Higher Buprenorphine Doses Improve Treatment Engagement and Outcomes in Opioid Use Disorder

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BACKGROUND

- Opioid use disorder (OUD) remains a leading cause of preventable morbidity and mortality in the United States.[1]
- Buprenorphine (BUP) is an effective first-line treatment for OUD, but early discontinuation and poor engagement are common.[2]
- Although clinical guidelines recommend individualized dosing; real-world BUP initiation practices vary widely.[3]
- Existing studies have typically evaluated BUP dose and treatment outcomes in isolation.[4]
- The role of early BUP dosing strategies in shaping treatment trajectories remains poorly characterized.

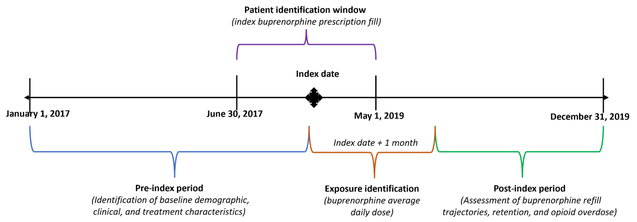
[1] CDC. Drug overdose deaths in the United States. https://www.cdc.gov/overdose/deaths
[2] Shulman M, Wai JM, Nunes EV. CNS Drugs. 2019;33(6):567-580.
[3] American Society of Addiction Medicine.. J Addict Med. 2020;14(2S Suppl 1):1–91.
[4] Chambers LC et. Al. . JAMA Netw Open. 2023;6(9):e2334540.

OBJECTIVES

To estimate the association of buprenorphine dose with adherence patterns, treatment retention, and opioid overdose risk

METHODS

❑ STUDY DESIGN



METHODS CONT'D

❑ STUDY MEASURES

Exposure: BUP dose
- Buprenorphine dose: Average daily dose categorized into:
  - Low (≥4 and <8 mg)
  - Medium (≥8 and <16 mg)
  - High (≥16 and <24 mg)
  - Very High (≥24 and ≤32 mg)

Outcome: Persistence
- Time from buprenorphine initiation to discontinuation. Discontinuation = treatment gap of ≥30 days

Outcome: Adherence trajectories
- Proportion of Days Covered (PDC)
- = (No. of days in period covered/No. of days in follow-up period) x 100
- Adherence = PDC≥80%

Outcome: Risk of opioid overdose
- Time to first opioid overdose (fatal or nonfatal) during follow-up (ICD-10 code: T40.0–T40.4)

❑ STATISTICAL ANALYSES

- Adherence over six consecutive 30-day intervals was evaluated using group-based trajectory modeling (GBTM)
- Treatment retention was assessed using Kaplan–Meier methods and restricted mean survival time (RMST)
- Opioid overdose risk was estimated using IPTW-weighted survival models adjusting for baseline covariates
- Covariate balance was assessed using absolute standardized mean differences (ASMD <0.10)
- Statistical Software: SAS 9.4 (SAS Institute Inc., Cary, NC)

RESULTS

Table 1. Cohort Characteristics

Characteristic	Low dose	Moderate dose	High dose	Very high dose
Dose category	4-<8 mg	8-<16 mg	16-<24 mg	24-32 mg
N (%)	1,727 (33.8)	2,033 (39.8)	614 (12.0)	733 (14.4)
Age, mean (SD), yrs	39.5 (12.8)	38.7 (12.4)	35.9 (11.9)	34.9 (11.7)
Male, %	37.4	37.0	38.1	39.6
Chronic pain, %	17.3	15.1	12.7	11.9
Baseline hospitalization, %	14.0	15.4	15.6	22.1
≤15-day initial supply, %	22.8	54.4	79.0	91.1
Antidepressant use, %	59.8	54.2	31.3	24.6
Chronic pain, %	17.3	15.1	12.7	11.9

Fig. 2: Time to Buprenorphine Discontinuation by Dose

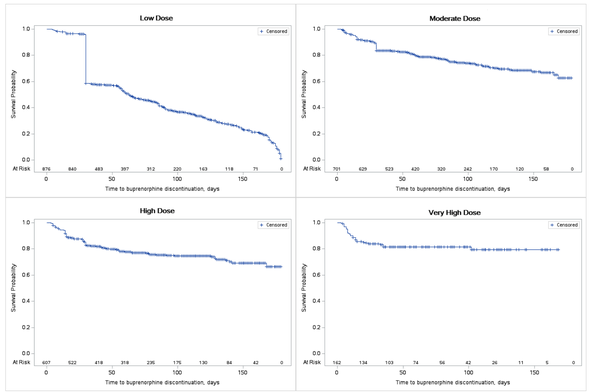
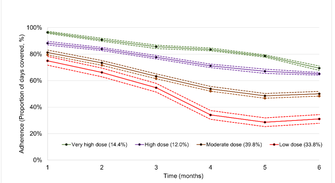


Fig. 3: Adherence Trajectories by Buprenorphine Dose



Higher doses was correlated with prolonged treatment retention (Fig. 2) more stable adherence (Fig. 3).

Three distinct adherence patterns identified within each dose group (Fig. 4)

Increasing dose was associated with lower opioid overdose risk. (Table 2)

Fig. 4: Adherence Trajectories Within BUP Dose Groups

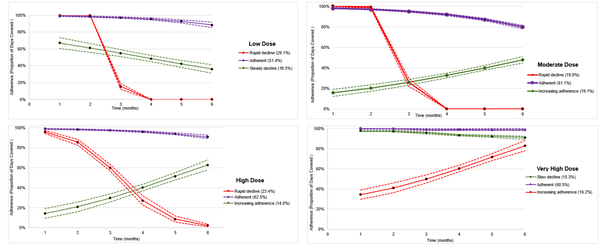


Table 2: Association Between Dose and Overdose Risk

Dose category	HR (95% CI)
Low dose (4 to <8mg)	Reference group
Moderate dose (8 to <16 mg)	0.94 (0.90 – 0.98)
High dose (16 to <24 mg)	0.68 (0.57 – 0.79)
Very high dose (24 to 32 mg)	0.43 (0.31 – 0.56)

CONCLUSIONS

- Buprenorphine dosing during early treatment for OUD is a meaningful marker of subsequent engagement and safety
- Findings underscore the importance of aligning real-world practice with guideline-concordant dosing