	Clients	Visits	Average	Minimum	Maximum
2014	4,139	10,258	2.5	1	162
2015	3,900	11,711	3.0	1	277
2016	3,532	11,598	3.3	1	154
2017	3,293	12,423	3.8	1	222
2018	3,261	12,148	3.7	1	188
2019	2,167	7,249	3.4	1	115

Figure 1. Trends in Total Clients, Visits, and Average Visits per Client, 2014-2018

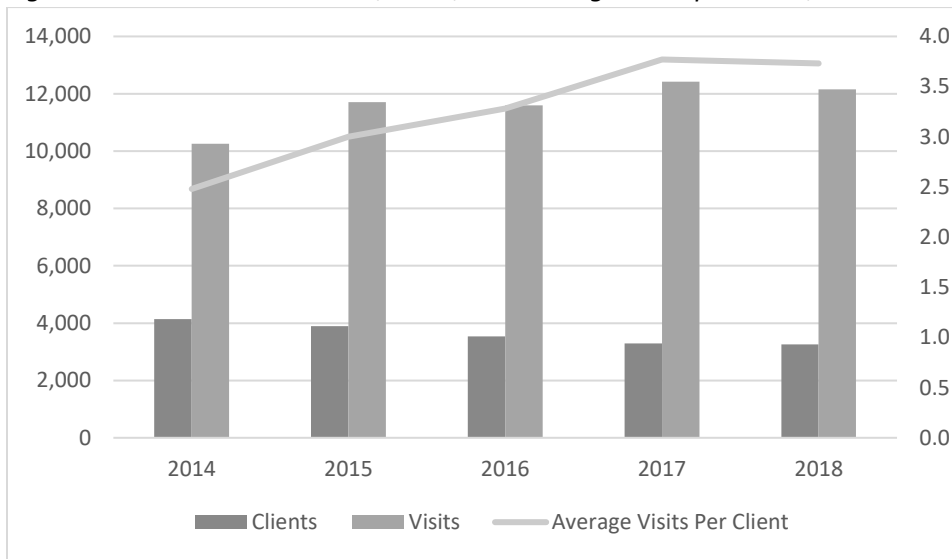


Figure 2 charts trends in the unique and total number of visits to MATS by month. Visits are unique if they represent the first visit by a single client in a given month, and all other visits (including those where a single client visits multiple times in the same month) are included in the total. The trend in unique visits shows general stability where some 500 individuals made use of MATS programs each month, while the trend in total visits shows sharper variation with notable peaks during the colder months of October through April of each year.

Figure 2. Trends in Unique and Total Visits by Month, January 2014-August 2019

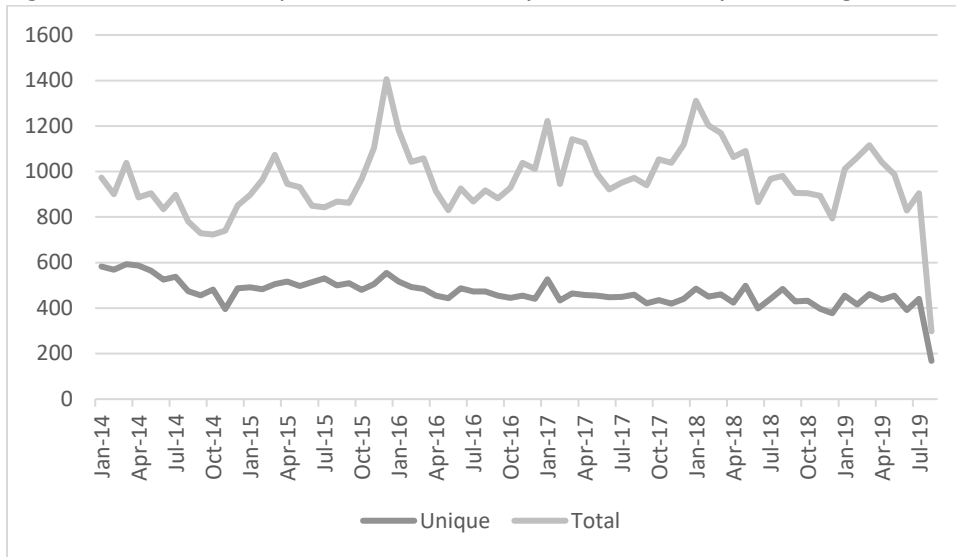


Table 3 reports total clients, total visits, and descriptive statistics for visits per client by month in 2018. As depicted in the corresponding chart below the table (Figure 3), the sum and average number of visits are greatest during the first few months of the year and decline in subsequent months. The sum number of clients per month shows more modest variation but also falls over time. On average, 440 clients received MATS program services comprising 1,012 visits per month during 2018. Over the 12-month period the mean average number of visits per client was 2.3.

Table 3. Total Clients, Visits, and Visits per Client Descriptive Statistics, by Month in 2018

	Clients	Visits	Average	Minimum	Maximum
Jan	486	1,311	2.7	1	27
Feb	450	1,203	2.7	1	25
Mar	460	1,169	2.5	1	28
Apr	424	1,064	2.5	1	27
May	498	1,090	2.2	1	27
Jun	399	865	2.2	1	26
Jul	441	968	2.2	1	29
Aug	484	980	2.0	1	24
Sep	429	906	2.1	1	29
Oct	432	905	2.1	1	21
Nov	397	894	2.3	1	20
Dec	378	793	2.1	1	24

Figure 3. Trends in Total Clients, Visits, and Average Visits per Client by Month in 2018

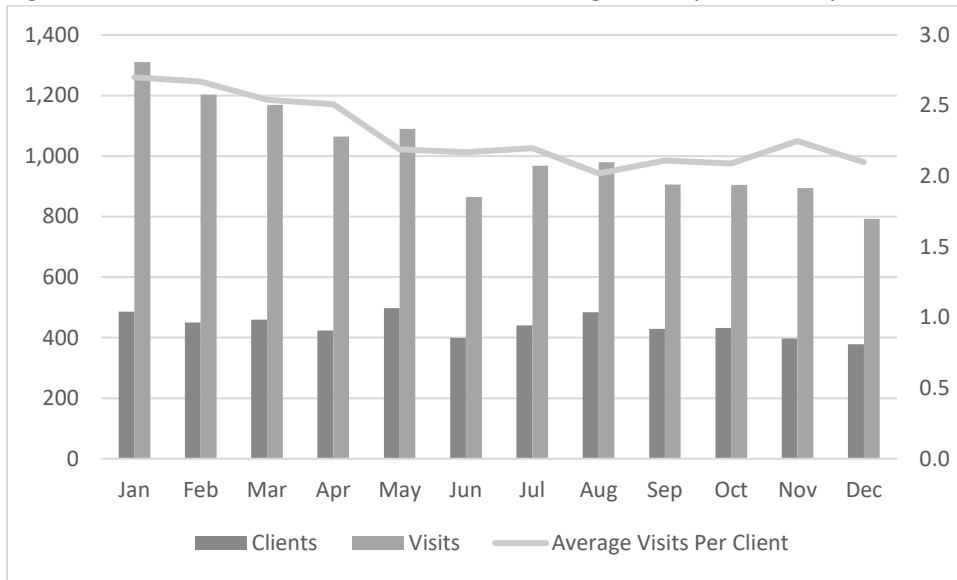


Figure 4 charts trends in clients, visits, and average visits per client by weekday over the full study period. At 7,395 individuals and 13,911 visits, both the volume and frequency of MATS clients' service use were greatest on Wednesdays. However, average visits per client were highest on Saturdays at 2.7 visits per person and on Sundays with 2.8 visits per person. This pattern suggests the highest-frequency users are making use of MATS services over the weekends while more intermittent users visit throughout the week.

Figure 4. Trends in Total Clients, Visits, and Average Visits per Client by Weekday, January 2014-August 2019

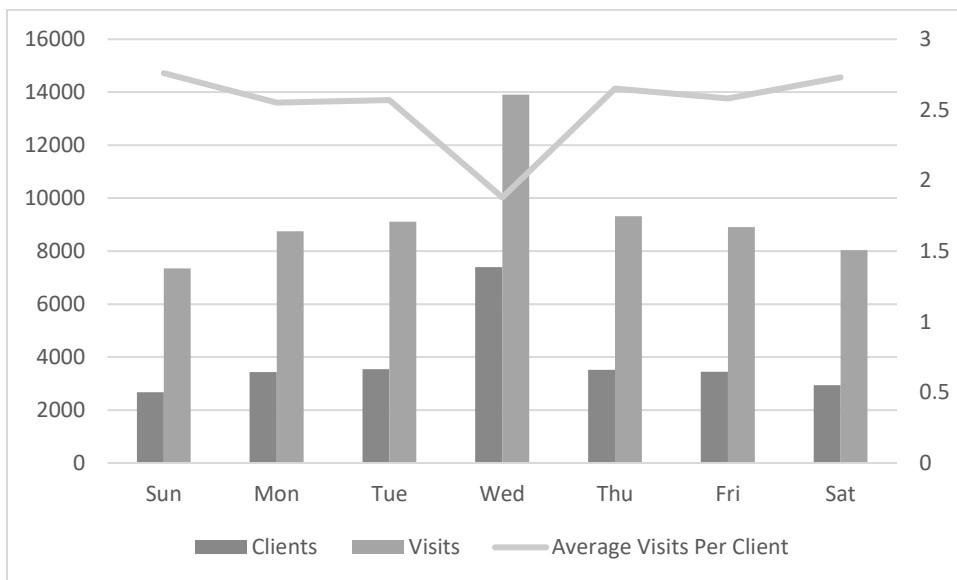


Figure 5 charts the percentage distribution of MATS clients by gender while Table 4 presents descriptive statistics for visits by gender. More than 70% of service users were male, with the remaining approximate 28% comprising female and transgender clients. While less than 1% (23 individuals) self-identified as transgender, Table 4 indicates this group had an average number of visits per person of 9.5, considerably higher than the averages for male (5.1) or female (3.3) clients.

Figure 5. Percentage Distribution of MATS Clients by Gender, January 2014-August 2019

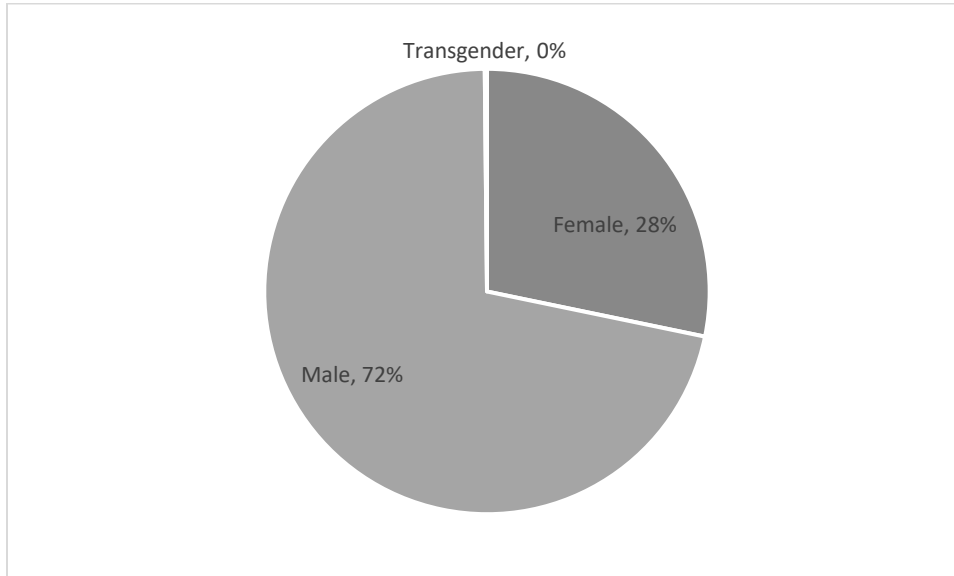


Table 4. Total Clients, Visits, and Visits per Client Descriptive Statistics by Gender

	Clients	Visits	Average	Minimum	Maximum
Female	4,049	13,321	3.3	1	631
Male	10,261	51,847	5.1	1	604
Transgender	23	219	9.5	1	58

Figure 6 charts the percentage distribution of MATS clients by race/ethnicity while Table 5 presents descriptive statistics for visits by race/ethnicity. No one group made up a majority of clients but the largest percentage were Hispanic at 46%, followed by Caucasian (Non-Hispanic White) at 30% and Native American at 18%. For comparison, the American Community Survey 1-Year Estimates of breakdown by race/ethnicity for the general population of Bernalillo County in 2018 were: Hispanic or Latino (of any race), 50.3%; White alone, 38.3%; Black or African American alone, 2.5%; American Indian/Alaska Native alone, 4.1%; Asian Alone, 2.6%; Native Hawaiian and Other Pacific Islander Alone, 0%; Some Other Race Alone, 0.2%; and Two or More Races, 2%.

The average visits per client was between 2 and 3 for every group except African Americans, who had a slightly higher average of 3.4 per person, and Native Americans, who had a much higher average of 13.2 per person. However, these percentages and averages should be interpreted with caution since about 1.5% (202 individuals) of those who reported their race/ethnicity self-identified as “Other” or “Unknown,” and another 940 persons did not report a racial/ethnic identification.

Figure 6. Percentage Distribution of MATS Clients by Race/Ethnicity, January 2014-August 2019

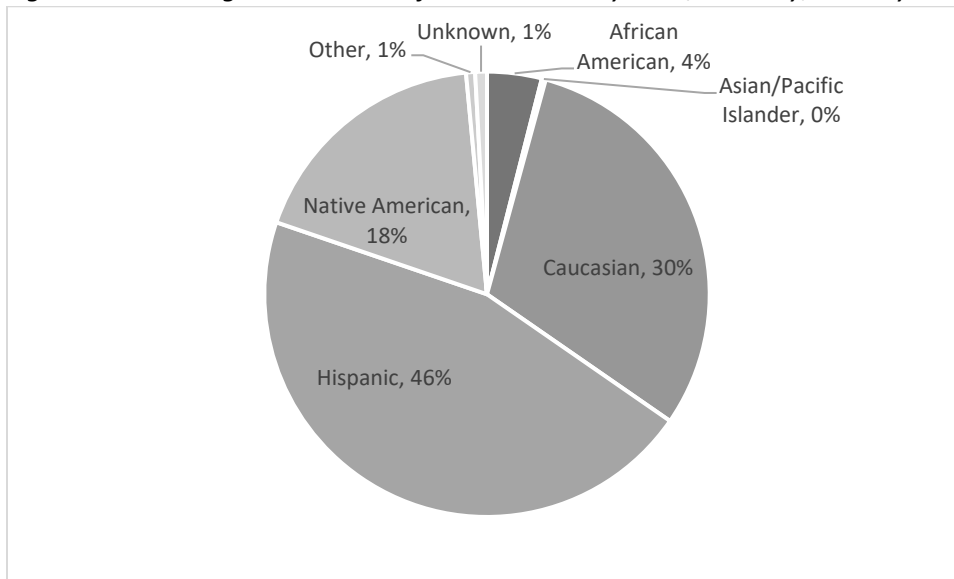


Table 5. Total Clients, Visits, and Visits per Client Descriptive Statistics by Race/Ethnicity

	Clients	Visits	Average	Minimum	Maximum
African American	531	1,825	3.4	1	244
Asian/Pacific Islander	39	94	2.4	1	10
Caucasian	4,069	11,777	2.9	1	367
Hispanic	6,108	17,327	2.8	1	351
Native American	2,444	32,275	13.2	1	631
Other	88	211	2.4	1	32
Unknown	114	222	2.0	1	18

Figure 7 charts the percentage distribution of MATS clients by six age groupings while Table 6 presents descriptive statistics for visits by age group. Individuals are counted more than once in Table 6 if they aged out of one grouping and into the next during the study period. More than 60% of all adult clients were younger than age 40 with another 20% in the age 40-49 range, 14% in the 50-59 range, and the remaining 4% older than age 60. Average visits per client were highest in the older age groups with individuals in the 40-49 age range typically visiting 6.1 times and individuals in the 50-59 age range typically visiting 7.7 times over the covered period. Notably, while clients in the 50-59 range only made up about 14% of all clients, they constituted more than one-quarter (25.4%) of all visits.

Figure 7. Percentage Distribution of MATS Clients by Age Grouping, January 2014-August 2019

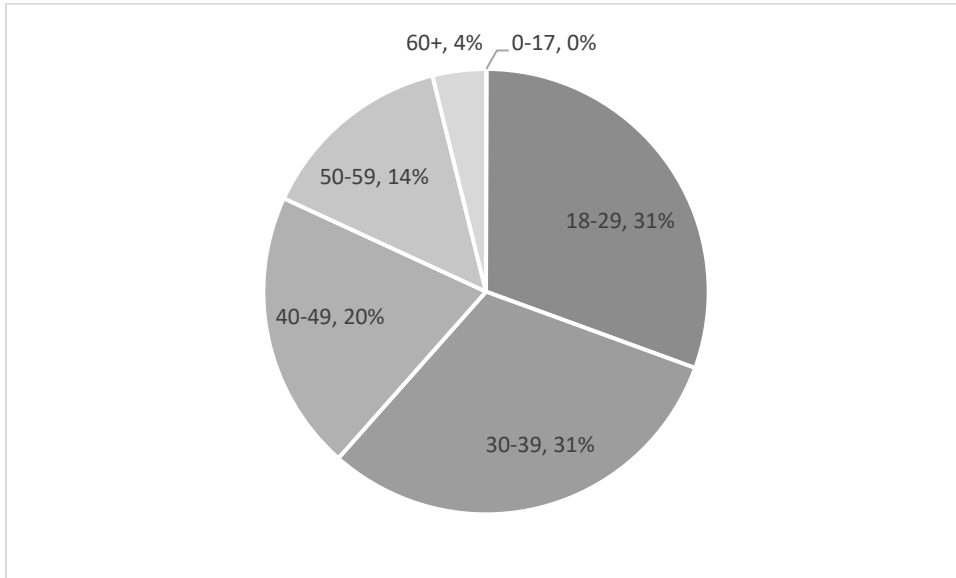


Table 6. Total Clients, Visits, and Visits per Client Descriptive Statistics by Age Grouping

Age	Clients	Visits	Average	Minimum	Maximum
0-17	8	8	1.0	1	1
18-29	4,615	10,349	2.2	1	151
30-39	4,684	16,255	3.5	1	342
40-49	3,076	18,817	6.1	1	519
50-59	2,155	16,574	7.7	1	520
60+	585	3,377	5.8	1	466

Table 7 presents the number and percent of MATS program visits by referral source. Almost 70% of the total visits to MATS over the study period were initiated by clients themselves or their family members. Another 20% of visits resulted from court referrals and referrals by the PIIP program, the University of New Mexico (UNM) Hospital, and the Albuquerque Police Department (APD). The final 10% of visits involved smaller counts of referrals from a variety of mostly physical and behavioral health care service providers.

Table 7. Number and Percent of Visits by Referral Source

Source	Count	Percent
Self/Relative	45,293	69.3
District Court/Drug Court/Metro Court	5,106	6.5
PIIP	4,159	5.8
UNM Hospital	2,921	4.5
APD	2,820	4.3
Albuquerque Ambulance	1,837	2.8
Presbyterian Hospital	1,171	1.8
MATS	1,005	1.5
Lovelace Hospital	332	0.5
Other	183	0.3
Veterans Hospital	154	0.2
Law Enforcement	141	0.2
AFD/Paramedics	116	0.2
Turquoise Lodge	109	0.2
Molina	29	0.0
Outpatient	9	0.0
CCP	1	0.0
LEAD	1	0.0

Table 8 lists the number and percent of visits for six categories of increasing program participation duration measured in days.² Because most MATS services are designed for provision over the course of a single day, more than three-quarters of visits lasted 1 day or less and over 90% involved program participation being completed within one week. Another 8.5% of visits lasted between one and four weeks, and the remaining 1% lasted for longer than one month.

Table 8. Number and Percent of Visits by Duration of Program Participation, in Days

Duration (in Days)	Number	Percent
<1	19,888	30.4
1	29,896	45.7
2-7	9,190	14.1
8-28	5,542	8.5
29-99	472	0.7
100+	195	0.3

MATS Clients and Visits by Program

Table 9 presents total clients, total visits, and descriptive statistics for visits per client for each of the five MATS programs separately. Individual clients are counted more than once if they participated in multiple programs between January 2014 and August 2019. Clients of the Detox program were the most

² The DBHS database for the covered period included 204 cases with a visit duration less than 0 days because their discharge date was earlier than their admission date. Table 8 excludes these cases.

numerous at 7,782 individuals, while the PIIP program had the greatest total visits at 42,860 admissions. PIIP also had the highest average visits at 6.8 visits per client. Detox and PIIP had the most clients and visits because they provide the shortest duration services to a wide base of frequent-user clients. The SAC, Mariposa, and ATP programs offer services with longer delivery periods and more specific clientele, which result in lower numbers of clients and visits. Note that because two months' worth of data for Mariposa and seven months' worth of data for SAC are unavailable, the numbers of clients and visits for these programs represent undercounts for covered period.

Table 9. Total Clients, Visits, and Visits per Client Descriptive Statistics by MATS Program

	Clients	Visits	Average	Minimum	Maximum
ATP	4,247	5,102	1.2	1	5
Detox	7,782	17,090	2.2	1	64
PIIP	6,301	42,860	6.8	1	630
SAC	244	262	1.1	1	3
Mariposa	70	73	1.0	1	2

Figure 8 illustrates the differences in the typical number of visits by clients to the five programs by charting the average visits per client for each, as well as the overall average. Over five years and eight months the typical client visited any of the MATS programs on 1-2 occasions except for the PIIP program, to which the average client sought services nearly 7 times. This disparity in average visits raises the overall average to 4.6 visits, greater than the average for any of the individual programs except PIIP.

Figure 8. Average Visits per Client, by Program and Overall

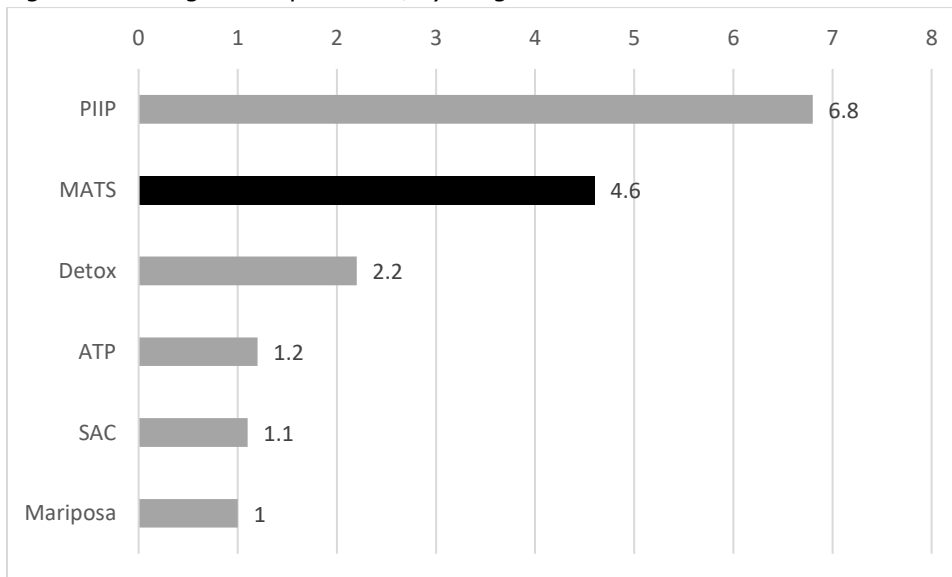


Figure 9 charts the percentages of total clients and total visits comprised by each program. Of the 18,644 individuals represented, Detox accounted for the largest portion at 41.7%, followed by PIIP at 33.8% and ATP at 22.8%. The SAC and Mariposa programs made up the remaining 1.3% and 0.4% of clients, respectively. Of the 65,387 visits nearly two-thirds were admissions to PIIP at 65.5%, and the

next largest portions were Detox at 26.1% and ATP at 7.8%. The SAC and Mariposa programs comprised the smallest portions of all visits at 0.4% and 0.1%, respectively. The percentage distributions in Figure 9 reveal that although the majority of MATS Campus program visits were to PIIP, many of these visits involved the same persons such that the program serving the largest proportion of unique individuals during the timeframe was Detox.

Figure 9. Percentage Distributions of Total Clients and Visits, by Program

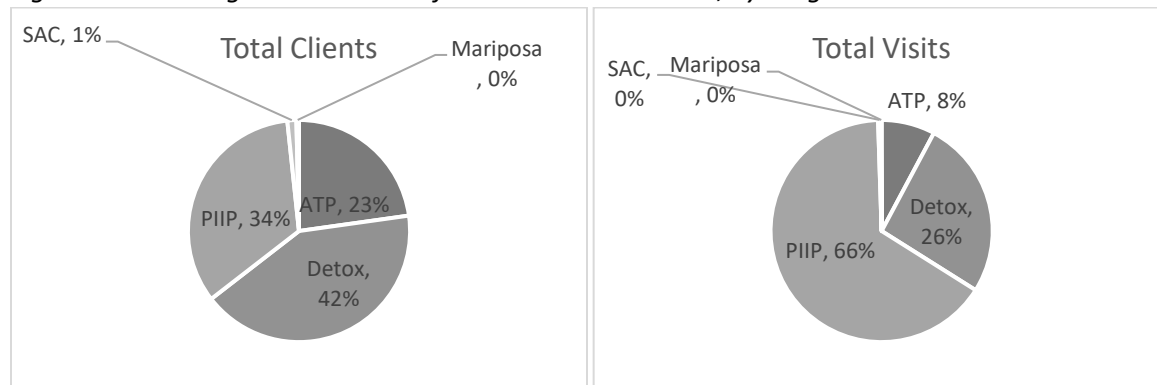


Table 10 lists frequency and percentage distributions of client gender for each of the five MATS programs. Each program offers gender-neutral services except Mariposa, which provides behavioral health services specifically tailored for pregnant and post-partum women and their children. Among the universal programs, more than two-thirds of the individuals who received services from each over the study period were male. A small percentage of the clientele served by each of the universal programs identified as transgender, between 0 and 0.4%.

Table 10. Number and Percent of Clients, by Gender and Program

	ATP		Detox		PIIP		SAC		Mariposa	
	Count	%	Count	%	Count	%	Count	%	Count	%
Female	1,161	27.3	2,353	30.2	1,540	24.4	75	30.7	69	98.6
Male	3,084	72.6	5,416	69.6	4,743	75.3	168	68.9	1	1.4
Transgender	2	0.0	13	0.2	18	0.3	1	0.4	0	0.0
Total	4,247	100	7,782	100	6,301	100	244	100	70	100

Table 11 lists frequency and percentage distributions of client race/ethnicity for each of the five MATS programs. Most of the programs replicate the race/ethnicity percentage distribution observed for MATS generally, where Hispanic individuals make up the largest proportion of clients followed by Caucasian and then Native American clients. Yet in the PIIP program the percentages of Hispanic and Native American clients are nearly equal (32.8% vs. 29.2%, respectively), and the percentage of Native American clients exceeds the percentage of Caucasian clients (29.2% vs. 24.4%, respectively). The percentage distributions for Detox and PIIP should be interpreted cautiously, however, as between 5%-10% of their clients either identified their race/ethnicity as “Other” or “Unknown” or else did not report any racial/ethnic identification.

Table 11. Number and Percent of Clients, by Race/Ethnicity and Program

	ATP		Detox		PIIP		SAC		Mariposa	
	Count	%	Count	%	Count	%	Count	%	Count	%
African American	207	4.9	251	3.2	213	3.4	14	5.7	2	2.9
Asian/Pacific Islander	8	0.2	25	0.3	15	0.2	2	0.8	0	0.0
Caucasian	1,295	30.5	2,424	31.1	1,536	24.4	93	38.1	22	31.4
Hispanic	2,179	51.3	3,532	45.4	2,065	32.8	95	38.9	39	55.7
Native American	433	10.2	946	12.2	1,843	29.2	37	15.2	6	8.6
Other	22	0.5	47	0.6	32	0.5	1	0.4	0	0.0
Unknown	88	2.1	27	0.3	28	0.4	1	0.4	1	1.4
Not Reported	15	0.4	530	6.8	569	9.0	1	0.4	0	0.0
Total	4,247	100	7,782	100	6,301	100	244	100	70	100

Table 12 lists frequency and percentage distributions of client age ranges for each of the five MATS programs. Again, the total counts of clients are inflated because some individuals aged out of one group and into another during the study period. Similar to the full set of clients, the 18-29, 30-39, and 40-49 age groups comprise the largest portions of clients in each of the individual programs. In ATP and Mariposa the 18-29 range is the largest group and comprises a majority of the Mariposa clients. In both PIIP and SAC the 30-39 range represents the largest group, but while in PIIP the next largest category is the 40-49 group, in SAC the second-largest category is the 18-29 group. In Detox the 18-29 and 30-39 age ranges are approximately equal in size and together make up roughly 60% of all Detox clients; these ranges are followed in size by the 40-49 group at 20.8%.

Table 12. Number and Percent of Clients, by Age Grouping and Program

	ATP		Detox		PIIP		SAC		Mariposa	
	Count	%	Count	%	Count	%	Count	%	Count	%
0-17	0	0.0	0	0.0	8	0.1	0	0.0	0	0.0
18-29	1,851	42.9	2,422	29.8	1,360	20.3	72	29.3	38	54.3
30-39	1,466	33.9	2,401	29.6	2,014	30.0	82	33.3	31	44.3
40-49	633	14.7	1,692	20.8	1,703	25.4	54	22.0	1	1.4
50-59	325	7.5	1,241	15.3	1,276	19.0	36	14.6	0	0.0
60+	44	1.0	361	4.4	348	5.2	2	0.8	0	0.0
Total	4,319	100	8,117	100	6,709	100	246	100	70	100

Table 13 shows the number and percent of visits by referral source for each program. Referral sources whose visits represent likely diversions from hospital emergency rooms are presented in bold. All participation in ATP is court-ordered but self- or relative-referrals made up the majority of visits to the other programs: about three-quarters of visits to Detox and PIIP, and from 85%-90% of visits to SAC and Mariposa, fell into this category. Other significant percentages of visits comprised referrals by APD for Detox and PIIP (0.6% and 6.4%, respectively); by representatives from PIIP for Detox and PIIP (6.3% and 7.2%, respectively); and by UNM Hospital for Detox, PIIP, and Mariposa (5.8%, 4.5%, and 11%, respectively).

Table 13. Number and Percent of Visits, by Referral Source and Program

	ATP		Detox		PIIP		SAC		Mariposa	
	Count	%	Count	%	Count	%	Count	%	Count	%
AFD/Paramedics			10	0.1	106	0.2				
Albuquerque Ambulance			175	1.0	1,662	3.9				
APD			97	0.6	2,723	6.4				
CCP	1	0.0								
District Court/ Drug Court/ Metro Court	5,096	99.9	8	0.0	1	0.0	1	0.4		
Law Enforcement			31	0.2	109	0.3			1	1.4
LEAD					1	0.0				
Lovelace Hospital			99	0.6	233	0.5				
MATS	1	0.0	763	4.5	229	0.5	12	4.6		
Molina			8	0.0	18	0.0	3	1.1		
Other	1	0.0	106	0.6	74	0.2	1	0.4	1	1.4
Outpatient			6	0.0	3	0.0				
PIIP			1,082	6.3	3,077	7.2				
Presbyterian Hospital			331	1.9	840	2.0				
Self/Relative	2	0.0	13,211	77.3	31,790	74.2	228	87.0	62	84.9
Turquoise Lodge	1	0.0	82	0.5	8	0.0	17	6.5	1	1.4
UNM Hospital			998	5.8	1,915	4.5			8	11.0
Veterans Hospital			83	0.5	71	0.2				
Total	5,102	100	17,090	100	42,860	100	262	100	73	100

Using the referral sources presented in bold in Table 13 and only counting the first visit by an individual client in a month, Table 14 lists the number and percent of likely diversions from hospitals to the Detox and PIIP programs by month during 2018. We tabulate these visits only for Detox and PIIP because they are the programs that can accept diversions from hospitals. We only count the first likely diversion per person per month for several reasons. Discussions with DBHS program staff suggest to us 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. Additionally, we believe that at times referrals that are listed as a self-referral are actually a diversion from a hospital but because the person walks into the facility on their own they are listed as a self-referral. Diversions from hospitals are important because they produce cost savings to hospitals (for uninsured patients) and Managed Care Organizations (for patients insured through Medicaid) through emergency room visits avoided. They thereby generate a return-on-investment for funds allocated toward the MATS Campus Programs from the perspective of Bernalillo County (Torres et al., 2019).

Table 14. Number and Percent of Visits Representing Likely Diversions to Detox and PIIP by 2018 Month (first visit per person per month)

	Detox		PIIP	
	Count	%	Count	%
Jan	21	8.0	42	6.7
Feb	19	7.3	66	10.6
Mar	21	8.0	70	11.2
Apr	23	8.8	56	9.0
May	15	5.7	59	9.5
Jun	17	6.5	59	9.5
Jul	27	10.3	43	6.9
Aug	27	10.3	41	6.6
Sep	25	9.5	48	7.7
Oct	21	8.0	42	6.7
Nov	26	9.9	44	7.1
Dec	20	7.6	54	8.7
	262	100	624	100

Table 15 presents descriptive statistics for visit duration in days by program. Since none of the programs are designed to have a single instance of participation by a client last for more than a few months, visit durations exceeding one year were excluded before descriptive statistics were calculated as these values are likely invalid. The averages shown in the table thus primarily reflect the intended length of the participation period for each program. Designed to last four weeks, the average visit duration for ATP is 26.9 days; designed to involve 3-5 days of service delivery the average visit to Detox is 2.7 days; and typical provision of stabilization services for a maximum of 12 hours results in an average visit to PIIP lasting 0.7 days. Because SAC and Mariposa are voluntary programs in which clients can participate for up to six months, their average visit lengths are significantly longer at 107.5 and 117.2 days, respectively.

Table 15. Descriptive Statistics for Visit Duration in Days, by Program

	Mean	Median	Minimum	Maximum
ATP	26.9	27	0	155
Detox	2.7	2	0	309
PIIP	0.7	1	0	365
SAC	107.5	98	0	278
Mariposa	117.2	116	2	304

Total and Behavioral Health Medical Encounters Pre- and Post-Participation in ATP and Detox

This section explores how clients' total and behavioral health medical encounters changed before and after their participation in the ATP and Detox programs. 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 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 with patient records linked to the unique numeric identifiers but de-identified by name. The individual-level participant data were then combined with the admission-level medical encounter data using the unique numeric identifier via a one-to-many merge. The procedures for classifying total and behavioral health-specific medical encounters are described in the following section.

Methods of Classifying Medical Encounters: Encounter Types, Detail Types, and Disorder Types

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. Because diagnoses and procedures may be provided to clients during the same encounter but are listed separately in the data, the tables below present diagnoses only to avoid duplicating encounters. The tables also exclude rehabilitation encounters since they are extremely infrequent (about .1% of the encounters for both programs). This section therefore focuses on emergency, inpatient, and outpatient diagnosis encounters (hereafter simply “encounters”).

To isolate behavioral health encounters, diagnoses were selected according to available detail type codes. Detail type codes allowed further classification of behavioral health encounters as involving mental health or substance use disorder types. 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 behavioral health disorders.
 - Codes from 291 up through but excluding 293, or from 303 up through but excluding 306, were categorized as substance use disorders.
 - All other codes were categorized as mental health disorders.
- ICD-10
 - All codes with the prefix “F” were categorized as behavioral health disorders.
 - Codes with a numeric suffix from 10 up through but excluding 20 were categorized as substance use disorders.
 - All other codes were categorized as mental health disorders.

In addition to ICD codes, the NMHIC data detail type codes included ORI and HRV codes.³ ORI codes are a proprietary coding scheme unique to the Lovelace Health System, but a proportion of these codes are valid ICD codes (email exchange with Gene Hill, May 2019). ICD codes present within this scheme were categorized as substance use or mental health disorders as above. Diagnoses with HRV or Heart Rate Variability codes were manually classified as substance use or mental health disorders using detail

³ For Detox clients only, the NMHIC data also contained 5 cases with a detail type code of MMC. Each of these medical encounters had “Memorial Medical Center” entered in the Facility field. There were 1,371 encounters with “Memorial Medical Center” as the treatment facility but only 5 had the MMC detail type code in lieu of the more common ICD, ORI, or HRV codes.

descriptions such as “ALTERED MENTAL STATUS” or “ALCOHOL INTOXICATION.” Finally, encounters that were missing a detail type code were excluded from the behavioral health encounter analyses because they were too numerous to classify manually.

The tables below first present descriptive statistics on encounters accumulated by program participants in the aggregate. They then compare descriptive statistics for counts of encounters between clients’ first discharge from the program and the date of the latest medical encounter (the post-program period) and during the same quantity of time prior to clients’ first admission (the pre-program period). Descriptive statistics are presented separately for total, all behavioral health, only mental health, and only substance use-related encounters, as well as by encounter type. Analyses are presented for ATP clients first, followed by analyses for Detox clients.

Total and Behavioral Health Medical Encounters for ATP Clients

Total Medical Encounters

Table 16 presents the total number of medical encounters, cross-tabulated by encounter type and detail type code, accumulated by ATP clients between January 2013 and March 2020. Out of the 226,512 total encounters, the largest proportion involved emergency room visits (48.8%), followed by outpatient (39.1%) and inpatient (12%) visits. More than 80% involved a diagnosis coded according to the International Statistical Classification system, either ICD-9 (17.2%) or ICD-10 (63%), which permitted identification of encounters involving behavioral health disorder diagnoses. However, the extent to which encounters were missing detail type codes varied considerably by encounter type. While the percentage of emergency and inpatient encounters with no detail type code ranged from 3-4%, more than 40% of outpatient encounters were missing detail type codes. This point will be returned to later in this report, when changes in average pre- and post- outpatient encounters for behavioral health encounters are discussed.

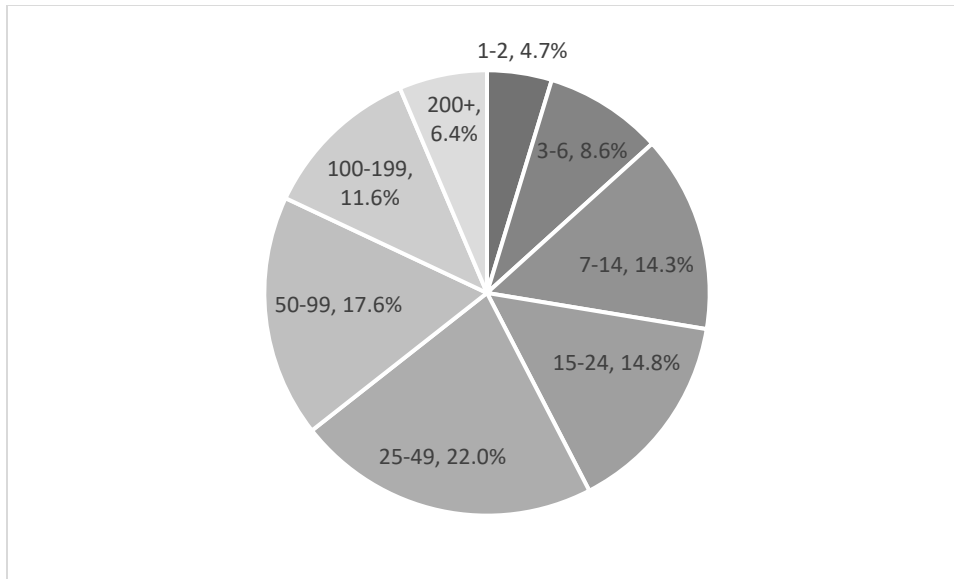
Table 16. Crosstabulation of ATP Clients’ Total Encounters by Encounter Type and Detail Type Code

	Emergency		Inpatient		Outpatient		Total	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
ICD-9	24,559	22.2%	4,799	17.6%	9,622	10.9%	38,980	17.2%
ICD-10	79,611	72.0%	21,197	77.8%	41,929	47.3%	142,737	63.0%
ORI	2,595	2.3%	200	0.7%	17	0.0%	2,812	1.2%
HRV	75	0.1%	10	0.0%	45	0.1%	130	0.1%
None	3,771	3.4%	1,044	3.8%	37,038	41.8%	41,853	18.5%
Total	110,611	100.0%	27,250	100.0%	88,651	100.0%	226,512	100.0%
% of Total	48.8%		12.0%		39.1%		100.0%	

Over the more than seven-year period ATP participants accumulated an average of 64.1 medical encounters, ranging from a single encounter to more than 2,000 encounters. Figure 10 charts the percentage distribution of ATP clients along ranges of accumulated encounters. The largest percentage

of individuals had 25-49 encounters (22%), followed by those in the ranges of 50-99 (17.6%), 15-24 (14.8%), and 7-14 (14.3%); these four ranges together comprised more than two-thirds of all participants. Smaller percentages accumulated 6 encounters or less (13.3%) or 100 or encounters or more (18%). While the 228 individuals who accumulated at least 200 encounters made up only 6.4% of all 3,535 ATP participants, together they tallied 81,616 medical encounters, accounting for 36% of all medical encounters.

Figure 10. Percentage Distribution of ATP Clients by Medical Encounter Ranges



On average, the time between ATP participants' first discharge from the program and March 17, 2020 (the latest date of any medical encounter in the dataset) was 6.1 years. During this post-program period clients accumulated an average of 41.8 medical encounters. The average number of medical encounters accumulated during the same length of time before clients' first program admission was 25.4, meaning that most ATP clients had *more* encounters with healthcare providers *after* completing the program (by 64.6%). Figure 11 illustrates this change in medical encounters between the two time periods by presenting mean values during each period by ranges. For clients with 24 encounters or less the mean number of encounters held stable from the pre- to post-program periods; for those with at least 25 encounters, mean values are higher in the post-program period. The relative change is larger for individuals with the most medical encounters: mean values rose by about 3% for individuals falling into the 25-49, 50-99, and 100-199 encounters range, but by 5.5% for those within the 200 or more range. In fact, if persons with 200 or more encounters are excluded, mean encounters from the pre- to post-program periods only increase from 21.2 to 30.9 (a 45.8% increase).

Figure 11. Pre- and Post-Program Mean Medical Encounters for ATP Clients, by Encounter Ranges

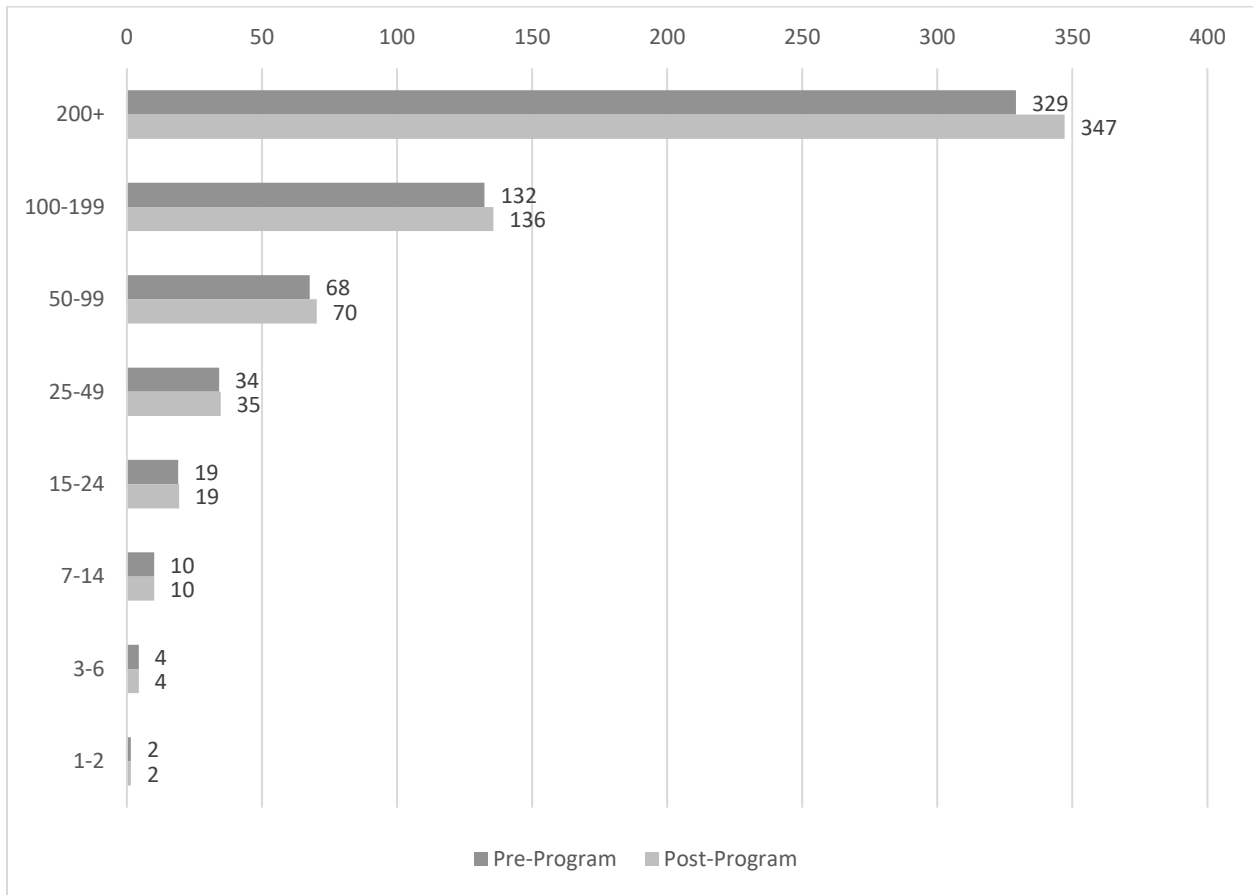
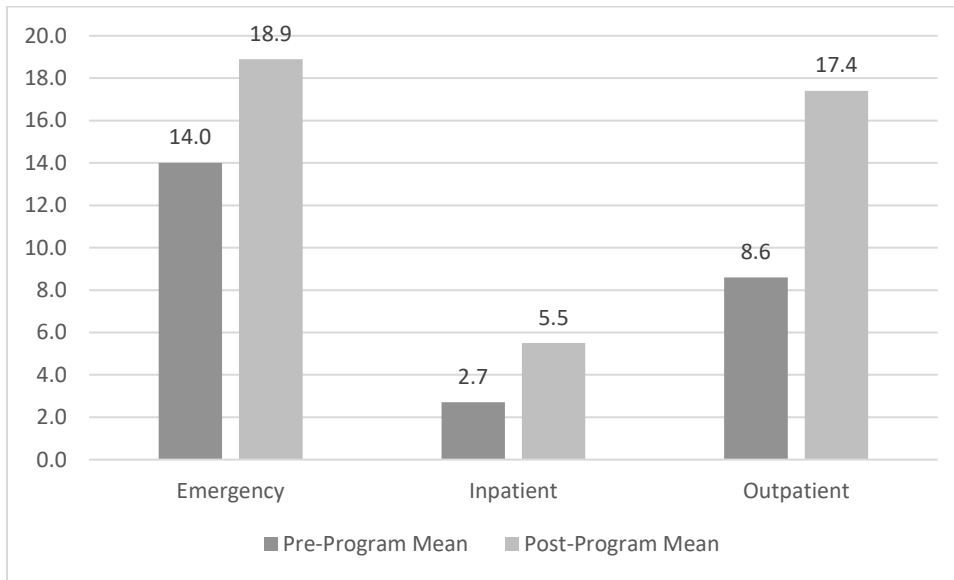


Figure 12 displays the pre-to-post-program changes in mean medical encounters by encounter type. The increase in average encounters is evident across all three types and is relatively largest among inpatient and outpatient encounters, both of which increased by more than twofold (from 8.6 to 17.4 outpatient encounters and from 2.7 to 5.5 inpatient encounters). These relative changes are followed in size by the 35% increase in emergency encounters (from 14 to 18.9 encounters).

Figure 12. Pre- and Post-Program Mean Medical Encounters for ATP Clients, by Encounter Type



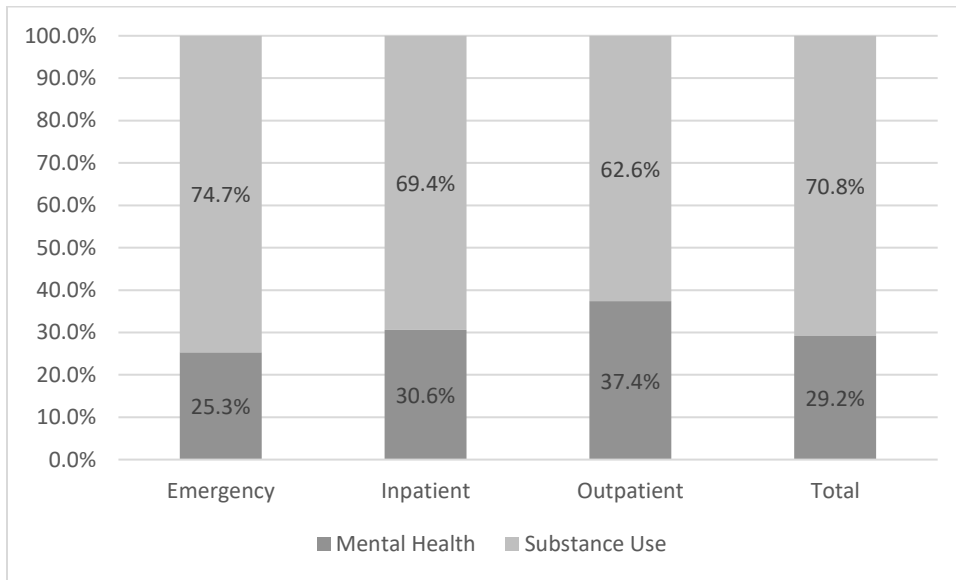
Behavioral Health Encounters

Table 17 presents the total number of behavioral health encounters, cross-tabulated by encounter and disorder type, accumulated by ATP clients over the study period. Of 36,065 encounters involving a behavioral health disorder diagnosis more than 70% were classified as substance use disorders according to ICD-9 or ICD-10 codes, while the remainder were classified as mental health disorders. Like the total number of medical encounters, the largest proportion (and among behavioral health encounters, a majority) were emergency encounters at 59.9%, followed by outpatient encounters at 25.4% and inpatient encounters at 14.7%. Within each encounter type substance use encounters were more prevalent than mental health encounters, with the largest disparity evident among emergency encounters (see Figure 13).

Table 17. Crosstabulation of ATP Clients' Behavioral Health Encounters by Encounter and Disorder Type

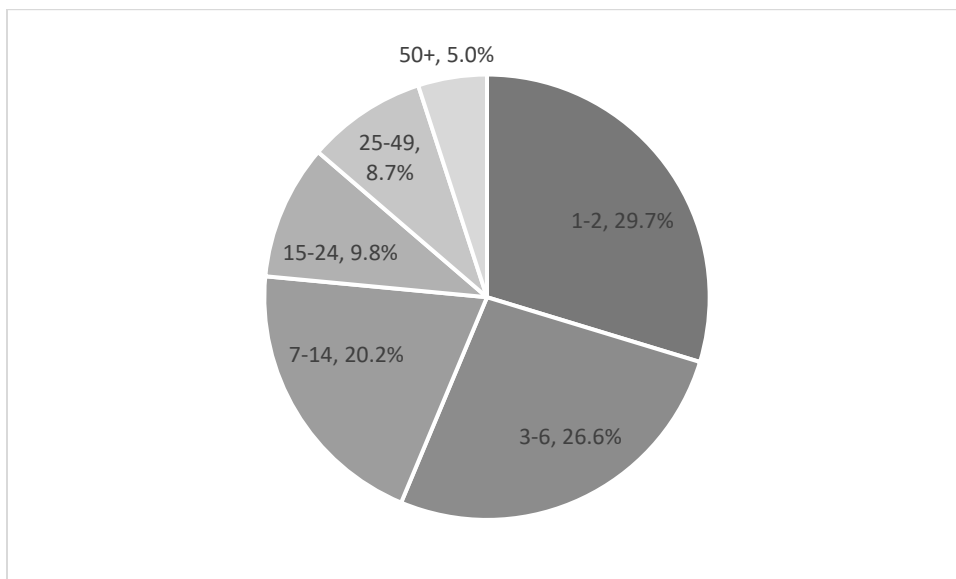
	Emergency		Inpatient		Outpatient		Total	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Mental Health	5,461	25.3%	1,618	30.6%	3,435	37.4%	10,517	29.2%
Substance Use	16,145	74.7%	3,668	69.4%	5,738	62.6%	25,552	70.8%
Total	21,606	100.0%	5,286	100.0%	9,173	100.0%	36,065	100.0%
% of Total	59.9%		14.7%		25.4%		100.0%	

Figure 13. Percentage Distribution of ATP Clients' Behavioral Health Disorder Types, by Encounter Type



During the timeframe ATP participants accumulated an average of 13.4 behavioral health encounters, ranging from 1 to 468 encounters. Figure 14 shows the percentage distribution of ATP clients along ranges of accumulated behavioral health encounters. The largest proportion of clients received a behavioral health disorder diagnosis on 1-2 occasions (29.7%), followed by participants falling within the 3-6 (26.6%), 7-14 (20.2%), or 15-24 (9.8%) ranges, comprising 86% of all clients with behavioral health disorders. The 135 individuals who accumulated at least 50 encounters made up only 5.0% of the 2,691 ATP clients with a behavioral health disorder but accounted for 13,567, or 38%, of the total number of behavioral health encounters.

Figure 14. Percentage Distribution of ATP Clients by Behavioral Health Encounter Ranges



During the period between ATP clients' first discharge from the program and the latest date of any behavioral health encounter of March 8, 2020, clients accumulated an average of 10.5 encounters. During the same length of time before clients' first admission into ATP the average count of encounters was 7.2, once again indicating that the typical client had more encounters with healthcare providers after completing ATP than before their participation in the program (by 45.8%). As with all medical encounters, the magnitude of the increase is sensitive to the inclusion of persons with the most behavioral health encounters. If persons with 50 or more are excluded, the pre- to post-program increase in means is only from 5.6 to 7.5 (a 33.9% increase). Among mental health disorder diagnosis encounters alone, mean encounters rose over the pre- to post-program periods from 1.8 to 3.2; among substance use disorder diagnosis encounters alone, mean encounters rose over the two periods from 5.3 to 7.2.

Figure 15 depicts this change between the two time periods in further detail by presenting mean values for each period and disorder type by ranges. For clients with fewer than 50 behavioral health encounters, mean values are relatively stable from the pre- to post-program periods and, among clients with 25-49 substance use encounters, the mean value drops slightly over the two periods. However, larger increases are evident for clients with at least 50 behavioral health encounters and particularly among mental health encounters, which rose from an average of 63.4 encounters in the pre-program period to an average of 74.4 encounters in the post-program period (a 17.4% increase).

Figure 15. Pre- and Post-Program Mean Mental Health and Substance Use Encounters for ATP Clients, by Encounter Ranges

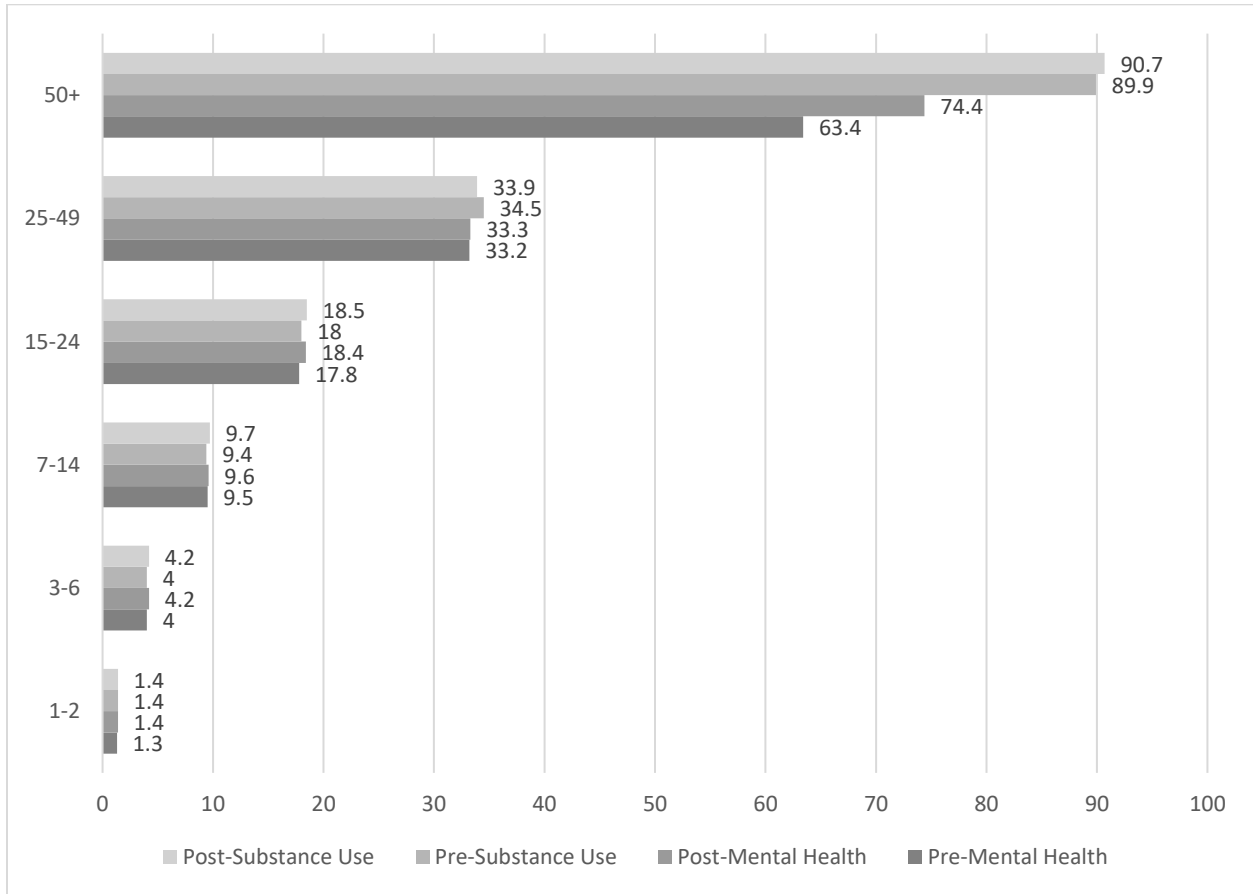
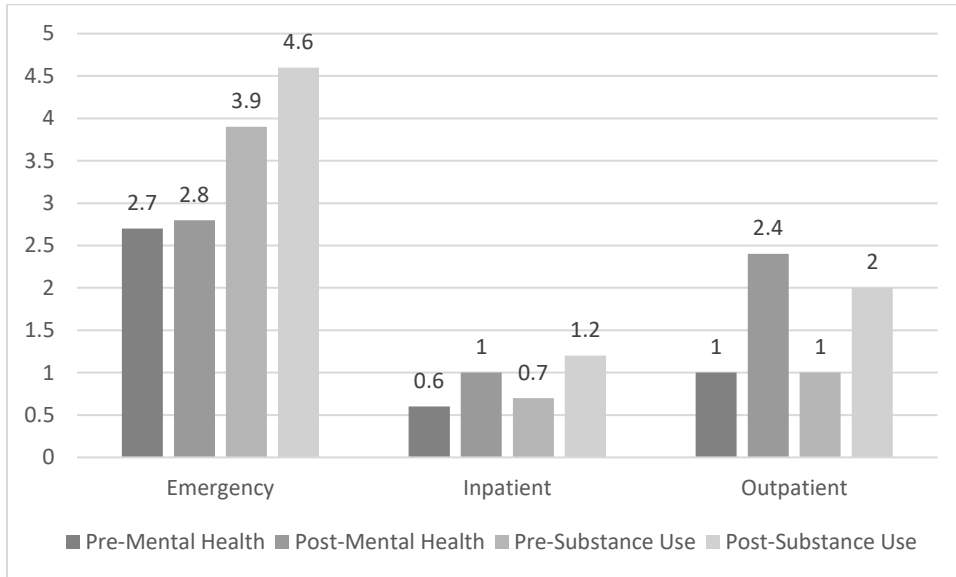


Figure 16 displays the pre-to-post-program changes in mean mental health and substance use encounters by encounter type. Relative increases were higher for substance use disorder diagnoses among emergency encounters (a 17.9% increase) and inpatient encounters (a 71.4% increase), but higher for mental health disorder diagnoses among outpatient encounters (a 140% increase). Overall, outpatient behavioral health encounters showed the largest relative increases over the pre- to post-program periods. The severity of this change should be interpreted with caution, however. As noted in Table 16, since 41.8% of all outpatient cases were missing detail type codes, more than 37,000 outpatient medical encounters potentially involved a behavioral health disorder diagnosis that could not be identified.

Figure 16. Pre- and Post-Program Mean Mental Health and Substance Use Encounters for ATP Clients, by Encounter Types



Total and Behavioral Health Medical Encounters for Detox Clients

Total Medical Encounters

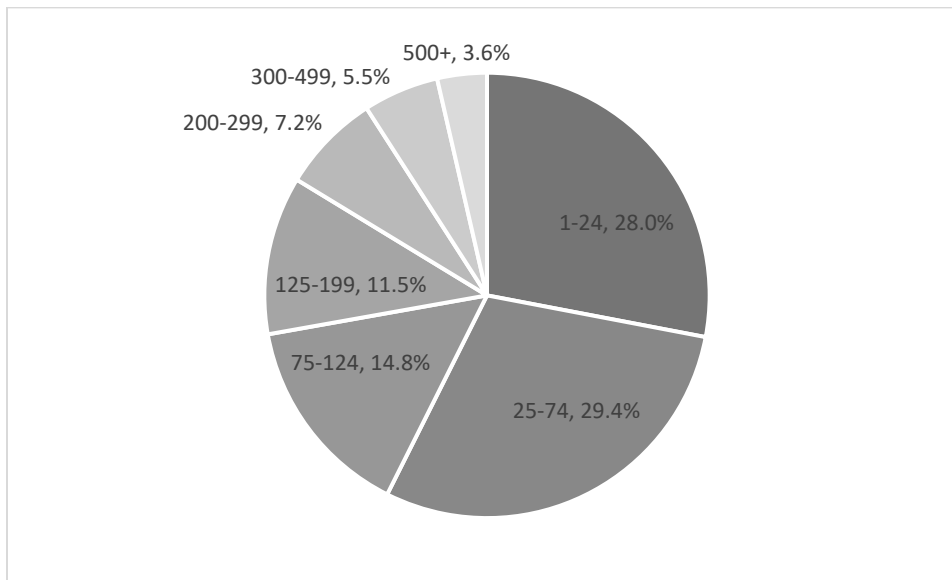
Table 18 cross-tabulates encounter type by detail type code for all 806,073 medical encounters received by Detox clients over the January 2013 through March 2020 period. Approximately half were emergency visits (50.2%) and there a little more than twice as many outpatient (34%) as inpatient visits (15.8%). Large percentages of medical visits coded through the ICD-9 (19.2%) or ICD-10 (65.1%) systems again allowed most encounters involving behavioral health disorder diagnoses to be identified as such. Yet more than one-third (36.9%) of outpatient visits had no assigned detail code type, rendering speculative any conclusions about how behavioral health visits changed for clients after their participation in Detox for outpatient visits. The table also shows counts for the MMC detail type code which appears to have been entered occasionally in lieu of one of the other detail type codes. Apparently, an abbreviation for “Memorial Medical Center,” every encounter with the MMC code has this institution listed in its facility field, but the majority of encounters listed as occurring at this facility had one of the other more common codes listed (see footnote 3).

Table 18. Crosstabulation of Detox Clients' Total Encounters by Encounter Type and Detail Type Code

	Emergency		Inpatient		Outpatient		Total	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
ICD-9	93,524	23.1%	27,778	21.9%	33,654	12.3%	154,956	19.2%
ICD-10	290,565	71.8%	95,332	75.0%	138,970	50.6%	524,867	65.1%
ORI	6,806	1.70%	736	0.6%	91	0.0%	7,633	0.9%
HRV	1,026	0.3%	164	0.1%	432	0.2%	1,622	0.2%
MMC	0	0.0%	2	0.0%	3	0.0%	5	0.0%
None	12,654	3.1%	3,069	2.4%	101,267	36.9%	116,990	14.5%
Total	404,575	100.0%	127,081		274,417	100.0%	806,073	100.0%
% of Total	50.2%		15.8%		34.0%		100.0%	

The average number of medical encounters received by Detox clients over the full timeframe was 118.2 and ranged from a single encounter to more than 4,000 encounters. Figure 17 charts the percentage distribution of ATP clients along ranges of total encounters. The largest percentage of individuals had 25-74 encounters (29.4%), followed by those in the ranges of 1-24 (28%), 75-124 (14.8%), and 125-199 (11.5%); these four ranges together accounted for more than 80% of all participants. Although the 245 individuals who accumulated at least 500 encounters made up only 3.6% of all 6,821 Detox participants, together they made up 211,337 medical encounters, comprising 26% of all medical encounters.

Figure 17. Percentage Distribution of Detox Clients by Medical Encounter Ranges



The mean number of years between Detox participants' first discharge from the program and March 18, 2020 (the latest date of any medical encounter in the dataset) was 4.2. During this length of time prior to their first program admission date participants received an average of 34.2 medical encounters, a figure which more than doubled to 85.4 encounters during the same duration of years following

participants' first discharge from the program (an approximate 150% increase). Figure 18 details this average increase in encounters from the pre- to post-program periods by depicting mean values during each period by ranges. For clients who accumulated between 200 and 299 encounters the average count falls slightly from the pre- to post-period, but every other encounter range shows an increase. The relative change is greatest for those participants within the highest range of encounters: among those who visited a medical provider at least 500 times, the average number of encounters rose from 761.6 during the pre-period to 862.5 in the post-period, or a 13.25% increase. If persons with 500 or more encounters are excluded, mean encounters from the pre- to post-program periods only increase from 32.1 to 66.9 (a 108% increase).

Figure 18. Pre- and Post-Program Mean Medical Encounters for Detox Clients, by Encounter Ranges

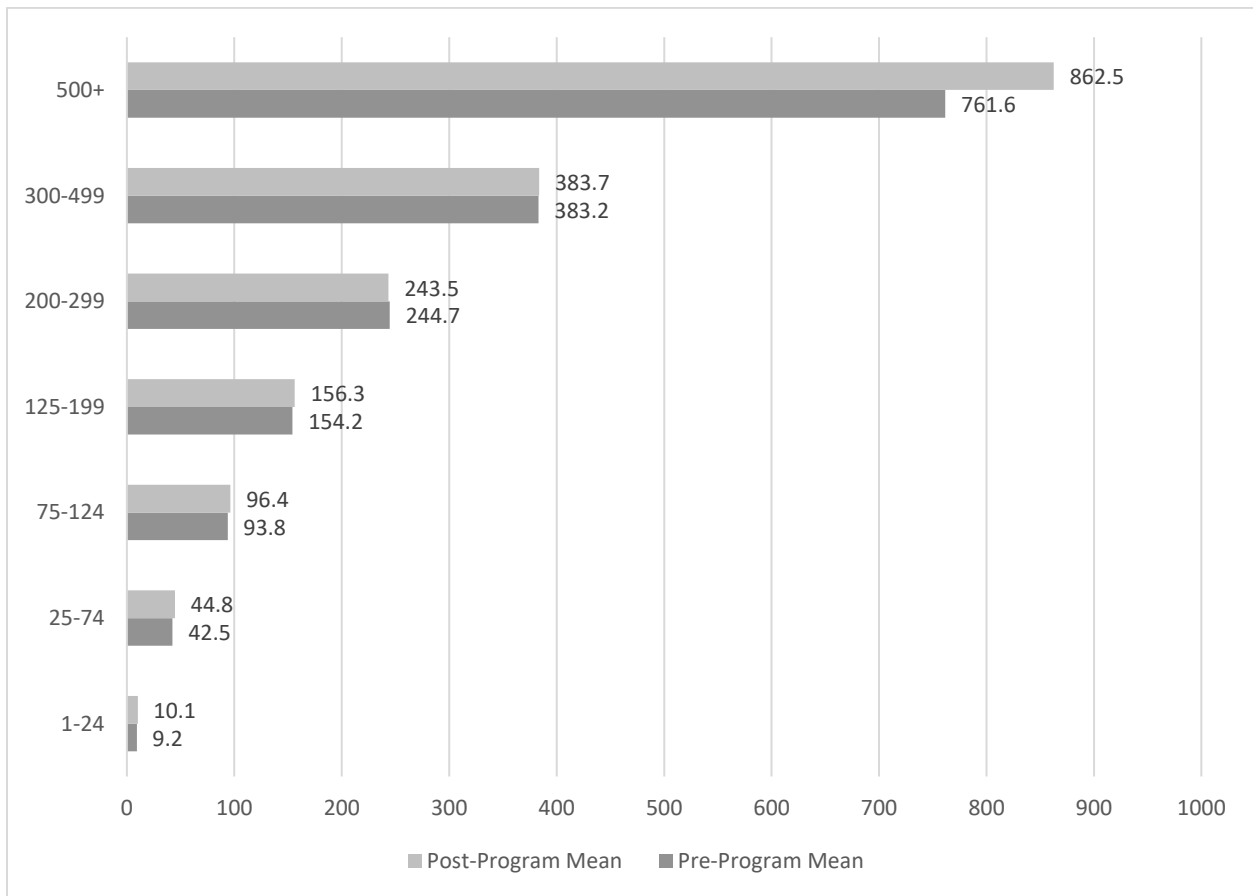
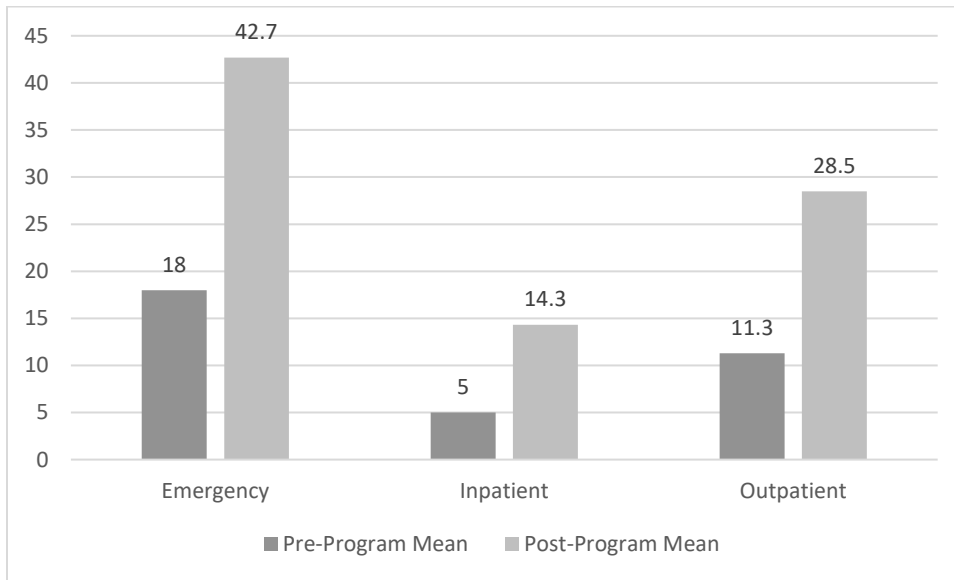


Figure 19 graphs the pre-to-post-program changes in mean medical encounters by encounter type. The increase in average encounters is evident across all three types and is relatively largest among inpatient encounters, which increase by nearly three times (from 5 to 14.3). However, average emergency and outpatient encounters also more than double between the two periods, rising from 18 to 42.7 mean emergency visits and from 11.3 to 28.5 mean outpatient visits.

Figure 19. Pre- and Post-Program Mean Medical Encounters for Detox Clients, by Encounter Type



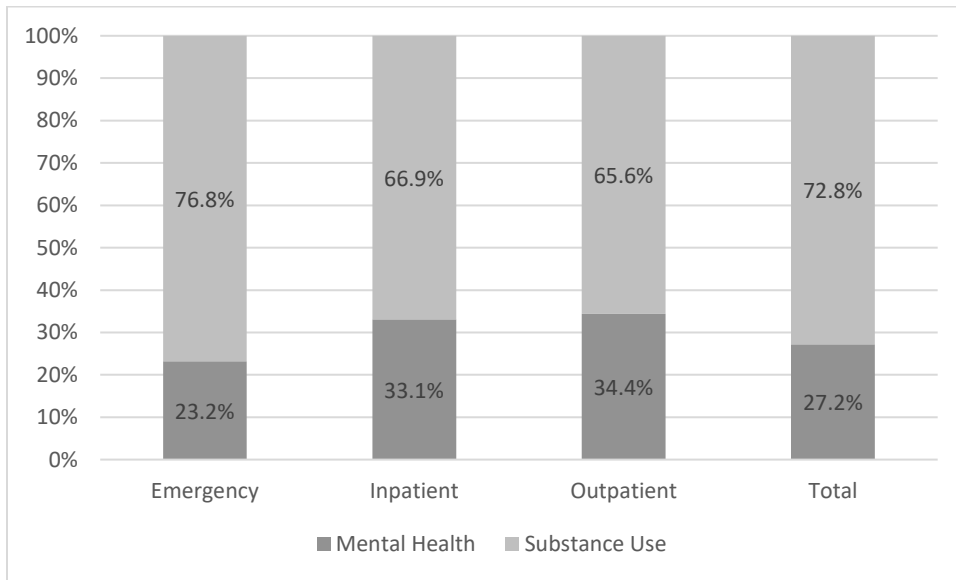
Behavioral Health Encounters

Table 19 cross-tabulates encounter type by detail type code for all 168,686 behavioral health disorder diagnosis encounters Detox clients experienced during the study period. Over 70% were classified as involving substance use disorders according to ICD-9 or ICD-10 codes while the remaining 27.2% were classified as involving mental health disorders. More than three-fifths (62.7%) were emergency encounters and another one-fifth (20.8%) were outpatient encounters, with inpatient encounters making up the remaining 16.5%. Within each encounter type substance use encounters were more prevalent than mental health encounters. As Figure 20 illustrates, the largest disparity in shares of substance use compared with mental health disorder diagnosis encounters is evident among emergency visits (76.8% vs. 23.2%, respectively).

Table 19. Crosstabulation of Detox Clients' Behavioral Health Encounters by Encounter and Disorder Type

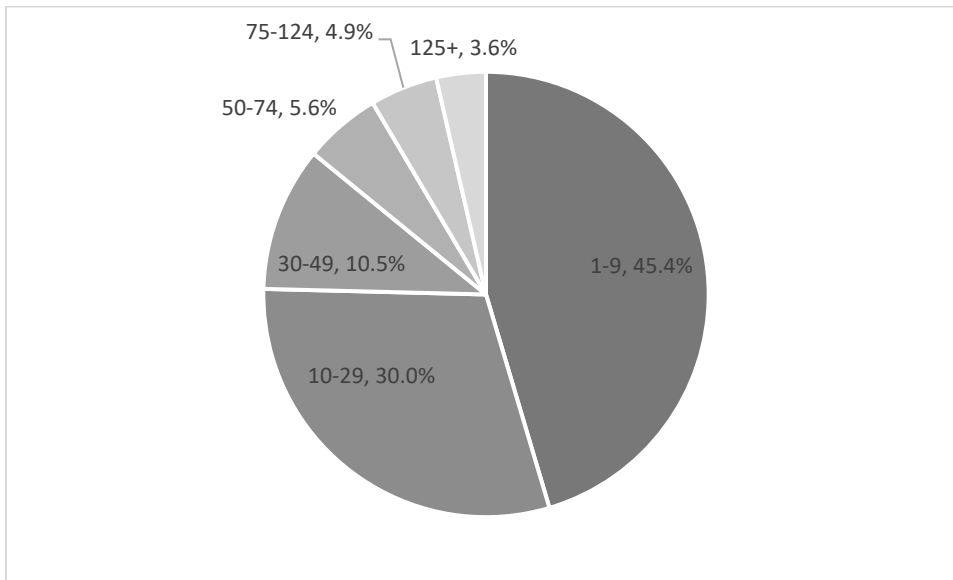
	Emergency		Inpatient		Outpatient		Total	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Mental Health	24,591	23.2%	9,220	33.1%	12,045	34.4%	45,856	27.2%
Substance Use	81,196	76.8%	18,644	66.9%	22,990	65.6%	122,830	72.8%
Total	105,787	100.0%	27,864	100.0%	35,035	100.0%	168,686	100.0%
% of Total	62.7%		16.5%		20.8%		100.0%	

Figure 20. Percentage Distribution of Detox Clients' Behavioral Health Disorder Types, by Encounter Type



The mean number of behavioral health disorder diagnosis encounters received by Detox clients over the period of study was 27.8 and ranged from a single encounter to 1,699 encounters. Figure 21 graphs the percentage distribution of Detox clients along ranges of behavioral health encounters. The largest percentage of individuals experienced an encounter involving a behavioral health disorder diagnosis on 1-9 occasions (45.4%), followed by those in the ranges of 10-29 (30%), 30-49 (10.5%), and 50-74 (5.6%) occasions; these four ranges together accounted for over 90% of all participants. Although the 219 individuals who accumulated at least 125 encounters made up only 3.6% of the total 6,071 Detox participants who ever received a behavioral health encounter, together they made up 52,311 encounters, comprising 31% of all behavioral health encounters.

Figure 21. Percentage Distribution of Detox Clients by Behavioral Health Encounter Ranges



The mean number of years between Detox participants' first discharge from the program and March 13, 2020 (the latest date of any behavioral health encounter in the dataset) was 4.2 years. During this length of time before their first program admission date participants received an average of 9.9 behavioral health encounters, and this average grew to 22.3 encounters during the same duration of years after participants' first discharge from the program (a 125% increase). The size of the increase is again sensitive to the inclusion of persons with high encounters: If persons with 125 or more are excluded, the pre- to post-program increase in means is only from 9.2 to 16.3 (a 77% increase). Among mental health disorder diagnosis encounters alone, mean encounters rose over the pre- to post-program periods from 2.7 to 6; among substance use disorder diagnosis encounters alone, mean encounters rose over the two periods from 7.3 to 16.4.

Figure 22 elaborates the pre- to post-period increase by charting mean values for each period and disorder type by ranges. Most of the pre- to post-period comparisons reveal increases in behavioral health disorder diagnosis encounters but there are notable exceptions. Average mental health disorder encounters declined among clients in the 75-124 range, average substance use disorder encounters declined among clients in the 50-74 range, and both types of behavioral health encounters decreased among clients in the 30-49 range. However, the largest relative changes occurred for clients with at least 125 behavioral health encounters: mental health disorder diagnosis encounters in this group rose from an average of 145 to 178.3 (a 23% increase), while substance use disorder diagnosis encounters rose from 167.1 to 251.3 (a 50.4% increase).

Figure 22. Pre- and Post-Program Mean Mental Health and Substance Use Encounters for Detox Clients, by Encounter Ranges

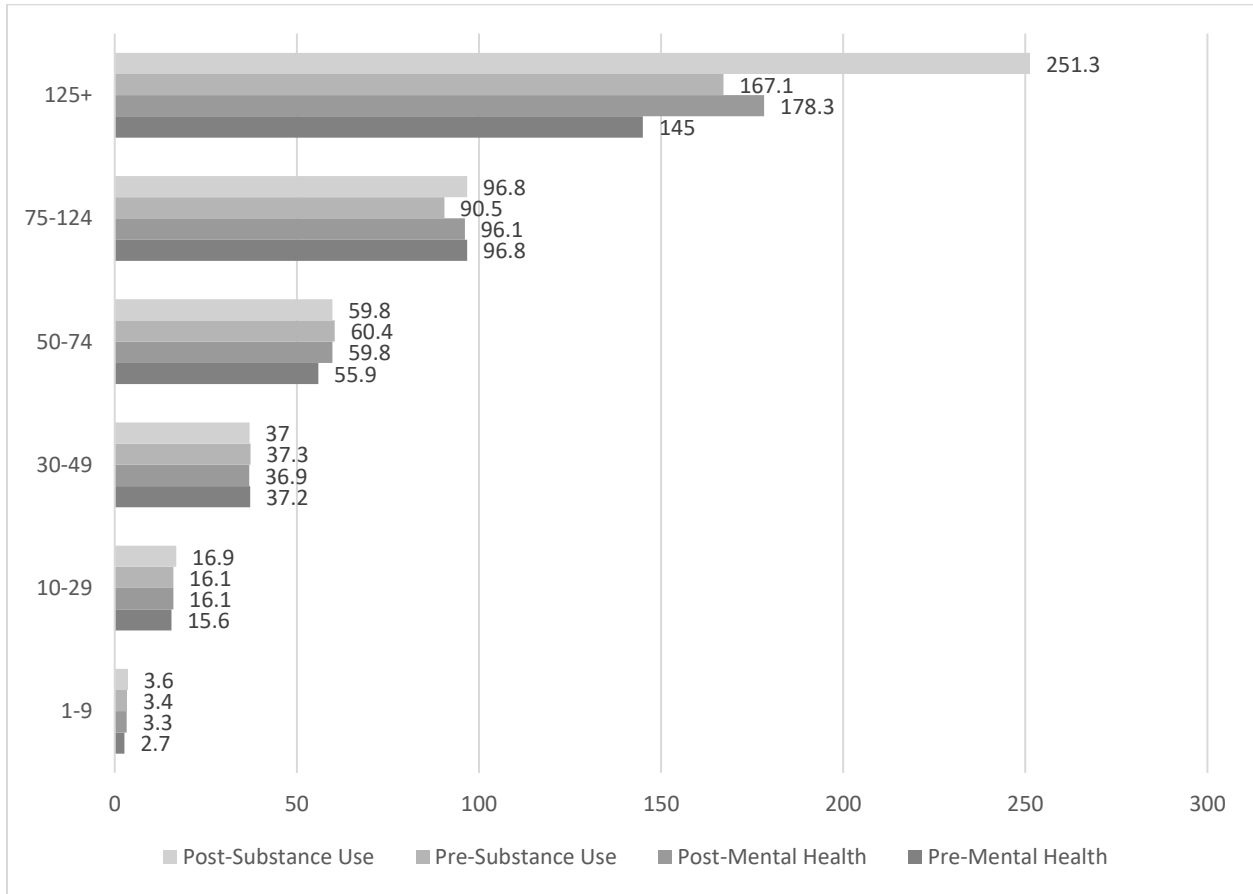
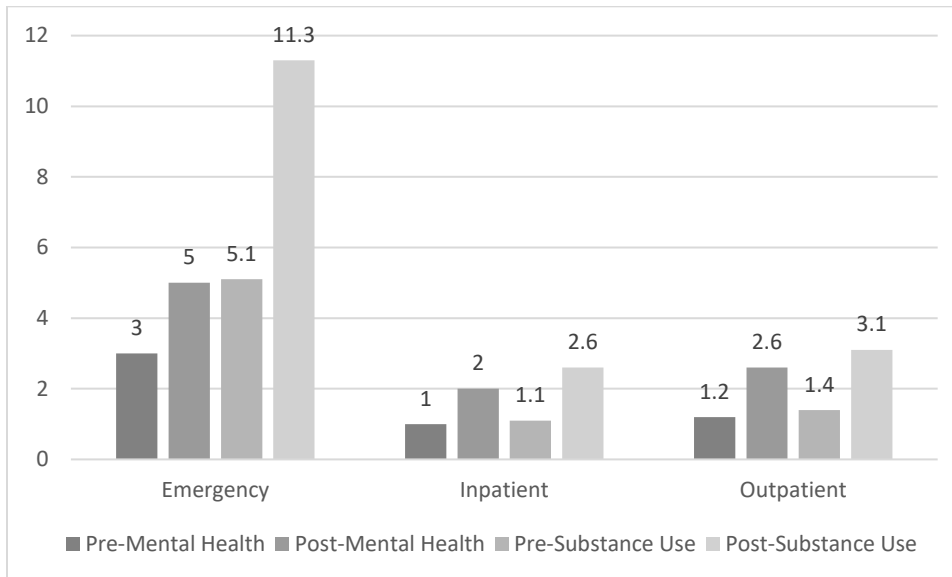


Figure 23 displays the pre-to-post-program changes in mean mental health and substance use encounters by encounter type. Relative increases from the pre- to post-program periods were higher for substance use disorder diagnoses among emergency and inpatient encounters but approximately equal across mental health and substance use disorder diagnoses among outpatient encounters. Overall, inpatient behavioral health encounters showed the largest relative increase over the pre- to post-program periods, rising from an average of 1.5 to 3.8 (a 153% increase). Like the change in behavioral health encounters for outpatient visits for ATP clients, however, the increases in outpatient behavioral health encounters for Detox clients evident in the figure below should be interpreted carefully. As noted in Table 18, since 36.9% of all outpatient cases were missing detail type codes, more than 101,000 outpatient medical encounters potentially involved a behavioral health disorder diagnosis that could not be identified.

Figure 23. Pre- and Post-Program Mean Mental Health and Substance Use Encounters for Detox Clients, by Encounter Types



Summary and Key Takeaways

Over the approximately five and one-half years timeframe between January 2014 and August 2019, clients participated in MATS Campus programs an average of 4 to 5 times, amounting to over 65,000 visits across more than 14,000 individuals. The number of unique clients receiving services per year, about 3,600 on average, declined by 20% between 2014 and 2018 with each individual client participating more frequently on average over time. This pattern suggests services are becoming increasingly concentrated among a smaller number of high-frequency utilizers, although importantly this trend appears to level off after 2017. Most clients were male, identified as Caucasian/White or Hispanic/Latino, and were in young to middle adulthood, but average frequencies of use per person were greatest among Native American and senior clients. The majority of visits were initiated by self- or family-referrals and involved services completed over the period of a single day.

Deviations from these overall characteristics are evident for specific programs. For example, participants usually visited each program on 1-2 occasions but for PIIP there were nearly 7 visits per person on average, with PIIP comprising two-thirds of the total number of visits and over 40% of the total number of clients. Behind Hispanics/Latinos, Native Americans (rather than Caucasians/Whites as above) were the second-largest racial/ethnic group making up the individuals served by PIIP. By design, the clientele of the Mariposa program was predominantly female, and clients of the ATP program were typically court-ordered to participate (rather than self-referred). While visits to the PIIP and Detox programs lasted only hours or days, the average duration of services was approximately one month for ATP and 3-4 months for SAC and Mariposa.

Examination of medical encounters with a listed diagnosis that occurred between January 2013 and March 2020 revealed that, for both ATP and Detox, clients tended to accumulate more encounters after

their initial participation in the programs than during the same period of time before it. Among ATP participants, mean medical encounters with any diagnosis rose by 65% (from 25.4 to 41.8) and encounters with a behavioral health disorder diagnosis rose by 46% (from 7.2 to 10.5); among Detox participants, the corresponding increases were 150% (from 34.2 to 85.4) and 125% (from 9.9 to 22.3). Elevations in pre- to post-program average medical encounters were evident regardless of whether encounters involved emergency, inpatient, or outpatient services and were particularly steep for clients with the highest frequencies of medical treatment overall. Increases in mental health disorder diagnosis encounters were highest for ATP clients while increases in substance use behavioral health disorder diagnosis encounters were greatest for Detox clients.

Conclusion

This report reviewed patterns of use and possible consequences of participation for clients of the Bernalillo County DBHS MATS Campus programs over January 2014 through August 2019. Characteristics of clients and services utilized were examined for the five programs of PIIP, ATP, Detox, SAC, and Mariposa, and medical encounters were described pre- and post-initial program participation for clients of ATP and Detox. Among the key findings noted in the report were an increasing concentration of services among a smaller group of clients through 2017; highest frequencies of use per capita among Native Americans and seniors; and the tendency of ATP and Detox clients to increase their receipt of medical services following their first participation in MATS. We suspect these increases may be the result of participants being connected to previously under-utilized physical and behavioral health treatments via program services (e.g., information about available treatments, guidance in health system navigation, hand-offs between service providers, and so on.) We hope that for future reports we will have access to additional information to better understand the processes by which the MATS Campus programs are shaping clients' subsequent interactions with the county healthcare system.

References

Torres, S., Haugaard, S., & Guerin, P. (2019). *Bernalillo County Department of Behavioral Health Services: Updated program review*. University of New Mexico Institute for Social Research.