**Title:** Impact of Medication Assisted Treatment on Methamphetamine Use Disorder Outcomes

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**Purpose/Background:** Methamphetamine, a CNS stimulant, is now the second most commonly misused illicit substance. High rates of co-occurring substance misuse have been reported with methamphetamine, including prescription opioids (40.4%), heroin (16.9%), and binge drinking of alcohol (46.4%). Currently, there are no FDA approved maintenance medications for Methamphetamine Use Disorder (MUD). Behavioral therapy is the only treatment to date to consistently demonstrate reduced substance use in MUD. However, despite the high rates of concomitant substance use, there are very few studies that examine the effect of treating the co-occurring substance use disorder on MUD outcomes, or the effect of medication assisted treatment (MAT) on MUD outcomes.

**Objective:** This project aims to assess the impact of providing medication assisted treatment (MAT) to patients with methamphetamine use disorder and concomitant alcohol use disorder (AUD) or opioid use disorder (OUD).

**Methods:** A retrospective chart review was completed for all patients at the Richmond VA Medical Center with diagnosis codes for MUD and OUD or AUD between the dates of July 1, 2019 and July 1, 2021. Patients who completed <5 urine drug screens (UDS) during the review period and those who received a prescription for a stimulant were excluded. Chart review was conducted to determine if the patient had received a trial of MAT, defined as a prescription for naltrexone, topiramate, acamprosate, buprenorphine, buprenorphine/naloxone, or methadone. Chart review was also completed to determine if the patient was enrolled in at least one session of behavioral therapy and reviewed for severity of MUD over the study period as assessed by the provider. Data was analyzed for prescribing trends and reduction in overall number of UDS positive for amphetamines using Chi Square analysis for the primary outcome and descriptive analyses for secondary outcomes.

**Results:** 163 patients were initially identified via review of diagnosis codes; 89 were excluded due to completing <5 UDSs during the study period, and 2 were excluded for prescriptions for an amphetamine; retrospectively, UDSs completed while enrolled in the facility’s inpatient Substance Use Treatment Program for an additional 19 patients were excluded. This review found no statistically significant difference in the primary outcome, positivity of UDSs for amphetamines while receiving MAT vs no MAT. No difference was found in secondary analyses of UDSs positive for amphetamines between patients with comorbid OUD vs AUD vs OUD and AUD or in sub-analysis of difference between MAT therapies. Severity of MUD was updated for only 17% of patients during 2-year review period, and 10% did not have severity documented. Engagement in behavioral therapy was the only intervention noted to reduce positivity of UDS for amphetamines, and this result was statistically significant with p=0.0002 via Chi Square analysis.

**Conclusion:** The results suggest use of MAT in patients with polysubstance use disorders does not significantly impact methamphetamine use, which is consistent with previously published literature. The only intervention that has consistently demonstrated benefit in reduction of methamphetamine use is behavioral therapy, as was also demonstrated with the results of this review. Pharmacists can help provide education on the importance of behavioral interventions and assessing methamphetamine use at provider appointments.