Healthcare Utilization and Costs Associated with Management of Opioid Use Disorder (OUD) within Residential Treatment Programs (RTP) and Office-Based Opioid Treatment Programs (OBOT)

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Background

- Studies evaluating various treatment paths for patients with OUD are limited. It is important to understand the influence that the setting of OUD treatment has on the utilization of MOUD.
- OUD is associated with increased risk of mortality and has a major economic burden.[1,2]
- In 2020, 91,799 drug overdose deaths occurred in the United States (US), and the age-adjusted rate of overdose deaths increased by 31% from 2019 (21.6 per 100,000) to 2020 (28.3 per 100,000).[3]
- Medications for opioid use disorder (MOUD) and counseling are effective for OUD treatment and can improve mortality, treatment retention, and remission.[4-6]
- However, in the US, only 18.1% of persons who reported OUD in the past year received MOUD in 2020.[7]

Objectives

- Describe characteristics of patients starting MOUD treatment within Residential Treatment Programs (RTP) or Office-Based Opioid Treatment Programs (OBOT). Assess utilization and adherence to MOUD and evaluate all-cause and opioid-related healthcare resource utilization (HCRU) and costs.

Methods

- A retrospective longitudinal study was performed using IQVIA's PharMetrics Plus data. The study period was from March 1, 2018, through December 31, 2021.
- Study population:
  - Adult patients ≥18 years
  - An International Classification of Diseases, 10th Revision (ICD-10) diagnosis code for an opioid-related diagnosis identified between March 1, 2019 and December 31, 2020
  - Continuous enrollment in medical and pharmacy benefit ≥12 months pre-index and ≥12 months from post index
- The first Opioid Treatment Program (OTP) claim served as the index date.
- Patients with evidence of MOUD/Methadone or treatment within RTP, IOP, or OBOT 90 days prior to their index date were excluded
- Study cohorts:
  - RTP cohort: Patients who received opioid-related treatment within RTP, including RTP only, RTP to intensive outpatient program (IOP) or RTP to OBOT within 30 days
  - OBOT cohort: Patients who received opioid-related treatment within OBOT *only*
- Patient demographics and clinical characteristics were assessed during the 12-month baseline period and MOUD type and adherence, opioid-related HCRU and healthcare costs were assessed during the 12-month post-index period.
- Statistical significance was assessed using chi-squared tests for categorical variables and t-tests for continuous variables

Results

- 5,462 patients were included in the study.
- 4,990 patients were categorized into OBOT, and 472 patients into RTP settings.
- Mean age was significantly lower in RTP (36.7, SD:12.6) compared to OBOT (42.2, SD:12.4). (**Table 1**)

Results (cont)

- Patients were predominantly male (64.2% and 61.9%; P=0.3310) and resided in Southern geographical regions (52.3% and 47.0%; P=0.1033) for both RTP and OBOT treatment settings, respectively. (**Table 1**)
- Overall, RTP patients had higher rates of depressive disorders (36.7% vs 28.9%; P=0.0004), bipolar disorder (9.5% vs 6.8%; P=0.0248), non-opioid drug abuse/dependence (52.3% vs 36.0%; P<0.0001), alcohol use disorders (21.4% vs 11.5%; P<0.0001), generalized anxiety disorder (44.7% vs 39.4%; P=0.0234), and prior opioid overdose (4.0% vs 1.6%; P=0.0002). (**Table 2**)
- The RTP cohort had more inpatient admissions (17.8% vs 7.6%; P<0.0001), emergency room visits (9.1% vs 6.0%; P=0.007), and encounters for opioid overdose (4.0% vs 1.6%; P<0.0002) during the baseline period. (Data not shown)
- The OBOT cohort had more outpatient physician office visits (30.5% vs 13.6%; P<0.0001) and prior MOUD use (18.1% vs 10.0%; P<0.0001) compared to the RTP cohort during the baseline period. (Data not shown)

Table 1. *Baseline patient demographics*

	RTP (n=472)		OBOT (n=4,990)		P-Value
Age, in years (Mean, SD)	36.7	12.6	42.2	12.4	<.0001
Gender (N, %)					0.331
Male	303	64.20%	3,090	61.90%	
Female	169	35.80%	1,900	38.10%	
Geographic region (N, %)					0.1033
East	76	16.10%	841	16.90%	
Midwest	93	19.70%	1,131	22.70%	
South	247	52.30%	2,347	47.00%	
West	55	11.70%	669	13.40%	
Unknown	1	0.20%	2	0.00%	
Plan type (N, %)					<.0001
CDHP	5	1.10%	86	1.70%	
HMO	56	11.90%	1,097	22.00%	
Indemnity/Traditional	4	0.80%	39	0.80%	
PPO	377	79.90%	3,411	68.40%	
POS	30	6.40%	349	7.00%	
Unknown	0	0.00%	8	0.20%	

Table 2. *Baseline clinical characteristics of interest*

	RTP (n=472)		OBOT (n=4,990)		P-value
CCI (Mean, SD)	0.4	1.0	0.5	1.1	0.6283
Depressive disorders (N, %)	173	36.70%	1,444	28.90%	0.0004
Bipolar disorder (N, %)	45	9.50%	338	6.80%	0.0248
Non-opioid drug abuse/dependence (N, %)	247	52.30%	1,798	36.00%	<.0001
Alcohol use disorders (N, %)	101	21.40%	576	11.50%	<.0001
Generalized anxiety disorder (N, %)	211	44.70%	1,964	39.40%	0.0234
Prior opioid overdose (N, %)	19	4.00%	80	1.60%	0.0002
Low back/neck pain (N, %)	40	8.50%	572	11.50%	0.0491
Osteoarthritis (N, %)	25	5.30%	462	9.30%	0.0039

Figure 1. Baseline medication use

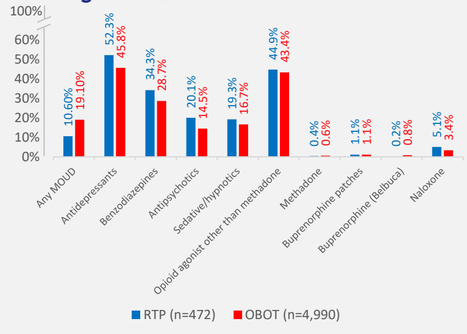


Figure 2. MOUD utilization post-index

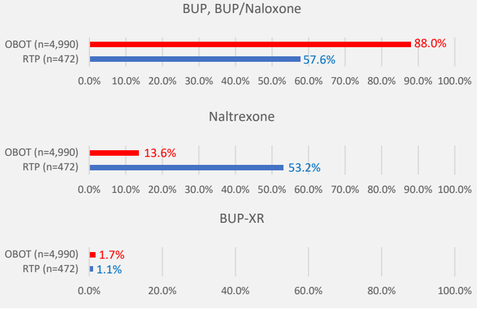
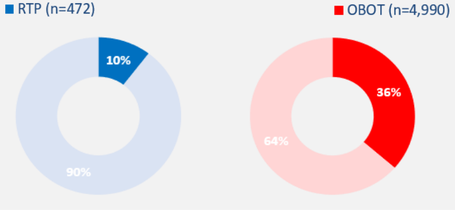


Figure 3. MOUD adherence ≥80% post-index

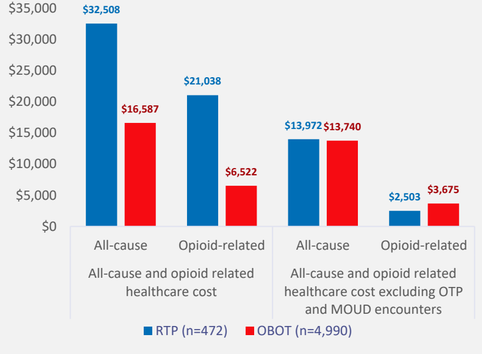


Results (cont.)

- Baseline medication use (**Figure 1**) and post-index MOUD utilization (**Figure 2**) / MOUD adherence (**Figure 3**) are presented.
- During the post-index period, rate of opioid overdose and opioid-related hospitalizations, emergency department visits, and outpatient non-physician office visits unrelated to opioid treatment programs were similar between the two cohorts. (Data not shown)
- Opioid overdose (2.5% vs 1.9%) and naloxone (0.4% vs 0.5%) related visits did not significantly differ by RTP and OBOT settings post-index. (Data not shown)
- Outpatient prescription opioid fills (23.9% vs 20.1%; P=0.0492) were significantly higher among patients receiving RTP while MOUD fills (90.3% vs 96.8%; P<0.0001) were higher among OBOT patients' post-index. (Data not shown)

*Prescription fills: Evidence of ≥1 pharmacy or medical claim, defined by Generic Product Identifier (GPI) Level 4 drug classes

Figure 4. Total mean healthcare costs (medical + pharmacy) post-index



Results (cont.)

- All-cause total costs ($32,508 vs $16,587; P<0.0001), differed significantly between the RTP and OBOT cohorts using all claim encounters. (**Figure 4**)
- In all-cause healthcare cost analyses using non-OTP/non-MOUD encounters, only non-physician office visits ($3,501 vs $2,493; P=0.0213) was higher among patients receiving RTP, suggesting the observed cohort differences were associated with encounters related to the opioid treatment program.
- Total costs ($2,503 vs $3,675; P=0.0014) were higher in the OBOT cohort for opioid-related cost analyses using non-OTP/non-MOUD encounters. (**Figure 4**)
- Outpatient prescription for MOUD were higher in the OBOT cohort ($673 vs $1,872; P<0.0001) and were the main driver for the observed difference.
- MOUD ($803 vs $333; P=0.0007) and psychotherapy service ($3,249 vs $297; P<0.0001) visit costs were higher for patients receiving RTP.

Limitations

- Biases associated with Magellan and Evernorth billing guidelines used to identify treatment programs (i.e., misclassification)
- Under-reporting of MOUD use in RTP settings
- Unobserved treatment completion occurring outside of the study period
- Limited data representation of non-commercially insured patients and those over 65 years of age
- Patients entering RTP or MOUD programs not receiving MOUD within 30 days of their index were excluded from the study
- Further comparison of HCRU and cost analyses were not conducted using adjusted cost models (i.e., generalized linear model), therefore, interpretations are regarded as descriptive in nature

Conclusions

- Differences exist between patients with OUD managed in RTP and OBOT treatment settings. While some outcomes were similar, cost was significantly lower in the OBOT setting and adherence was significantly higher for OBOT compared to RTP. Further study related to the value of care provided through RTP and OBOT treatment settings is warranted.

Acknowledgements

- This study was funded by Indivior. Writing and editorial support, funded by Indivior, were provided by Nicole Fusco of Xcenda LLC, and Jessica Jay and Meghan L. Thompson, PharmD, PhD of Indivior Inc.

Sponsorship

- This research was sponsored by Indivior Inc.

Disclosures

- Funding for this study was provided by Indivior, Inc. Courtney Flynn, William Mullen, and Sabrina Gaiazov are full-time employees for Indivior, Inc. Augustina Ogbonnaya, Eileen Farrelly are full-time employees for Xcenda.

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Presented at: BUPE2024, August 5th, 2024, Virtual Conference