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Stable Methadone Dose, Toxicology & Treatment Retention in New Jersey MAT

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Methadone has been the principal medication for Medication Assisted Treatment (MAT) used to treat opioid use disorder for 50 years. Methadone reduces craving for opioids, decreases withdrawal symptoms from opioid use, blunts the rewarding effects of opioids, and has been shown to reduce illicit opioid use and overdose deaths. Federal and ASAM methadone induction and stabilization guidelines reflect the slow onset and long duration of methadone pharmacology, and overdose risk during induction associated with patient behavioral and medical characteristics, and concomitant medication and substance use. Nevertheless, mean maintenance doses have increased over time; some dose variation is based on social determinants of health and clinic characteristics. There is limited information regarding the methadone dose that MAT patients become maintained and stabilized on, as well as what methadone dose is associated with optimal treatment outcomes. The current study sought to address these gaps by assessing methadone dose longitudinally and pairing that with data on treatment outcomes and patient characteristics.

In a retrospective and prospective observational study of New Jersey MAT patients from four clinics, we examined patient characteristics, dose and treatment adherence among patients solely prescribed methadone, who were on maintenance treatment, achieved a stable dose (+/- 20%) for a four-week period, and had treatment data for at least 3 months (N=295). The Rutgers IRB approved the protocol, written consent and survey; patients gave consent for a clinical interview, electronic medical record and state registry data retrieval. Patient demographics, drug use, urine toxicology, dose, treatment episode data and disposition (drop-out, death, or transfer vs retention in treatment) were extracted. We characterized stable maintenance doses, and explored associations of dose with demographics, clinical site and treatment outcomes.

Most patients were older (>44 years), female, and with BMI>25. Ethnicity was highly diverse. Most patients were alive, over one-third of patients remained in treatment, while substantial fractions left treatment (drop-out > death > transfer) before study end. The number of years in treatment (9 (8) years) and dose observed (5 (3) years) differed (Wilcoxon $p < .05$, 2-sided) by clinic and patient disposition. The longest stable dose (M (SD) 88 (36) mg) differed by clinic, ethnicity and patient disposition. Opioid drug screens (17% (26%) positive) differed by clinic and patient disposition (drop-out). The number of treatment episodes differed by patient disposition (drop-out). Dose was associated (proportional hazards, $p < .01$) with retention in treatment.

In a clinic-based study of New Jersey patients with long-term MAT, we observed differences in stable dose, toxicology and years of treatment due to social determinants of health and patient treatment engagement. Gender did not distinguish dose or adherence (toxicology or disposition) to MAT treatment. Supporting MAT patients, especially those with social determinants of health related to reduced methadone dose and treatment stability, may improve MAT adherence and patient outcomes. Induction and stabilization prescribing guidelines face new challenges due to synthetic opioid use; additional prevention strategies, anti-fentanyl therapies and research tools (pharmacogenomics) are needed to support MAT to overcome these challenges.