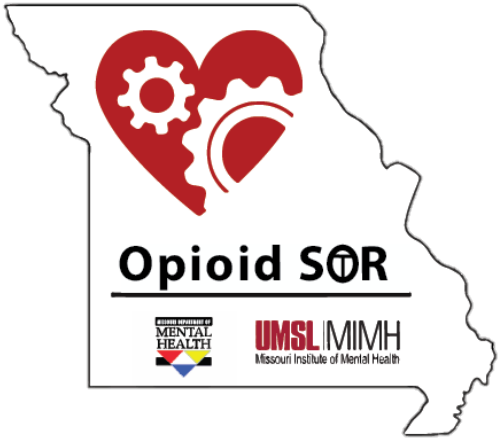
Missouri Department of Mental Health Opioid State Targeted Response (STR) Grant: Statewide Outcomes

12 Month Treatment Outcomes Evaluation for Opioid Use Disorder Episodes of Care

from July 2017 through June 2018



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Differences Between Medication First Guidelines and Traditional OUD Approach

Medication First Principle	Medication First Guideline for Medications for Opioid Use Disorder (MOUD)	Missouri Certification Standard for Substance Use Disorder Treatment (traditional approach)
1. *Clients receive pharmacotherapy as quickly as possible…*	Agencies demonstrate a capacity (bup-waivered providers/be an OTP) to *initiate* agonist meds "as rapidly as possible to prevent undue opioid withdrawal symptoms" Same-day MOUD access is encouraged.	Non-medical (social) detox is an acceptable option despite evidence of medical detox being the standard of care for opioid withdrawal. Delay to medical detox services can be greater than delay to outpatient medical treatment due to a limited capacity of detox settings.
…prior to lengthy assessments or treatment planning sessions	Agencies are encouraged to modify admin processes so medically-necessary screenings are completed as soon as possible, with comprehensive assessment and treatment plans completed after MOUD is initiated.	Treatment requires a comprehensive assessment (to determine level of care) and treatment plan to be completed first, with the exception of detox. Such requirements lead to admin delays in scheduling medical visits, if they occur at all.
2. *Maintenance pharmacotherapy is delivered…*	Agencies demonstrate a capacity (coordination plan with prescribing providers) to provide *maintenance* MOUD including any of the 3 FDA-approved medications.	Standards were written before the FDA approval of bup or XR-nal so their role in treatment is not addressed. Therefore, access to *maintenance* pharmacotherapy is not assumed. Standards only require that programs facilitate access to detox, while OTP standards emphasize medically supervised *withdrawal.*
…without arbitrary tapering or time limits	Providers regularly assess medication dosing to ensure maintenance MOUD is prescribed at therapeutic levels for as long as it is beneficial for the client, which may be indefinitely.	Due to lack of certification standards for maintenance MOUD, there was no relevant formal DMH guidance prior to Med First.

Medication first principles continued on next page

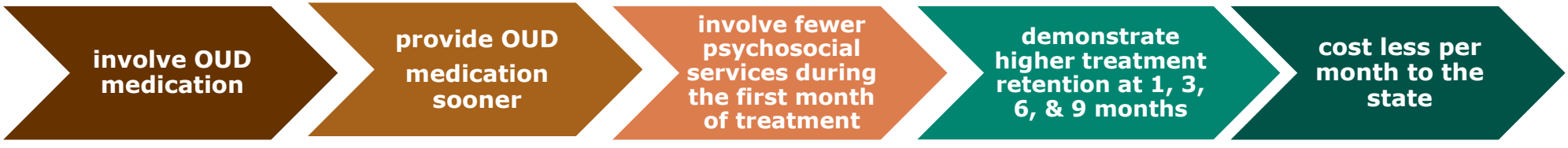
Differences Between Medication First Guidelines and Traditional OUD Approach Continued

Medication First Principle	Medication First Guideline for Medications for Opioid Use Disorder (MOUD)	Missouri Certification Standard for Substance Use Disorder Treatment (traditional approach)
3. *Individualized psychosocial services are offered but not required…*	Providers deliver or refer to psychosocial support services such as counseling, psychiatry, peer coaching, primary care, housing, and transportation on a voluntary basis and depending on clients' individual needs.	Clinical therapy, SUD education, development of positive peer support, and ongoing treatment and rehabilitation are de facto required because clients can be administratively discharged if they fail to demonstrate commitment to these services or for a pattern of poor attendance at these services.
…as a condition of pharmacotherapy	Providers continue providing MOUD even if clients are unwilling or unable to engage in psychosocial services, as significant benefit can be derived from MOUD alone.	The implications of discharging clients from treatment who are on bup or XR-nal are not addressed in the certification standards. OTP clients who have "continued unexcused absences from counseling and other support services" may undergo administrative medical withdrawal at the direction of the treatment provider.
4. *Pharmacotherapy is discontinued only if it appears to be worsening the client's condition*	Concerns about lack of participation in services, relapse, or other illicit substance use are addressed not by MOUD discontinuation or dose decreases but with increased frequency of visits, observed dosing, and other accountability measures, as well as peer and other support to increase engagement.	In addition to absence from counseling, clients can be discharged prior to successful completion of treatment if "no further progress is imminent or likely to occur," for a "pattern of noncompliance," or "frequent relapse incidents." Illicit substance use (including benzodiazepine use) is sometimes used as a reason for discontinuing MOUD despite FDA recommendations.

Source: Winograd, R. P., Presnall, N., Stringfellow, E., Wood, C., Horn, P., Duello, A., ... & Rudder, T. (2019). The case for a medication first approach to the treatment of opioid use disorder. *The American Journal of Drug and Alcohol Abuse*, 1-8.

Executive Summary of STR Outcomes Under Medication First Guidelines

This report provides an overview of STR outcomes during the first 12 months of treatment delivery under the STR grant (July 2017 through June 2018) relative to treatment delivery at STR-funded agencies in the year prior to STR. All analyses assess episodes of care (EOCs) among uninsured individuals with an Opioid Use Disorder (OUD) diagnosis. Relative to the EOCs in the previous year, STR treatment episodes during the first year of implementation were significantly more likely to:



Medication Utilization: STR treatment episodes were significantly more likely to involve OUD treatment medication than treatment episodes in the year prior. The largest gains were seen for the utilization of buprenorphine. Approximately 84% of STR treatment episodes involved medication compared to only 40% in the year prior to STR. Approximately 58% of STR treatment episodes involved buprenorphine compared to 24% in the year prior to STR.

Access to Medication: There were significant decreases in the overall time to receive medication, and specifically buprenorphine, for STR treatment episodes relative to the year prior. Most buprenorphine treatment episodes in the STR program involved the receipt of buprenorphine the same day as their first billable service.

Treatment Retention: Overall treatment retention was significantly higher among treatment episodes in the STR program (18% higher at 1 month, 18% higher at 3 months, 19% higher at 6 months, and 18% higher at 9 months) relative to treatment episodes in the previous year. Increases were primarily driven by increased retention among treatment episodes that involved buprenorphine. Medication utilization improved treatment retention, with treatment episodes involving methadone demonstrating the highest rate of retention at each time point.

Psychosocial Services: Significantly fewer hours per day of psychosocial services were provided during the first 30 days of treatment among STR treatment episodes than during the first 30 days of treatment episodes the year prior to STR. Please note, Medication First guidelines *do not favor* a "medication *only"* approach. Psychosocial services were still offered and encouraged during STR. However, stabilization on OUD medications was prioritized, particularly during the first month of treatment. The vast majority of STR EOCs (95.8%) involved some form of psychosocial services.

Cost per month to the state: The median cost per month to the state was significantly (19%) less among STR treatment episodes ($1,271) relative to treatment episodes in the year prior to STR ($1,562).

STR Treatment Agency Enrollment (uninsured only)

- The majority of STR EOCs from July 2017 through June 2018 occurred at Preferred Family Healthcare or SEMO
- ARCA was involved in a larger proportion of STR EOCs relative to Pre-STR
- OTPs represent a larger proportion of STR EOCs relative to Pre-STR

Episodes of Care by Agency

	Pre-STR July 2016 - June 2017		STR July 2017 - June 2018	
	Number	Percent	Number	Percent
ARCA	729	16%	871	41%
BASIC Inc.	92	2%	41	2%
Burrell	270	6%	9	0%
Center for Life OTP (CFL)	115	2%	193	9%
Community Treatment Inc. (ComTrea)	339	7%	12	0%
Family Counseling Center (FCC)	135	3%	5	0%
Gateway	227	5%	300	14%
Gibson	225	5%	111	5%
Heartland	333	7%	1	0%
New Beginnings	95	2%	10	0%
Ozark	152	3%	27	1%
Phoenix	135	3%	5	0%
Preferred Family Healthcare (PFH)	1,680	36%	626	30%
Queen of Peace (QOP)	140	3%	149	7%
SEMO	694	15%	559	26%
Tri-County	0	0%	3	0%
Truman Medical Center	39	1%	34	2%
Turning Point	236	5%	31	1%
West End Clinic OTP (WEC)	27	1%	104	5%
Overall	4,699		2,112	

Some individuals had an EOC that occurred at more than one agency and may be duplicated across agencies in the above table. However, the overall number represents the unduplicated number of EOCs. Among the 15 STR funded agencies in the year prior to STR, only 8.3% of EOCs occurred at more than 1 agency (excluding ARCA). Among STR EOCs only 6.1% of EOCs occurred at more than 1 agency (excluding ARCA). These numbers only represent uninsured individuals with OUD.

Client Demographics

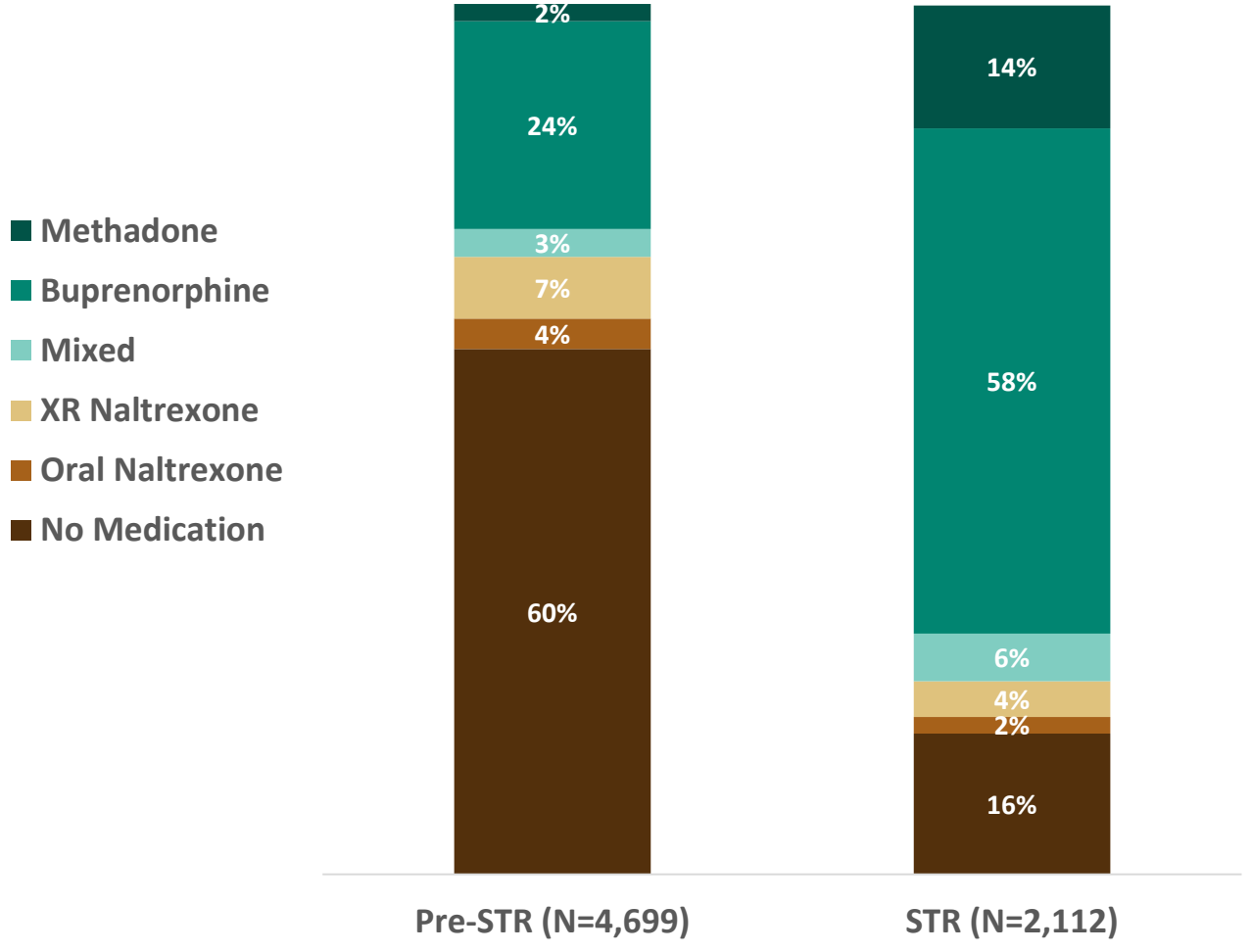
Proportionally, Black individuals and males are over-represented in STR treatment services compared to their representation in the state, appropriately reflecting the disparities in Missouri overdose deaths in 2017, which disproportionately impacted these demographic groups. The demographic characteristics of the treatment population were relatively similar between STR and pre-STR EOCs.

	Pre-STR EOCs July 2016-June 2017 (N = 4,699)		**STR EOCs July 2017-June 2018** (N = 2,112)		**MO Population 2018 Census Estimates** (N=6,113,532)	**MO OD Deaths 2017** (N = 951)
	Count	%	Count	%	%	%
White	3,528	75%	1,496	71%	83%	76%
Black	954	20%	560	27%	12%	23%
Other	175	4%	18	2%	2%	1%
Hispanic	65	1.4%	21	1%	4%	5%
Male	3,044	65%	1,420	67%	49%	68%
Female	1,613	34%	692	33%	51%	32%
Median Age	33		34			

Note: Percentages may not add up to 100% because demographic data was not available for all EOCs

Medication Utilization

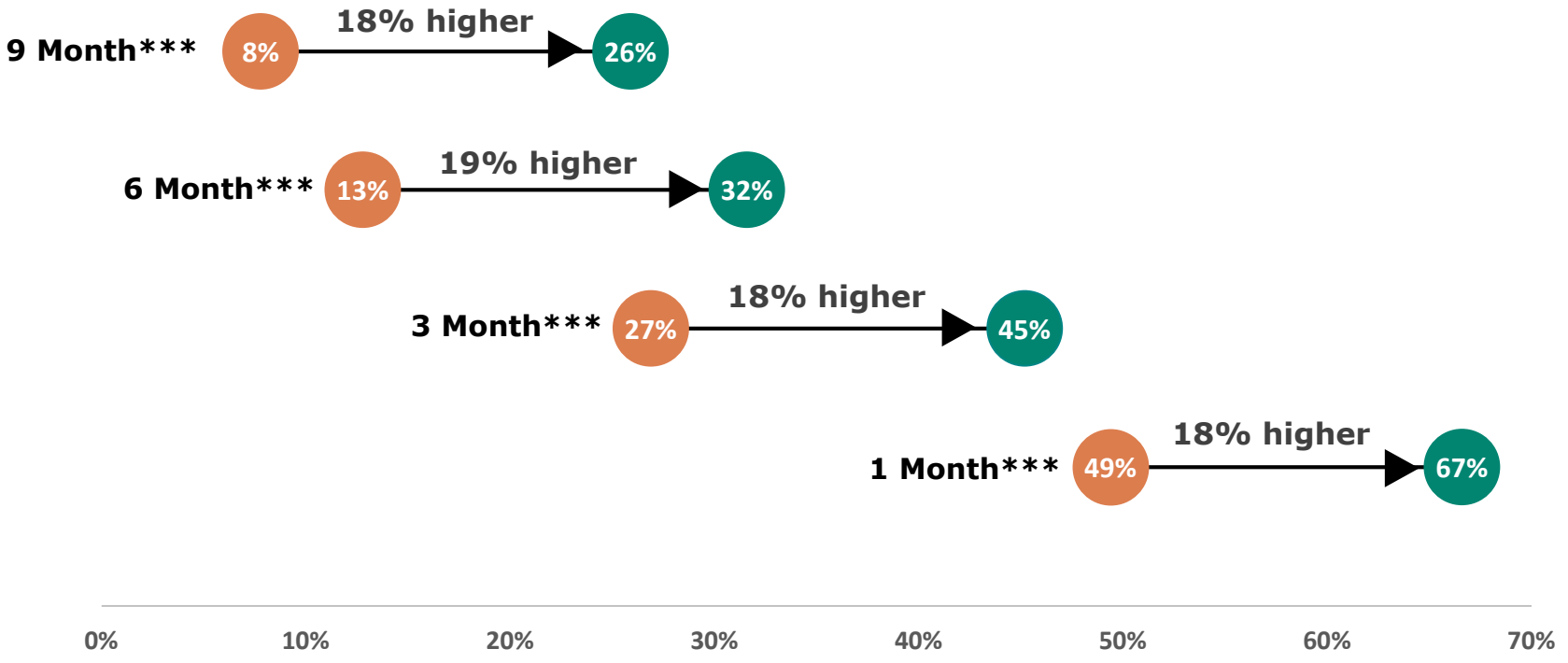
In-line with STR Medication First principles, overall medication utilization significantly increased among STR EOCs relative to the year prior. This increase was primarily driven by increased utilization of buprenorphine. Approximately 84% of STR treatment episodes involved medication compared to only 40% in the year prior to STR.



Note: The "Mixed Group" is composed of EOCs in which both an antagonist and agonist were prescribed. This group is highly heterogeneous and administrative data does not provide an indication of the intended treatment path. This group was created to ensure the exclusive buprenorphine and XR naltrexone groups were limited to these medications only.

Overall Treatment Retention

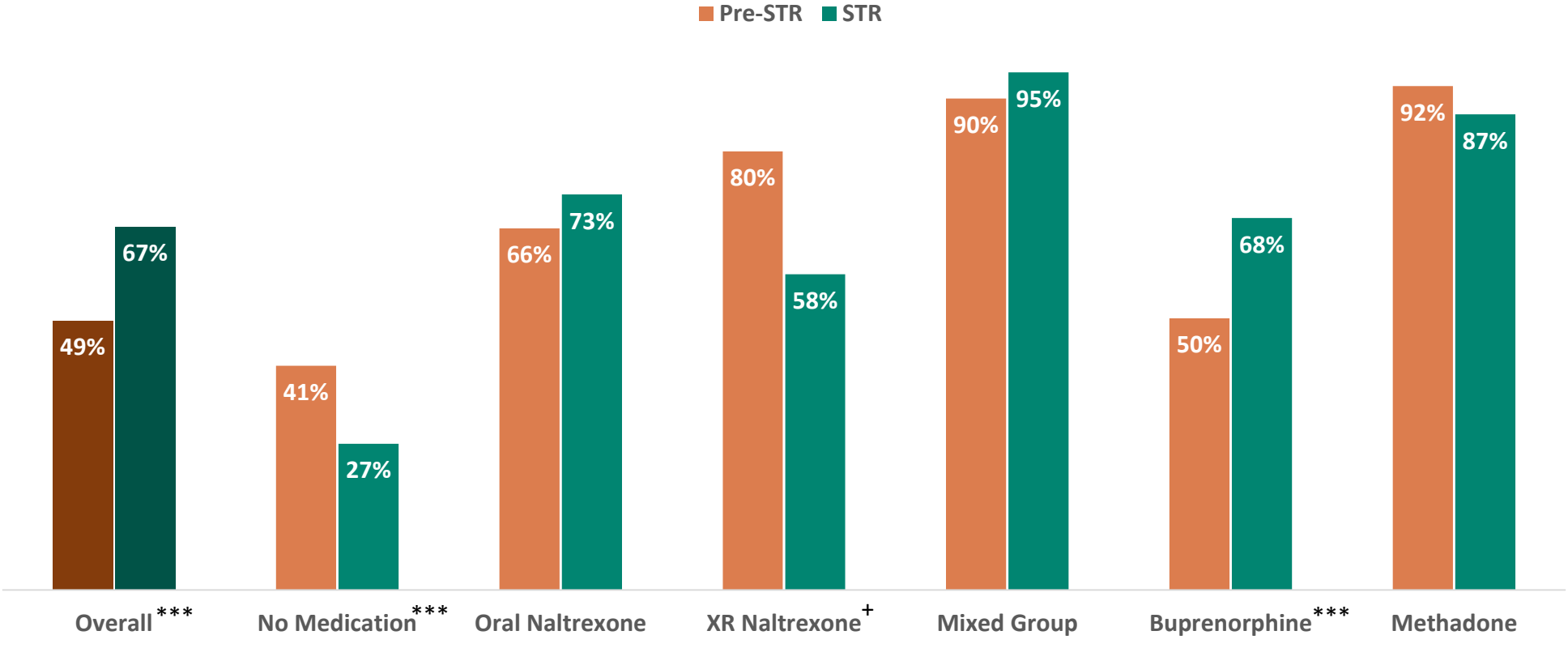
Treatment retention improved significantly at 1, 3, 6, and 9 months among STR EOCs compared to Pre-STR EOCs (18% higher at 1 month and 3 months, 19% higher at 6 months, and 18% higher at 9 months). The magnitude of difference remained consistent at each time point, highlighting the lasting impact of retaining individuals through their first month of treatment.



Treatment retention estimates are a function of people for whom engagement can be determined. Both lags in billing and the start date of an EOC play a role in how long treatment engagement can be assessed (Treatment retention estimates at 1 and 3 months were available for 100% of Pre-STR and STR EOCs. Treatment retention at 6 months could be determined for 74% and 68% of Pre-STR and STR EOCs, respectively. Treatment retention at 9 months could be determined for 48% and 38% of Pre-STR and STR EOCs, respectively). *** $p<.001$; ** $p< .01$; * $p< .05$; $^{+}p < .10$

1 Month Treatment Retention by Medication

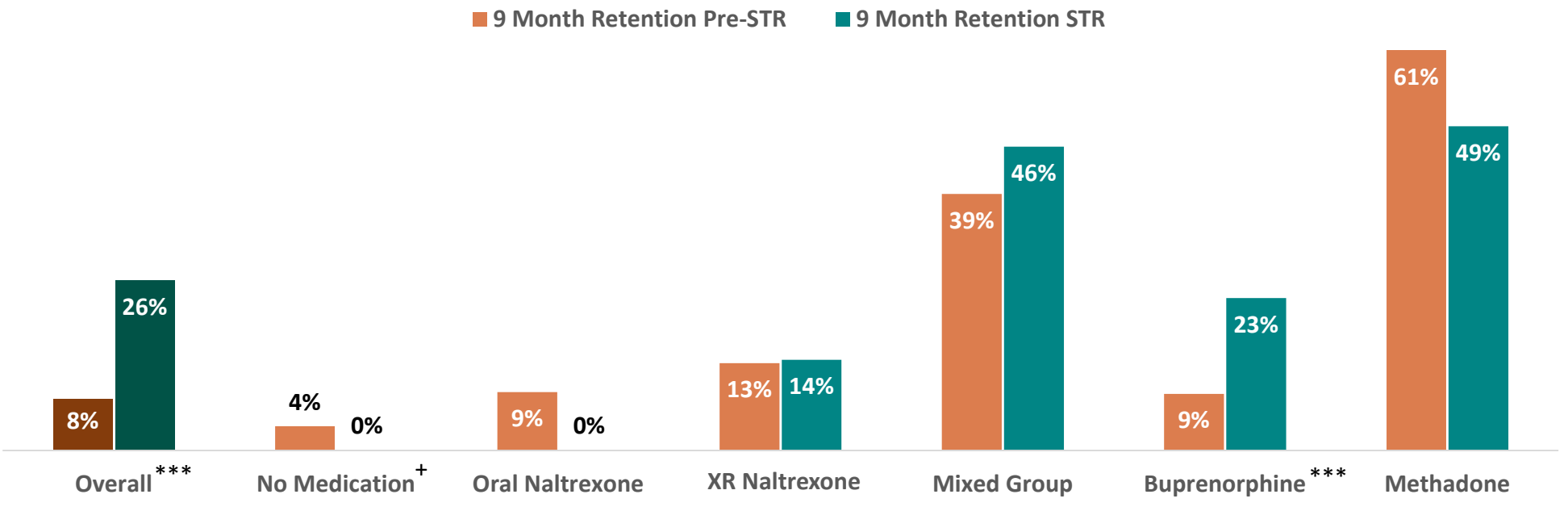
Overall treatment retention at 1 month was significantly higher among STR EOCs relative to Pre-STR EOCs. Increased utilization of buprenorphine combined with significant increases in retention among EOCs involving buprenorphine were primary drivers.



Note: Treatment retention estimates at 1 month were available for 100% of Pre-STR and STR EOCs. The mixed group is heterogeneous and administrative records do not reveal the intended treatment path, only that participants received both agonist and antagonist medications. Therefore, the mixed group should be interpreted with caution and findings should not be compared to other medication groups. *** $p<.001$; ** $p< .01$; * $p< .05$; $^{+}p < .10$

9 Month Treatment Retention by Medication

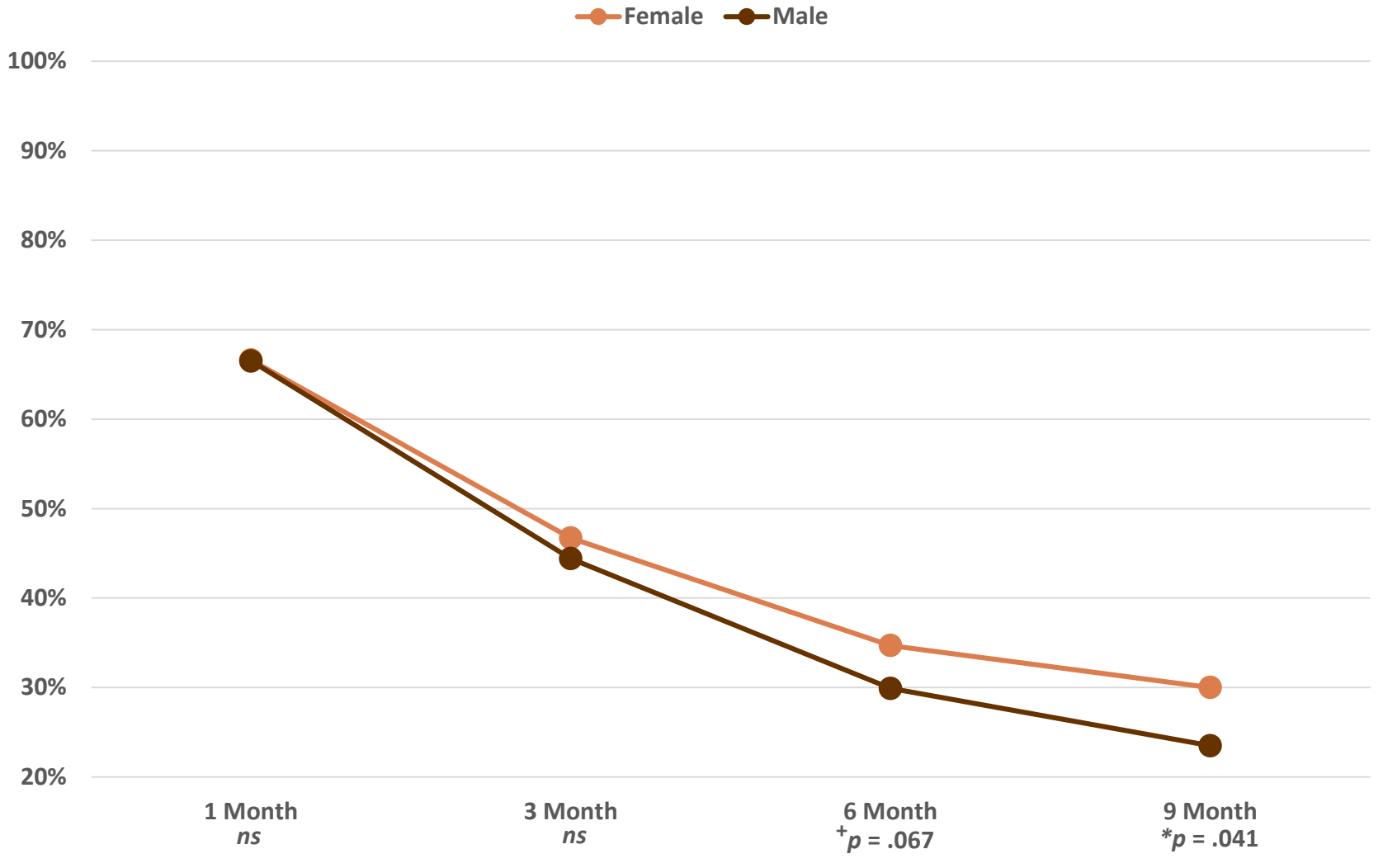
Overall treatment retention at 9 months was significantly higher among STR EOCs than Pre-STR EOCs. Increased utilization of buprenorphine combined with the significant increase in retention among EOCs involving buprenorphine were the primary drivers of the overall increase.



Note: Treatment retention at 9 months could be determined for 48% of Pre-STR EOCs and 38% of STR EOCs. The mixed group is heterogeneous and administrative records do not reveal the intended treatment path, only that participants received both agonist and antagonist medications. Therefore, the mixed group should be interpreted with caution and findings should not be compared to other groups. *** $p<.001$; ** $p< .01$; * $p< .05$; $^{+}p < .10$

STR Treatment Retention by Sex

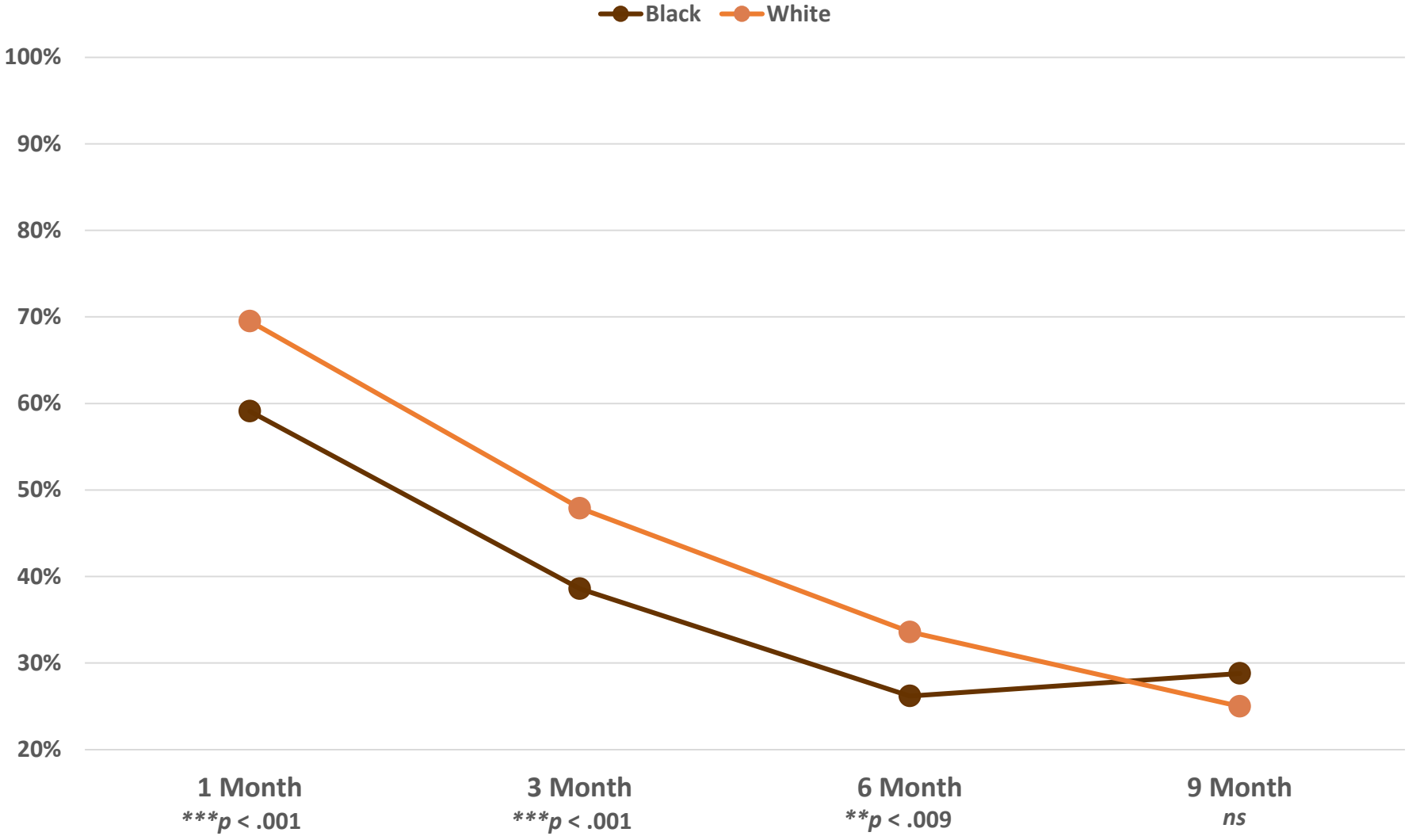
Though there were few differences in treatment retention between males and females Pre-STR, among STR EOCs, the rate of dropout was less steep for females relative to males, such that at nine months, females were significantly more likely to be retained in treatment than males.



*** $p<.001$; ** $p< .01$; * $p< .05$; $^{+}p < .10$

STR Treatment Retention by Race

Retention rates for STR treatment episodes among White individuals were significantly higher at one, three, and six months relative to retention rates for treatment episodes among Black individuals. Differences were not statistically significant at nine months.

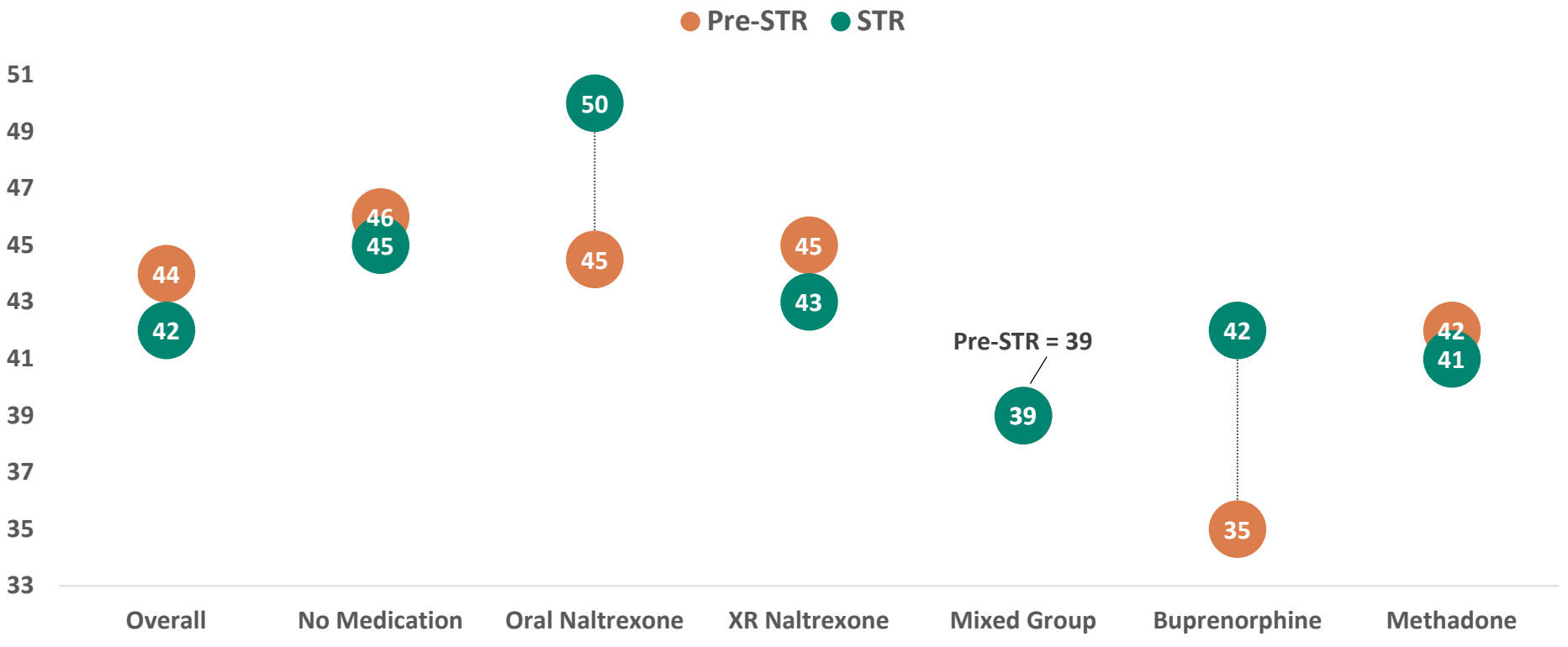


Note: Individuals who did not report Black or White race were excluded from comparisons due to low sample size.

*** $p<.001$; ** $p< .01$; * $p< .05$; $^{+}p < .10$

Global Assessment of Functioning (GAF) Scores

Overall GAF scores were similar among Pre-STR and STR EOCs. The largest difference in GAF scores between Pre-STR and STR was among EOCs involving buprenorphine.

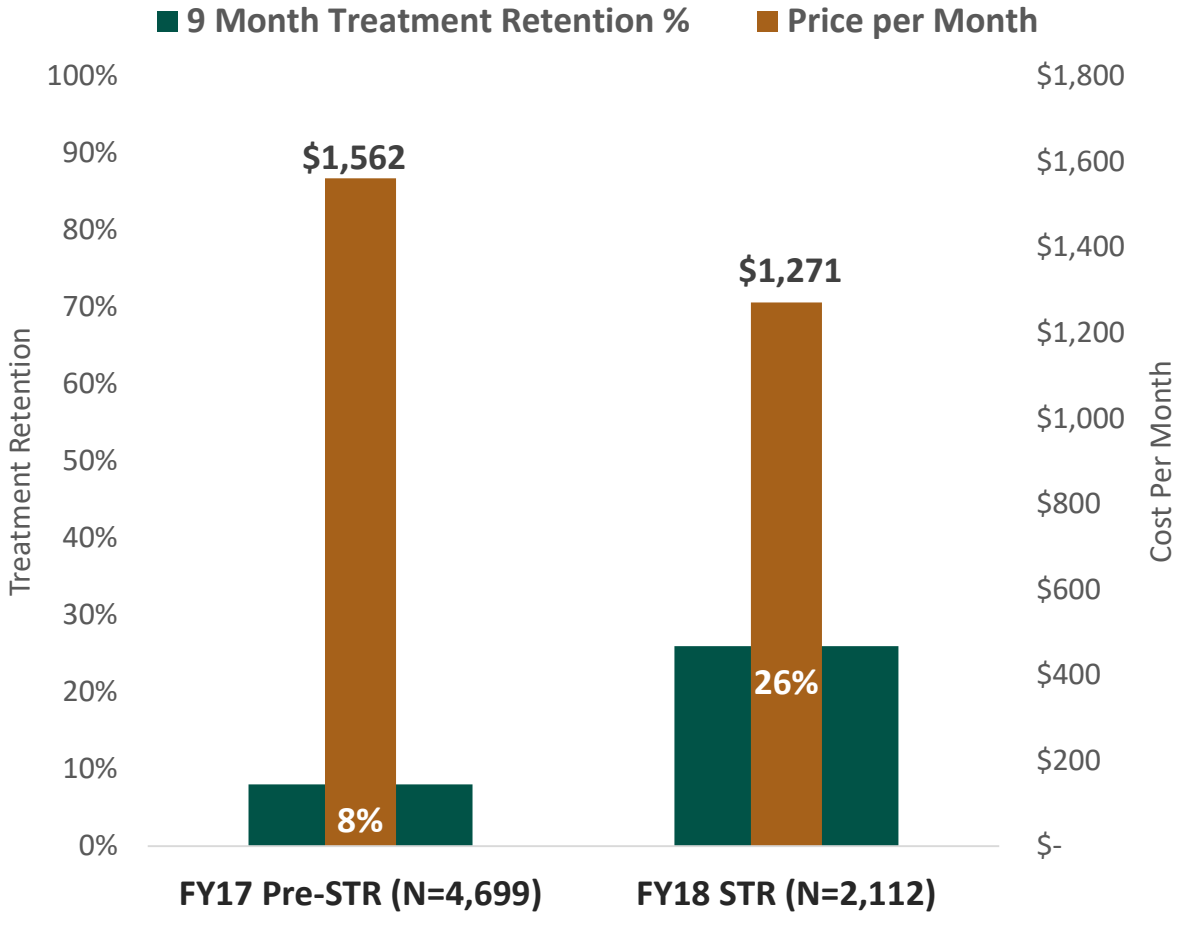


Note: GAF scores are given at the time of diagnosis to assess the social, occupational, and psychological functioning of an individual. GAF scores can range from 0 to 100 with lower GAF scores indicating lower functionality. Although GAF scores are still used, the scale is no longer included in the DSM and should be interpreted with caution. The mixed group is heterogeneous and administrative records do not reveal the intended treatment path, only that participants received both agonist and antagonist medications. Therefore, the mixed group should be interpreted with caution and findings should not be compared to other groups.

This outcome was not analyzed for statistical significance.

Cost of Treatment to the State Per Month

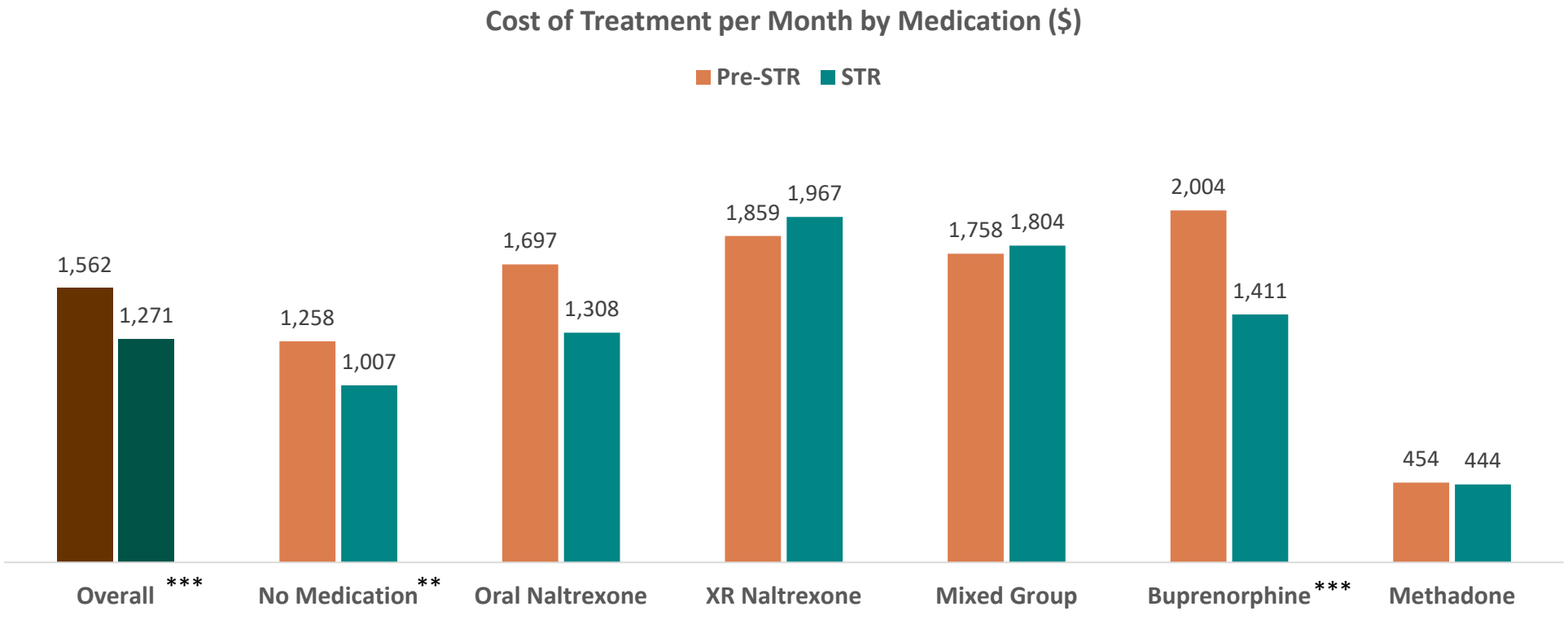
9 month retention was significantly higher while median cost to the state per month significantly decreased by 19% among STR EOCs relative to EOCs in the year prior.



Though per month costs *decreased* during STR, overall cost to the state per TOTAL treatment episode *increased* 39% among STR EOCs ($2,195) relative to EOCs in the year prior to STR ($1,330) due to individuals staying in treatment longer. Median monthly cost to the state per month was calculated by dividing the total cost per EOC (costs of all services: administrative incentive payments, medication, counseling, case management, etc.) by the length of the treatment episode (the number of months in treatment). Across all agencies, 10 STR EOCs and 96 Pre-STR EOCs were excluded due to participation in the CCBHC bundled payment system rather than the fee-for-service model of payment.

Cost of Treatment to the State Per Month by Medication

Overall median cost to the state per month decreased 19% among STR EOCs relative to EOCs in the year prior. EOCs involving methadone were the least expensive per month and EOCs involving XR naltrexone were the most expensive per month. EOCs involving buprenorphine had the largest decrease in median monthly cost from Pre-STR to STR likely driving the overall decreases.



Change in Median Price Per Month						
- $291	- $251	- $389	+ $108	+ $46	- $593	- $10

Note: **Total EOC cost increased 39% for STR EOCs relative to EOCs in the year prior to STR due to longer EOCs.** 10 STR EOCs and 96 Pre-STR EOCs were excluded due to participation in the CCBHC bundled payment system rather than the fee-for-service model of payment. The mixed group is heterogeneous and administrative records do not reveal the intended treatment path, only that participants received both agonist and antagonist medications. Therefore, the mixed group should be interpreted with caution and findings should not be compared to other medication groups. Significance testing compared the median price per month between pre-STR and STR EOCs. *** $p<.001$; ** $p< .01$; * $p< .05$; $^{+}p < .10$

Medication Access

Overall, medication was prescribed significantly more quickly among STR EOCs relative to Pre-STR EOCs.

Median Days to First OUD Treatment Medication (Zero denotes access on the same day as the first billable service)

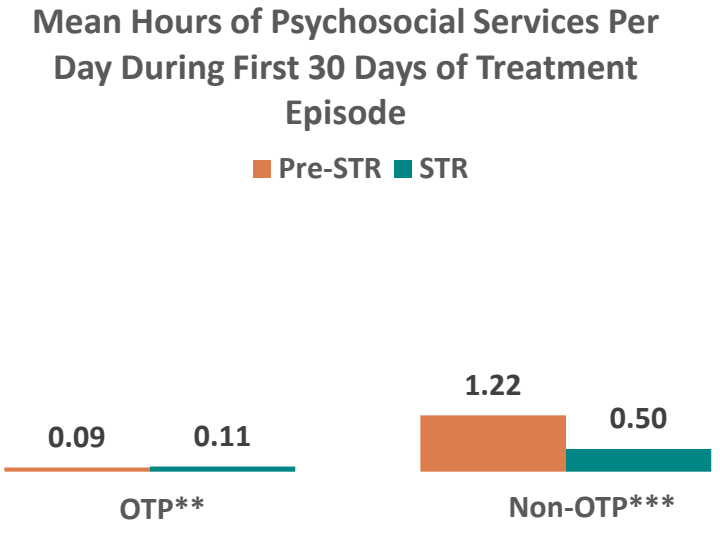
	Pre-STR (n = 1,503)	STR (n = 1,598)
Overall* **	7	0
Oral Naltrexone **	18	10
XR Naltrexone* **	16	6
Buprenorphine* **	2	0
Methadone	0	0

Note: Only EOCs that did NOT involve detoxification encounters were included in the table above. Of the pre-STR EOCs that included medication, 360 (7.7%) were excluded due to involving a detox encounter. Of the STR EOCs, 171 (8.1.%) were excluded.

Additionally, this data does not depict the extent to which there is lag time between when an individual calls or physically presents to request treatment and when they are officially admitted to treatment.

Psychosocial Services

STR EOCs at non-OTPs involved fewer hours of psychosocial services per day in the first 30 days of treatment and over the course of the EOC relative to Pre-STR EOCs. Medication First guidelines *do not* favor a "medication *only*" approach. Psychosocial services were still offered and encouraged during STR, however stabilization on OUD medications was prioritized. Although STR EOCs involved a lesser volume of psychosocial services, the vast majority of involved some sort of psychosocial services (95.8%).



Psychosocial services during the first 30 days were defined using billable service codes that occurred within 30 days from the first billable treatment service and included individual counseling, group counseling, group education, family counseling, community support, case management, and peer support services.

Given that opioid treatment programs (OTPs) have traditionally utilized less intensive psychosocial services, we assessed the utilization of psychosocial services between STR and pre-STR EOCs among OTPs and Non-OTPs separately.

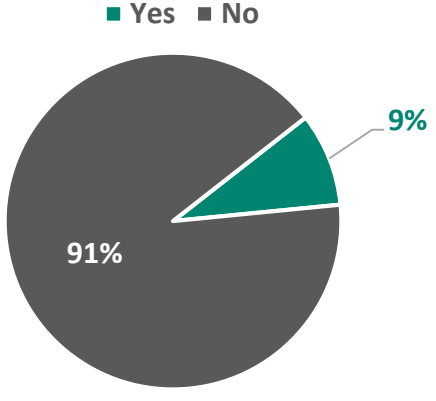
*** $p<.001$; ** $p< .01$; * $p< .05$; $^{+}p < .10$

Peer Support

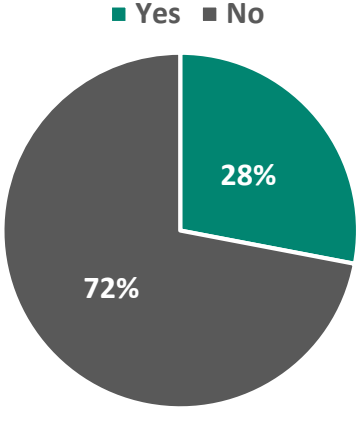
Utilization of peer support services increased significantly under the STR grant by 19% ($p < .001$). The average amount of peer support services per EOC was slightly higher among STR EOCs relative to Pre-STR.

A larger proportion of EOCs involved peer support services through STR than pre-STR:

Pre-STR EOCs with Peer Support Services (N=4,699)



STR EOCs with Peer Support Services (N=2,112)



Of the EOCs that involved peer support, the average hours of peer support services delivered through STR were slightly higher:

Average Total Peer Support Hours per EOC

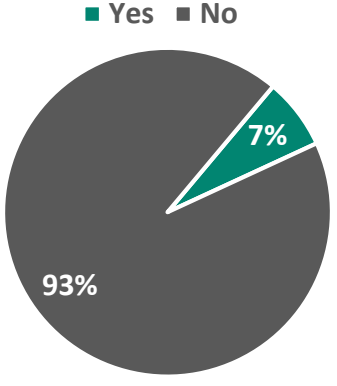
Note: Any peer support services provided that were not billed through the peer support procedure code (H0038) are not included.

Telehealth

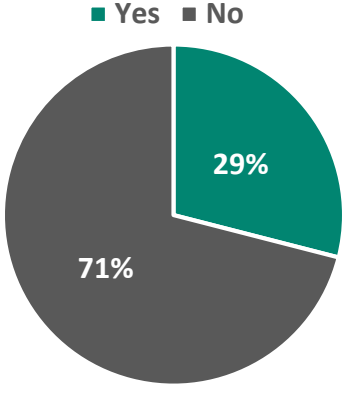
Utilization of telehealth services increased significantly among STR EOCs by 22% ($p < .001$). Among EOCs involving a telehealth encounter, the volume of telehealth services also increased, with 27% of STR EOCs involving more than 5 services.

A larger proportion of EOCs received telehealth services through STR than Pre-STR:

Pre-STR EOCs wtih a Telehealth Encounter (N=4,699)

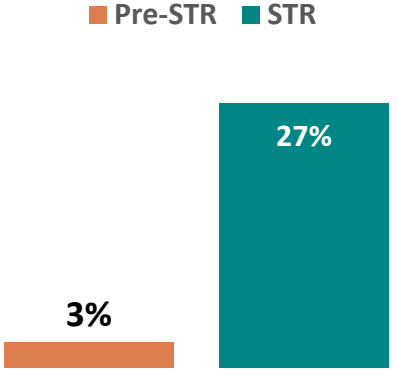


STR EOCs with a Telehealth Encounter (N=2,112)



Of the EOCs that involved telehealth, a greater volume of telehealth services were delivered through STR:

Percent of Episodes of Care with More than Five Telehealth Encounters



Telehealth Encounters per EOC

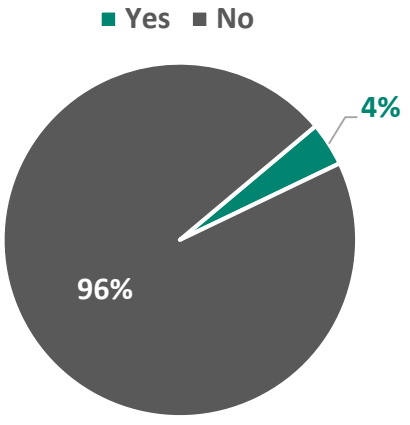
	Pre-STR	STR
Mean	1.99	4.19
Median	1	3

Housing

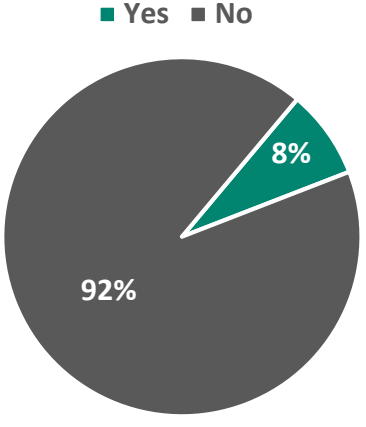
Utilization of housing support services increased significantly among STR EOCs by 4% ($p < .001$) relative to the previous year. Among STR EOCs involving housing support, the median length of stay in housing increased 24 nights relative to Pre-STR.

A larger proportion of EOCs involved housing support through STR than Pre-STR:

Pre-STR EOCs with Housing Support (N=4,699)

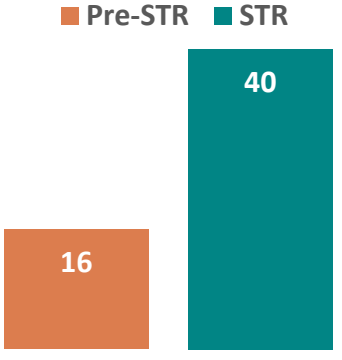


STR EOCs with Housing Support (N=2,112)



Of the EOCs that involved housing, more nights of housing were delivered through STR relative to Pre-STR:

Median Housing Nights per EOCs with Housing Support



Nights of Housing Support

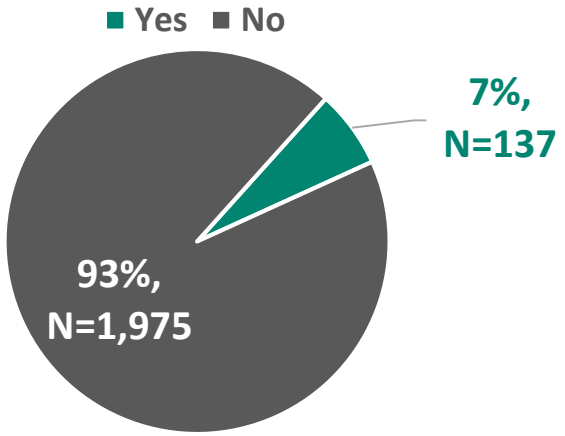
	Pre-STR	STR
Mean	17	66

Note: Service delivery for STR EOCs was assessed from July 2017 through September 2018, prior to the 45 day housing limit, enacted by DMH in December 2018.

Naloxone and Transportation

7% of STR EOCs involved billed naloxone.

EOCs with Naloxone Prescriptions (N = 2,112)

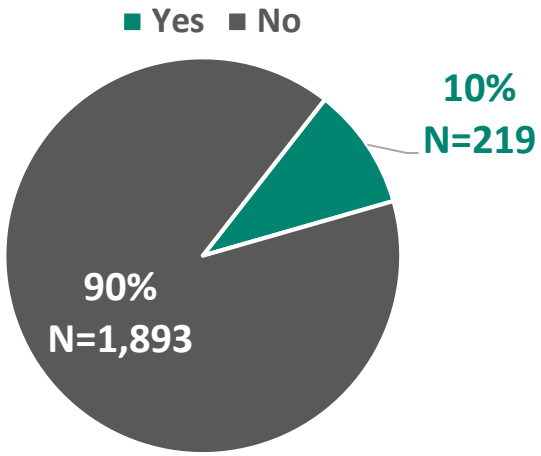


Naloxone was not a billable medication before the STR grant began. Therefore, there is no comparison data for Pre-STR EOCs.

Note: This percentage does not account for individuals who may get naloxone without a prescription from a Recovery Community Center, treatment center, or other source. Only 3% of the individuals who did receive naloxone received more than 1 prescription.

10% of STR EOCs involved a billable transportation service.

EOCs with Transportation Support (N = 2,112)



Number of Transportation Services Billed Per EOC

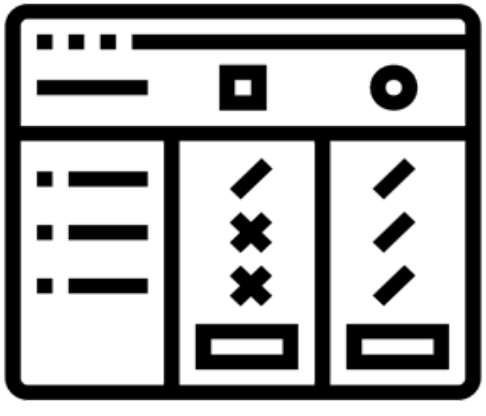
- Mean = 6.5
- Median = 3

Transportation support was not a billable service before the STR grant began. Therefore, there is not comparison data for Pre-STR EOCs. Transportation was not billable until January 2018; therefore, the numbers above represent approximately 6 months of EOCs in which transportation could be billed. Transportation services provided under the Community Support code are not included in this analysis

Agency Specific Outcomes

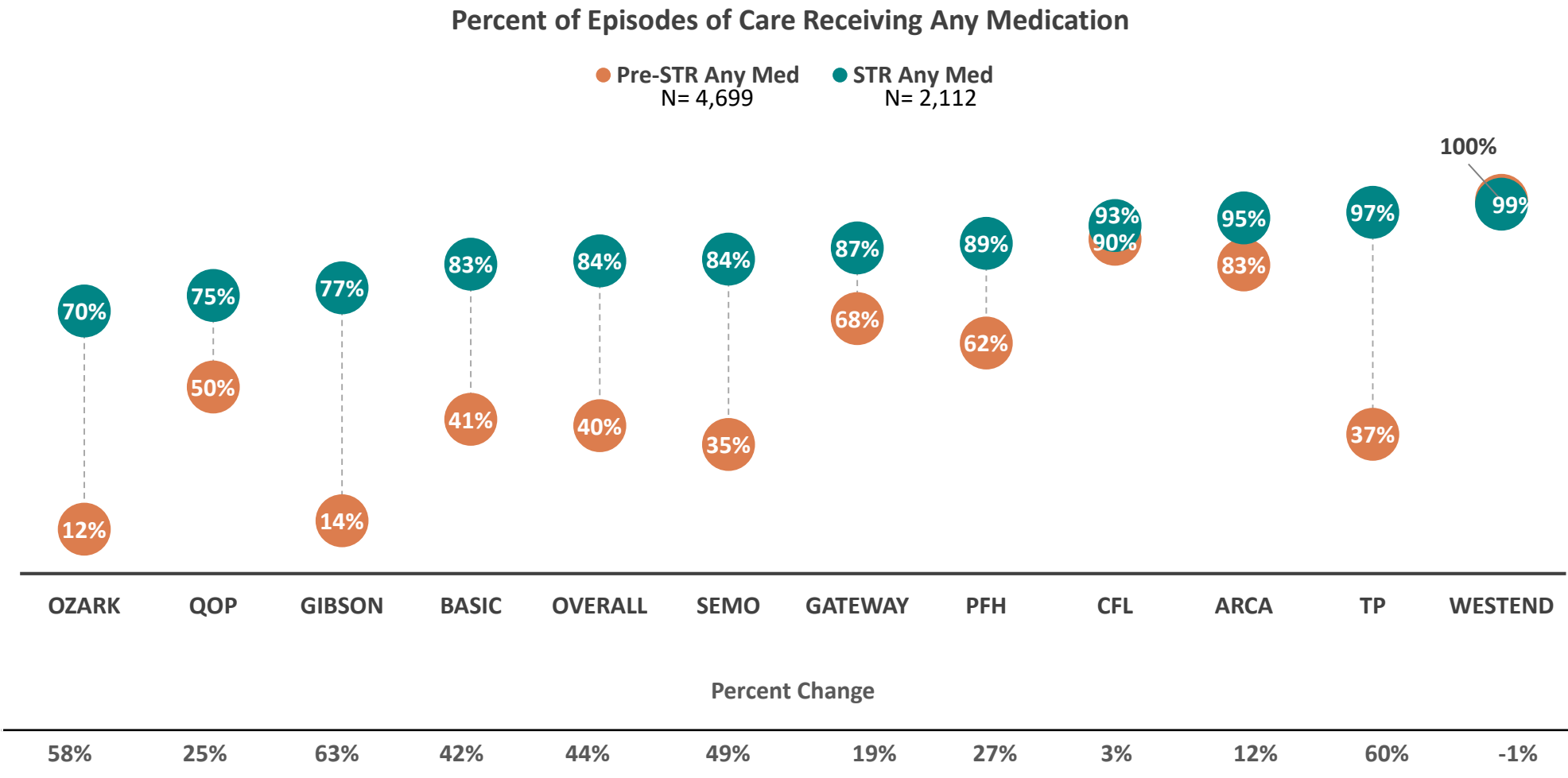
The next five pages describe agency-specific STR outcomes during the first 12 months of treatment delivery (July 2017 to June 2018) relative to how each STR agency was doing in the year prior to STR for episodes of care (EOCs) for an Opioid Use Disorder (OUD) diagnosis for uninsured individuals.

- Medication Utilization
- Buprenorphine Utilization
- Three Month Treatment Retention
- Six Month Treatment Retention
- Median Cost Per Month to the State



We recommend comparing within-agency differences instead of differences across agencies due to the inherent variability among STR treatment agencies (e.g., geographic location, treatment population, treatment capacity). Although this is our recommendation, we did highlight some differences between OTPs and non-OTPs. Please note that agencies with 12 or fewer total EOCs for any metric were not graphed. Burrell, Comtrea, Family Counseling Center, Heartland Center for Behavioral Change, New Beginnings, Phoenix, and Tri-County were not graphed on any of the subsequent metrics.

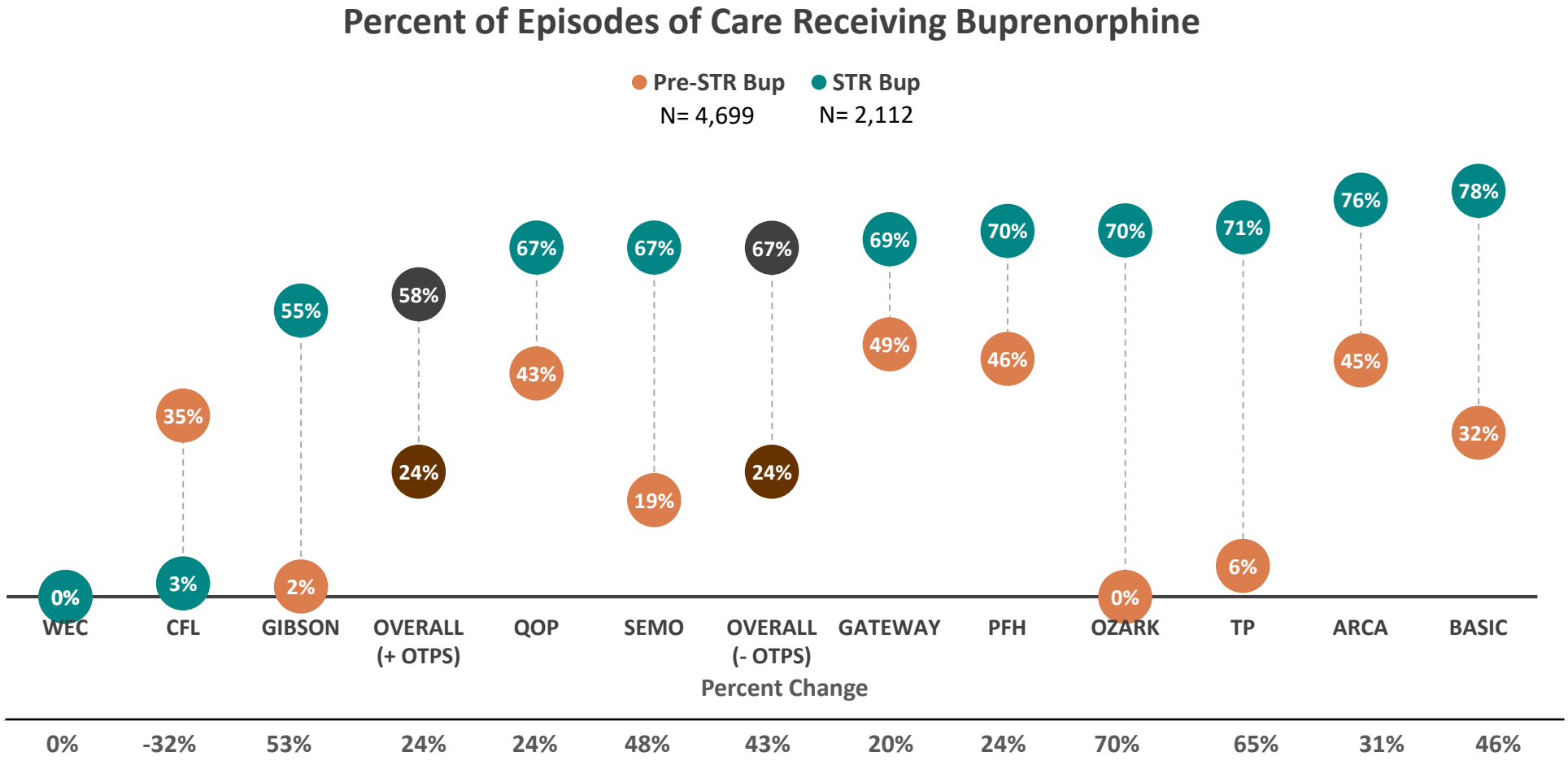
Medication Utilization for Opioid Use Disorder EOCs by Treatment Agency



In accordance with the STR Medication First approach, STR treatment agencies increased access to medications for OUD in the state's publicly funded treatment centers. Gains in medication utilization were seen across the majority of funded agencies.

Note: STR agencies that had 12 or fewer EOCs during the first 12 months of STR were not graphed (Burrell, Comtrea, FCC, Heartland, New Beginnings, Phoenix, and Tri-County).

Buprenorphine Utilization for Opioid Use Disorder EOCs by Treatment Agency

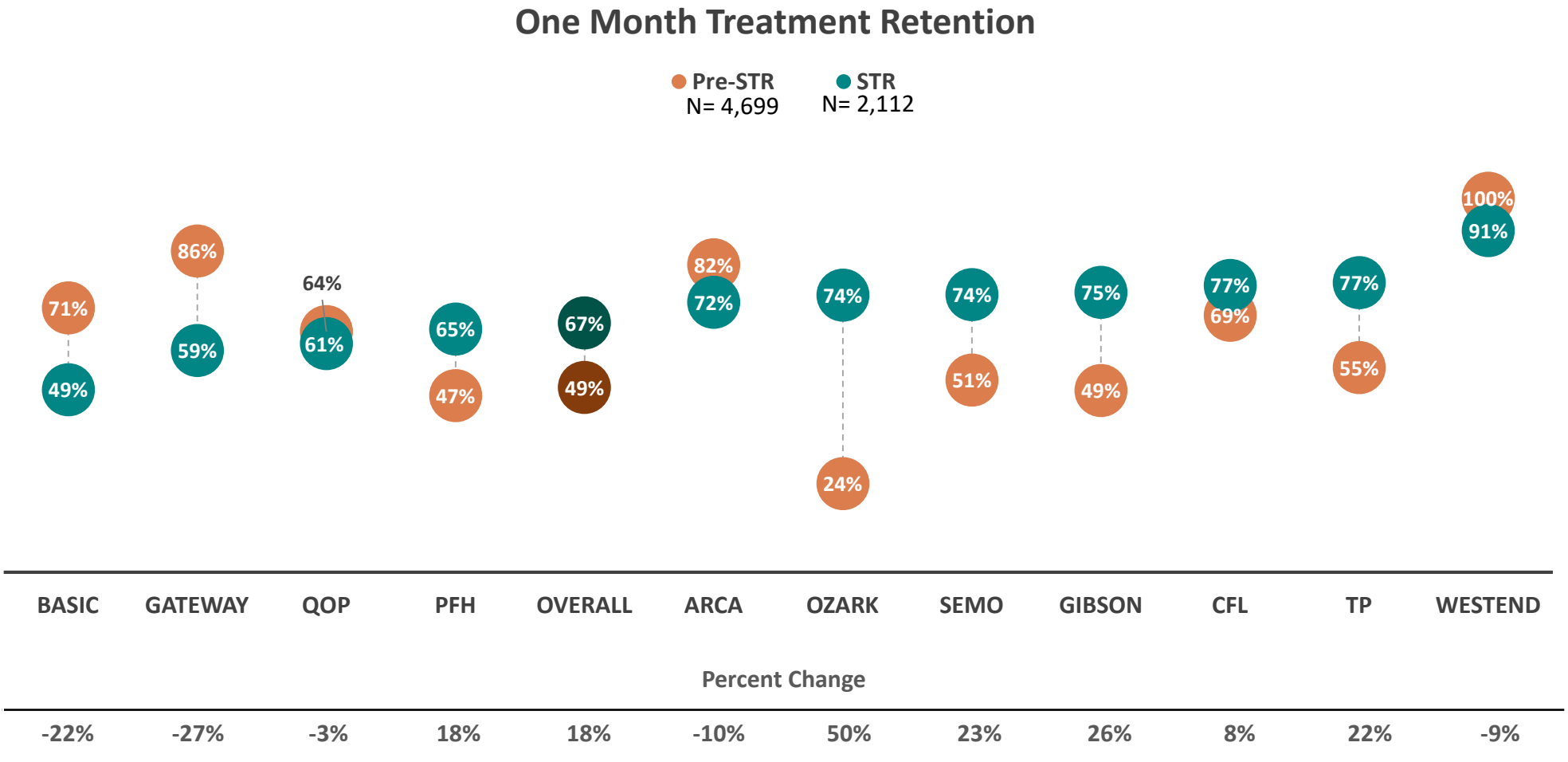


In accordance with the STR Medication First approach, STR treatment agencies increased access to buprenorphine in the state's publicly funded treatment centers. Gains in buprenorphine utilization were seen across the majority of funded agencies.

The "Overall (+OTP)" values represent overall buprenorphine utilization across all STR-funded agencies. However, because OTPs predominantly provide methadone, these all inclusive values are lower than what would be expected when looking at non-OTPs alone. Therefore, we included an additional overall category, "Overall (-OTP)," (pre-STR N = 4557, STR N = 1815) to highlight the use of buprenorphine across non-OTP agencies specifically.

Note: STR agencies that had 12 or fewer EOCs during the first 12 months of STR were not graphed (Burrell, Comtrea, FCC, Heartland, New Beginnings, Phoenix, and Tri-County).

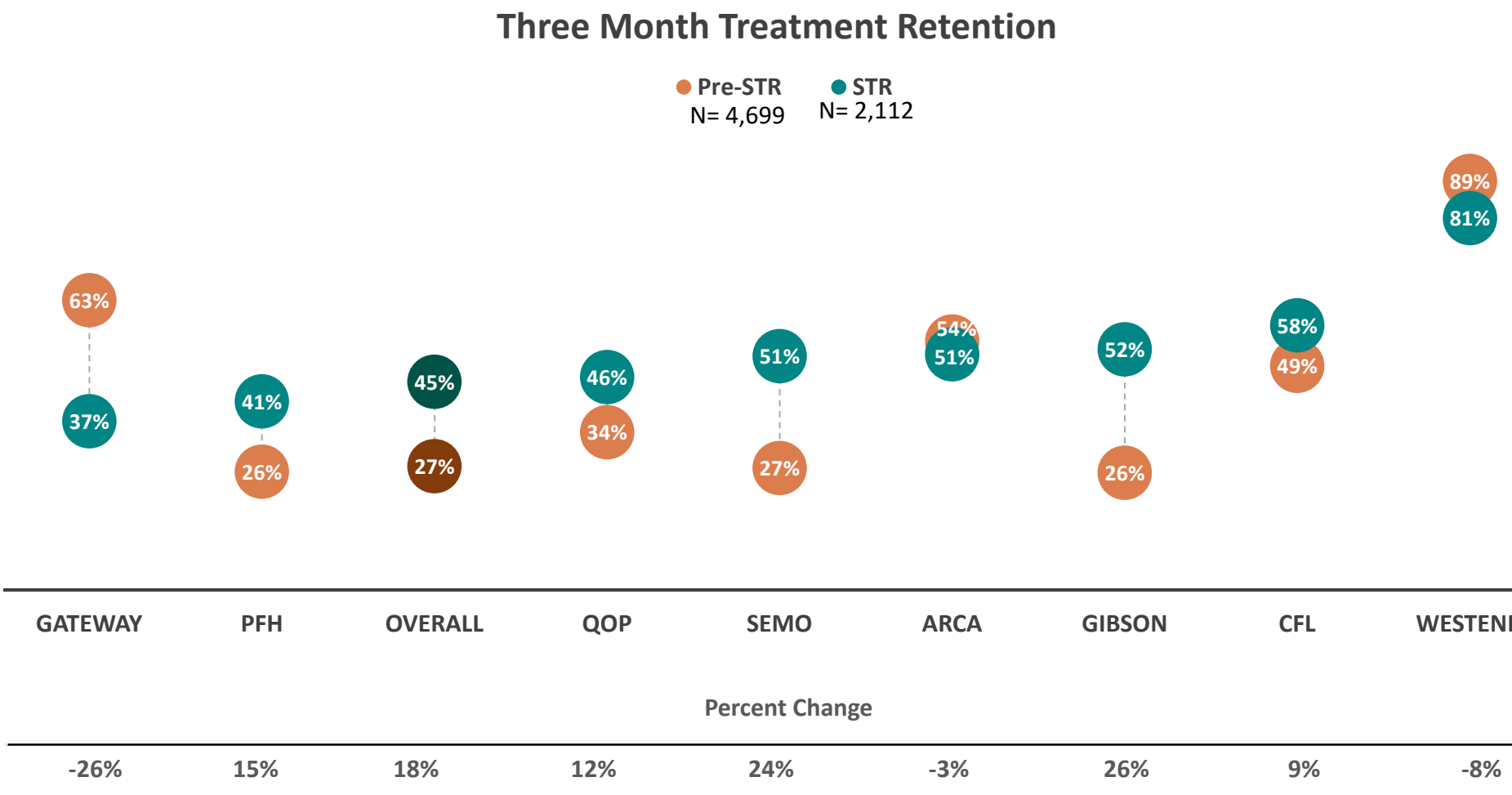
One Month Treatment Retention by Treatment Agency



Overall one month treatment retention generally improved among STR agencies. West End Clinic had relatively high retention rates compared to non-OTPs both prior to and during STR. Ozark demonstrated the largest improvements in retention at 1 month.

Note: STR agencies that had 12 or fewer EOCs during the first 12 months of STR were not graphed (Burrell, Comtrea, FCC, Heartland, New Beginnings, Phoenix, and Tri-County).

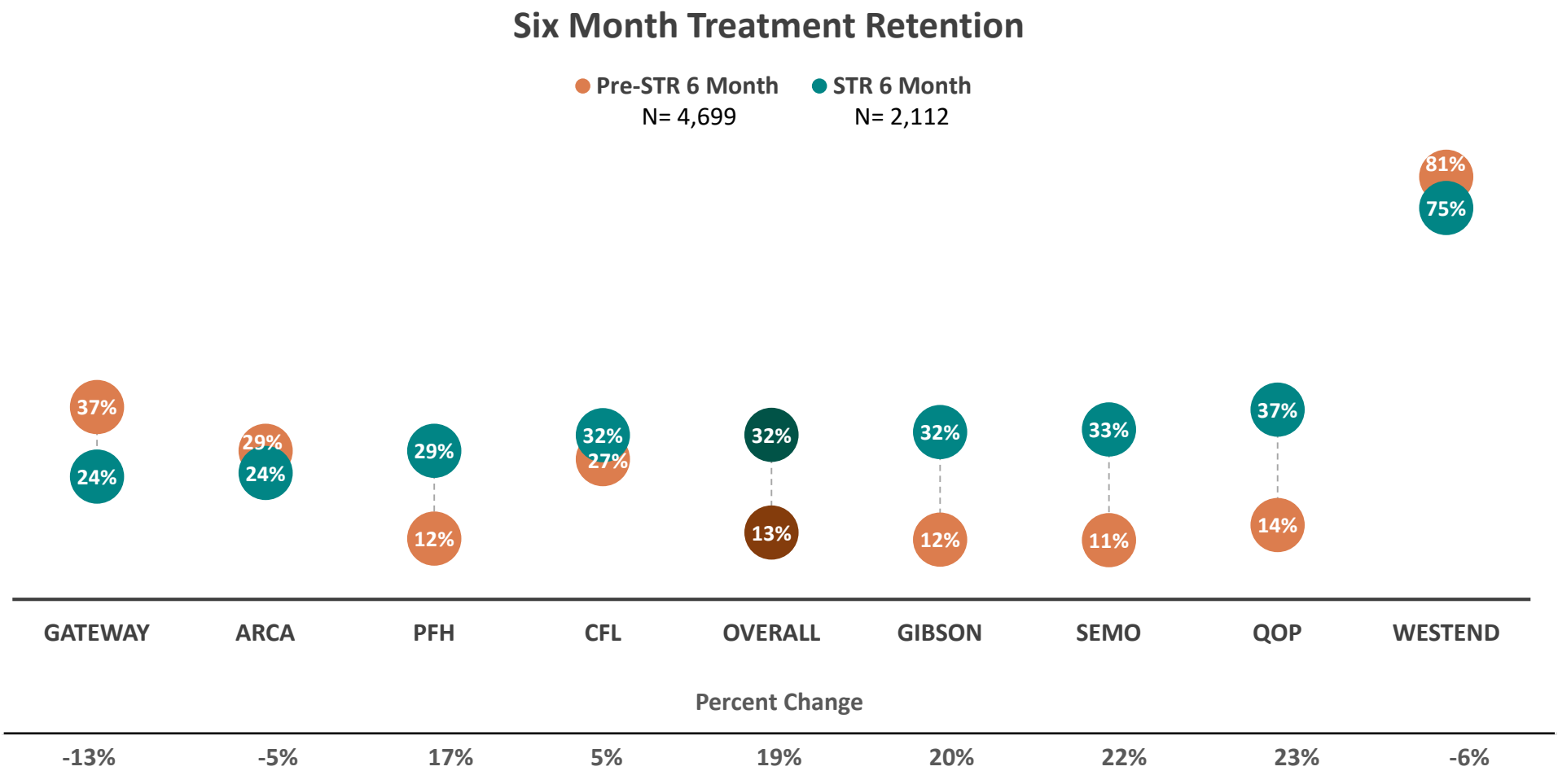
Three Month Treatment Retention by Treatment Agency



Overall three month treatment retention improved among STR agencies. West End Clinic had the highest retention rates relative both prior to and during STR. Gibson demonstrated the largest STR-associated improvements in retention at 3 months.

Note: STR agencies that had 12 or fewer EOCs during the first 12 months of STR were not graphed (Burrell, Comtrea, FCC, Heartland, New Beginnings, Phoenix, and Tri-County). BASIC, Ozark, Turning Point were not graphed due to low sample size.

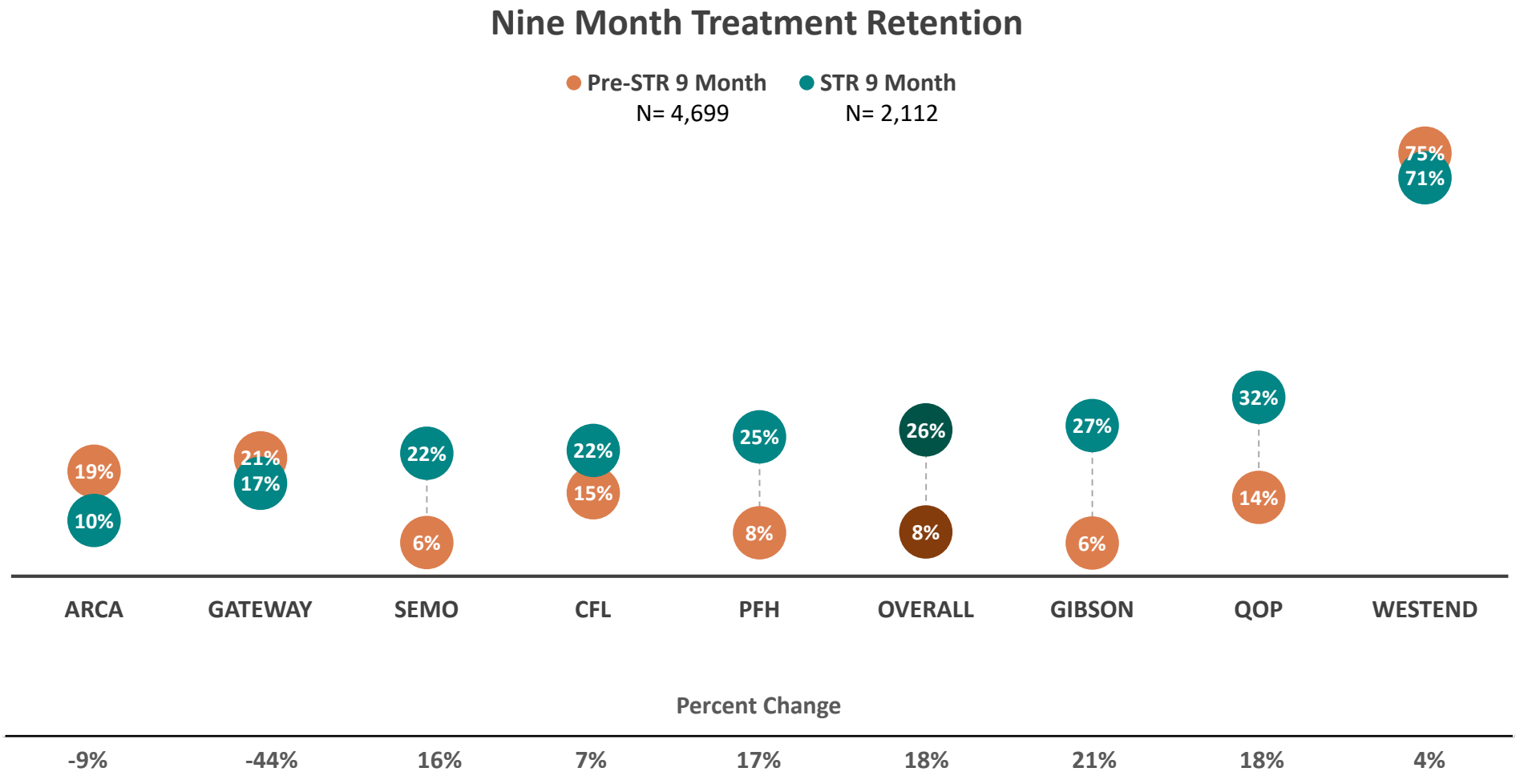
Six Month Treatment Retention by Treatment Agency



Overall six month treatment retention improved among STR agencies. West End Clinic had the highest retention rate both prior to and during STR.

Note: STR agencies that had 12 or fewer EOCs during the first 12 months of STR were not graphed (Burrell, Comtrea, FCC, Heartland, New Beginnings, Phoenix, and Tri-County). BASIC, Ozark, and Turning Point were not graphed due to low sample size.

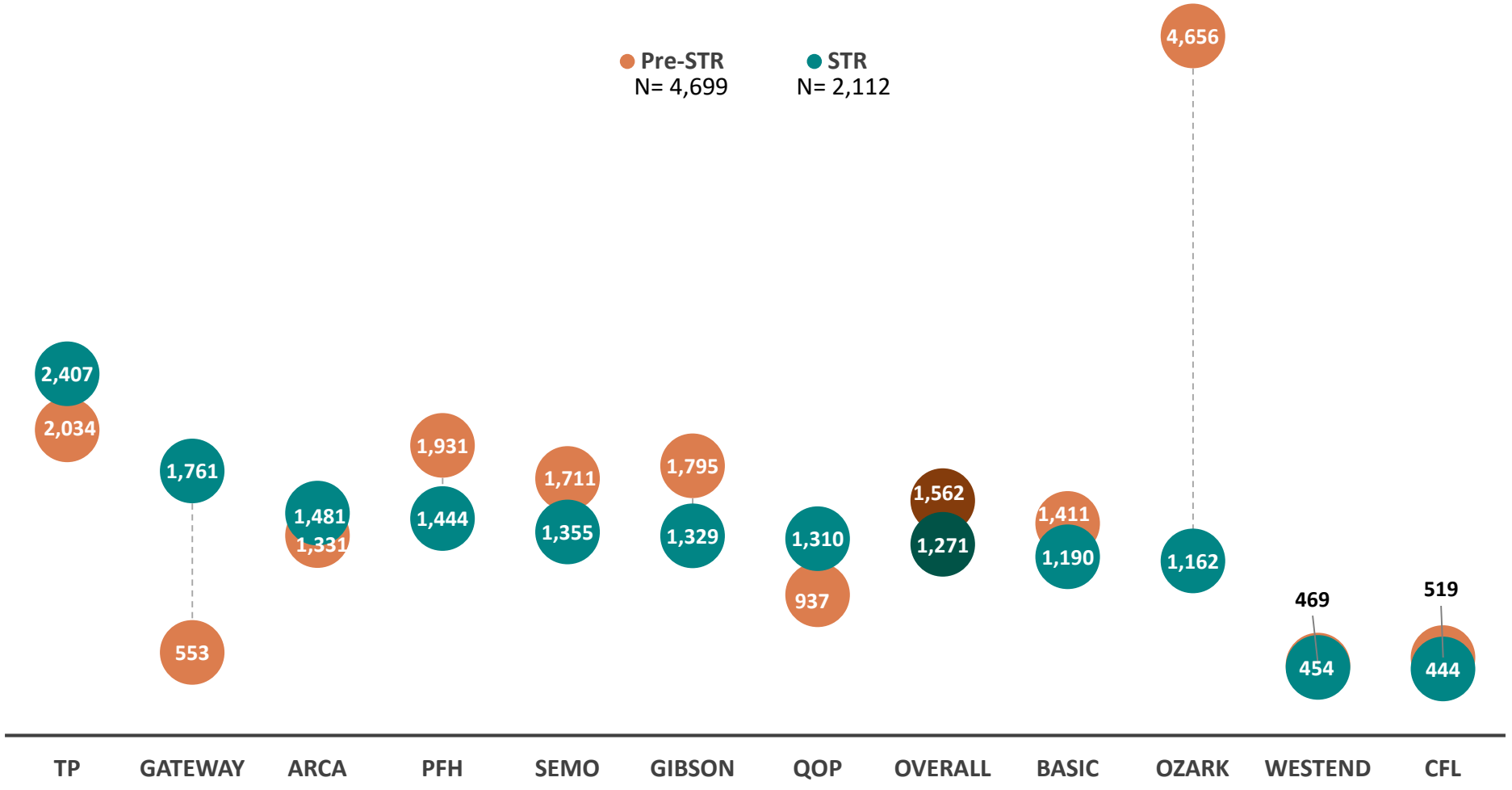
Nine Month Treatment Retention by Treatment Agency



Overall treatment retention improved among STR agencies at 9 months. West End Clinic had the highest retention rate both prior to and during STR.

Note: STR agencies that had 12 or fewer EOCs during the first 12 months of STR were not graphed (Burrell, Comtrea, FCC, Heartland, New Beginnings, Phoenix, and Tri-County). BASIC, Ozark, and Turning Point were not graphed due to low sample size.

Cost Per Month to the State for OUD Episodes Of Care by Treatment Agency ($)



The median cost to the state per month for treatment was lowest among OTPs. Reductions in the median monthly cost of treatment were evident across a majority of treatment agencies.

Note: Cost per month was calculated by dividing the total cost per EOC by the length of the treatment episode (the number of months in treatment). Across all agencies, 10 STR EOCs and 96 Pre-STR EOCs were excluded due to participation in the CCBHC bundled payment system rather than the fee-for-service model of payment. STR agencies that had 12 or fewer EOCs during the first 12 months of STR were not graphed (Burrell, Comtrea, FCC, Heartland, New Beginnings, Phoenix, and Tri-County). BASIC, Ozark, and Turning Point were not graphed due to low sample size.

Medication Tracker Data

Data from the Medication Tracker is assessed at the individual-level (not EOC-level).

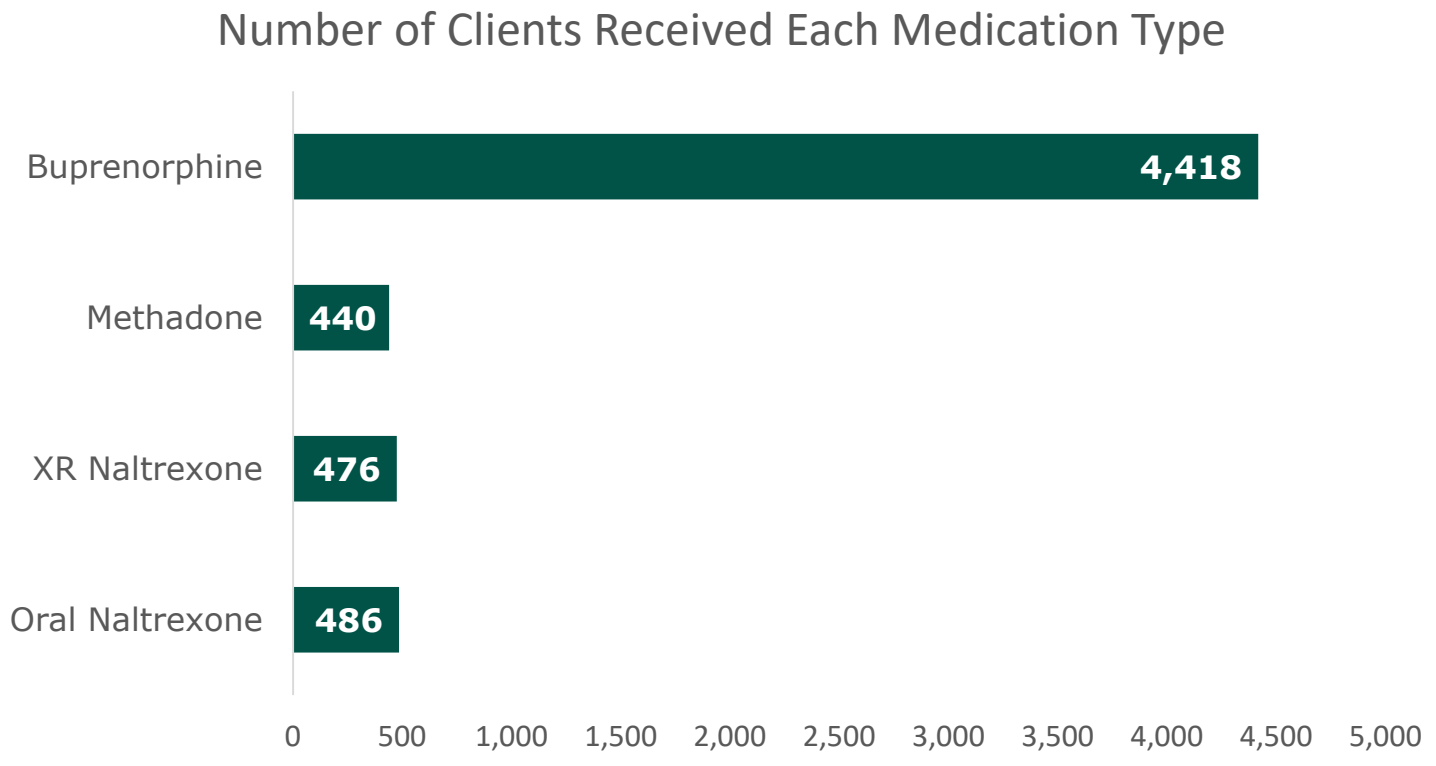
Data in this report include entries from July 2017 to February 2019.

Due to provider burden, medication tracking data collection was terminated as of February 2019.

Data from the medication tracking website should be interpreted with caution. There are several inconsistencies between the medication tracker data and the data obtained through CIMOR. Differences may be due to a number of things, including but not limited to delayed or incomplete data submission, site-specific differences in reporting and/or inaccurate data entry.

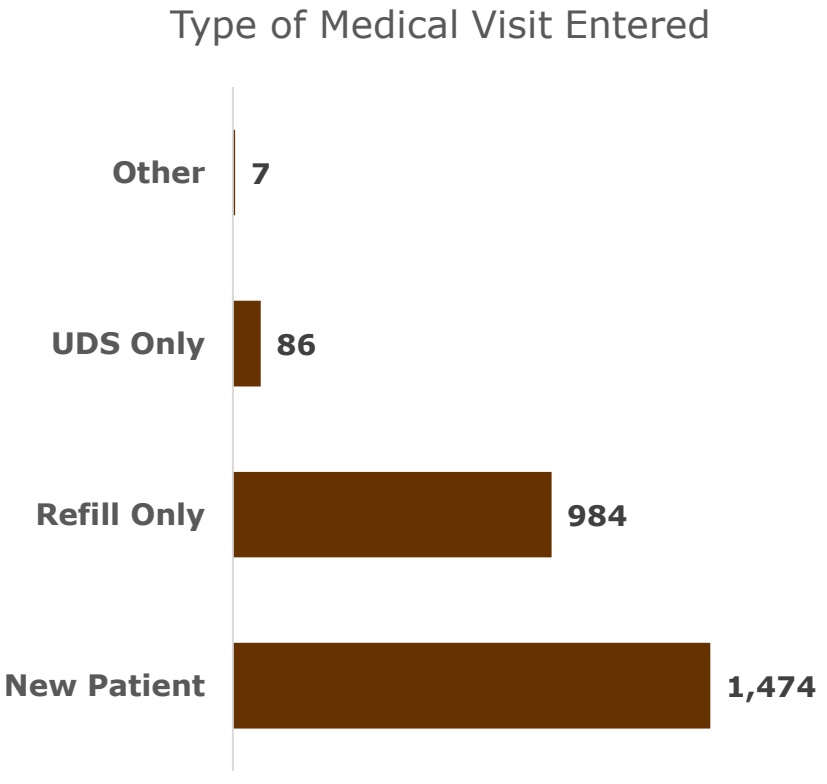
Medication Tracking Data
(May 2017 – February 2019)

Total Medical Visits Entered	22,416
Total Unique Individuals	4,024
Total Care Providers (both prescribers and nurses)	96



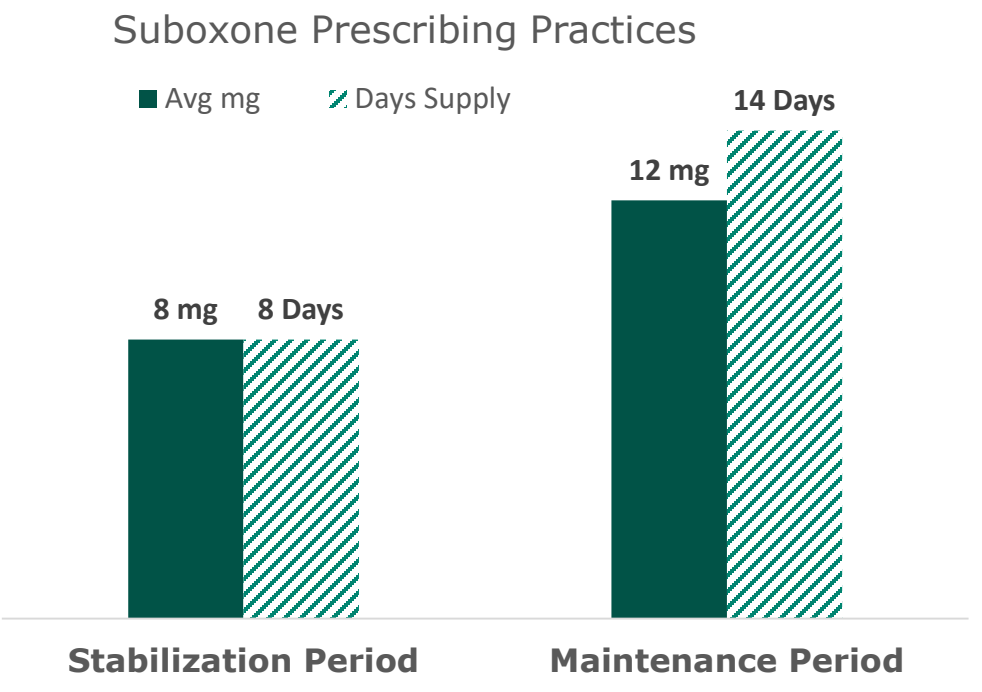
Note: Individuals are unduplicated within each category but may be duplicated across categories if they received more than one type of medication.

Medication Tracking Data
(May 2017 – February 2019)



A majority of the medical visits entered after the addition of this question involved follow-ups on existing clients. Few involved only a urine drug screen (UDS).

Note: The field for type of medication visit entered was added to the med tracker in August 2018. Therefore, the above figure only presents data captured after this field was added.

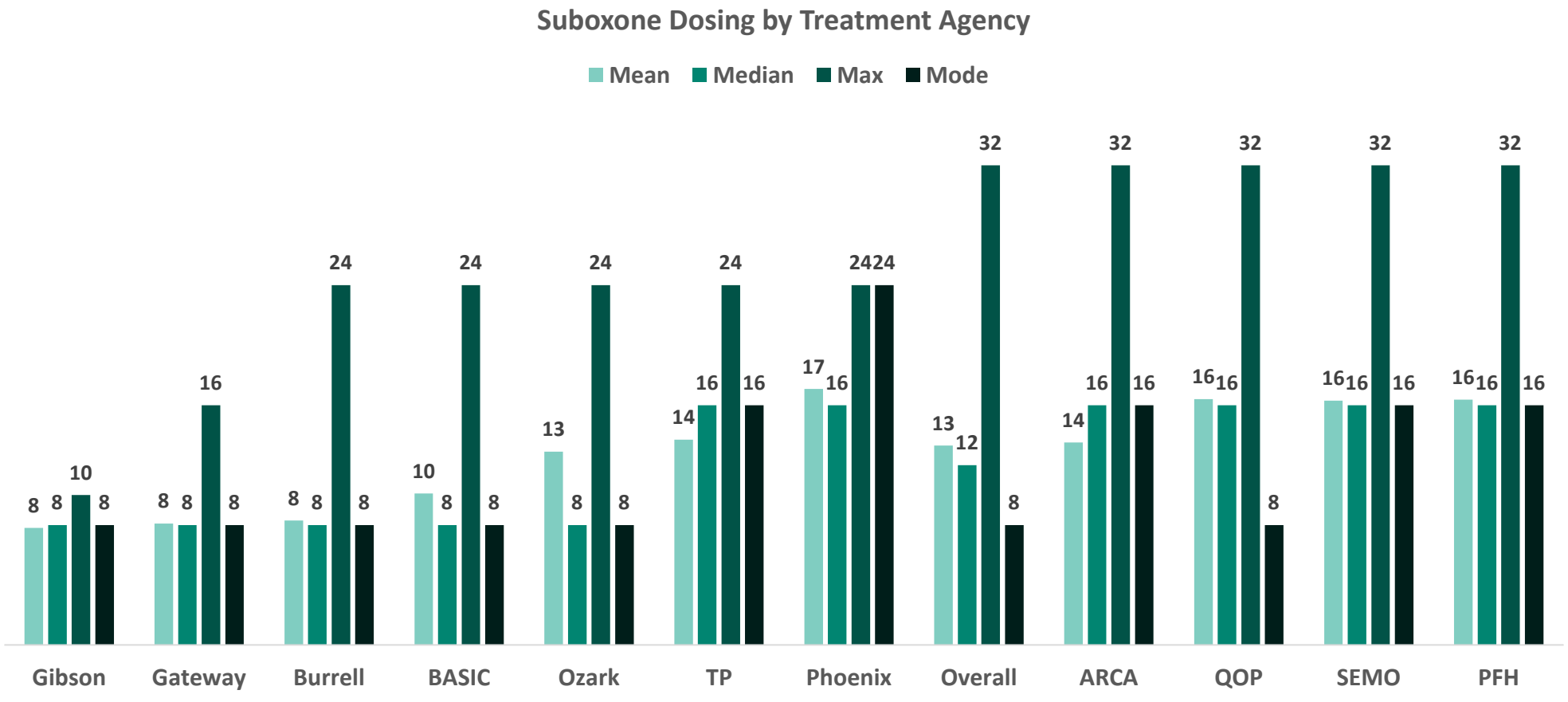


Both the days supply and dosage for Suboxone increased during the estimated stabilization period (defined as approximately one month).

NOTE: The stabilization dose was calculated as the average dose across the first 30 days of treatment (using the date of the prescription). This is an estimate as the stabilization period may vary across individuals (e.g., individuals who received a 14-day prescription followed by a 30-day prescription would have 45 days of dosing counted as part of the stabilization estimate). The maintenance dose was calculated as the average dose after the first 30 days (based on the prescription date).

Medication Tracking Data
(May 2017 – February 2019)

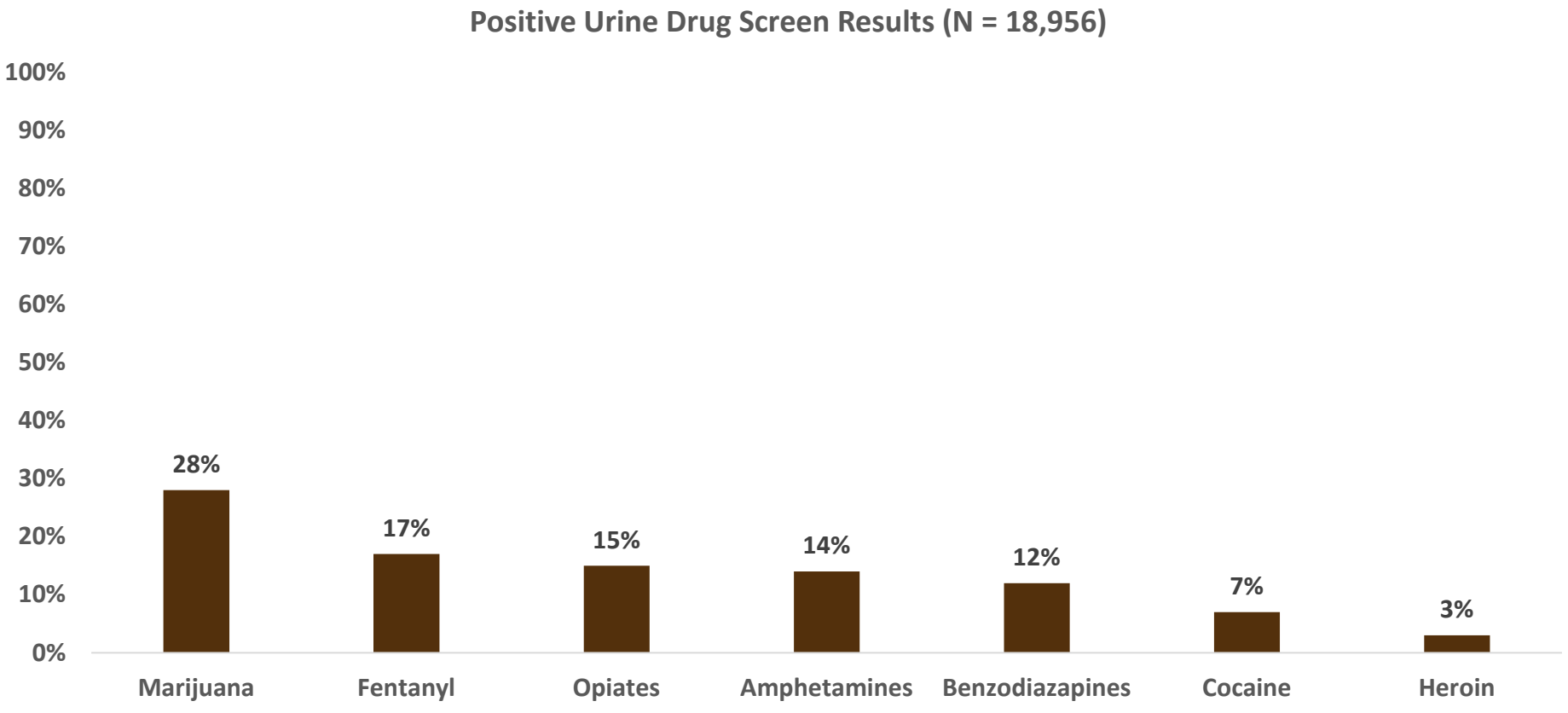
The highest mean, median, maximum, and mode Subxone dosing was among Preferred Family Healthcare and SEMO.



Note: Agencies with fewer than 20 individuals prescribed Suboxone were not graphed. National and global health agencies recommend therapeutic dosing for Suboxone range between 16mg and 24mg (SMAHSA, WHO).

Medication Tracking Data
(May 2017 – February 2019)

Marijuana was the most common substance among positive urine drug screens results (UDS). More UDS results were positive for fentanyl than for "opiates" or "heroin."



Glossary:

1. **Inclusion Criteria**: Data on individuals who were served at one or more of the 15 STR-funded SUD treatment agencies. Group comparisons were made between EOCs in which the individual was admitted to treatment in the year prior to STR implementation (i.e., during the DMH 2017 fiscal year, July 2016-June 2017) and STR EOCs in which the individual was admitted to STR-funded treatment during the 2018 fiscal year (July 2017 – June 2018). Consumers who had billable services as part of the MATPDOA program or who had pharmacy claims or paid services through Medicaid were excluded from the analyses to ensure the comparison group more closely aligned with "treatment as usual" for uninsured individuals at the treatment agencies in the year prior to STR implementation. Note: Fifteen months of services were assessed.
2. **Episode of Care:** New episodes of care were defined as a greater than 45-day consecutive gap in billable services. To be included as an STR EOC, clients must have been in STR for at least two weeks prior to transferring to a different program and must not have been in another program for more than two weeks prior to transferring in to the STR to be counted. EOCs must not have been co-enrolled in STR and another non-detox CSTAR program as we were unable to determine which guidelines were enacted in these EOCs.
3. **Agency:** Due to the manner in which EOCs were defined, individuals may be double counted in multiple agencies. Among the 15 STR funded agencies in the year prior to STR, only 8.3% of EOCs (388 of 4,699) occurred at more than 1 agency (excluding ARCA). Among STR EOCs only 6.1% of EOCs (128 of 2,112) occurred at more than 1 agency (excluding ARCA).
4. **Medication Categories:** Medication categories were grouped to create unduplicated categories. EOCs that included both antagonist and agonist medication were grouped into a unique category. EOCs that involved only agonist (or partial agonist) medications were grouped using a hierarchy methadone > buprenorphine. Therefore, EOCs classified as methadone may involve both buprenorphine and methadone, whereas EOCs classified as buprenorphine only involved buprenorphine. EOCs that involved only antagonist medications were grouped using a hierarchy XR naltrexone > oral naltrexone. Therefore, EOCs classified as XR naltrexone may involve both oral and XR naltrexone, whereas EOCs classified as oral naltrexone only involved oral naltrexone.
5. **Treatment Retention:** Treatment retention estimates are a function of people for whom engagement can be determined. Both lags in billing and the start date of an EOC play a role in how long treatment engagement can be assessed. Treatment retention at 6 months could be determined for 76% and 64% of Pre-STR and STR EOCs, respectively. Treatment retention at 9 months could be determined for 47% and 27% of Pre-STR and STR EOCs, respectively.
6. **Psychosocial services**: Defined using billable service codes that occurred within 30 days from the first billable treatment service and included individual counseling, group counseling, group education, family counseling, community support, case management, and peer support services. STR EOCs were excluded from any calculations involving and psychosocial services due to participation in the CCBHC bundled payment system rather than the fee-for-service model of payment.
7. **Cost of Treatment:** Cost per month to the state was calculated by dividing the total cost per EOC by the length of the treatment episode (i.e., the number of months in treatment). 10 STR EOCs and 96 Pre-STR EOCs were excluded from the calculation of cost due to participation in the CCBHC bundled payment system rather than the fee-for-service model of payment.
8. **Medication Access:** We compared how quickly an OUD treatment medication was prescribed (using the first billable service date and the date of the *first* billed OUD medication within an EOC) for STR EOCs relative to EOCs at the same agencies in the year prior.