Evaluating the Effectiveness of Medication-Assisted Therapy in Individuals with Opioid Use Disorder- An Integrative Review

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Objectives

- Highlight the prevalence and impact of Opioid Use Disorder (OUD)
- Evaluate the comparative effectiveness of medication-assisted therapies (MAT) — **including methadone, buprenorphine/ naloxone (suboxone), and naltrexone**.
- Provide evidence-based recommendation for providers to improve patient outcome.

Background & Significance

OUD is a chronic and complex condition affecting individuals of all ages. Since 1999, drug overdoses have caused over 932,000 deaths in the U.S., with 69,000 opioid-related deaths reported in 2020 alone, 82% involving synthetic opioids. The economic burden is substantial, with opioid overdose hospitalizations costing $700 million annually from 2001-2012. Despite effective treatments, a significant gap remains: In 2021, only 1 in 5 adults with OUD received MAT.

Clinical Question

In adults diagnosed with OUD (Population), does MAT such as buprenorphine, suboxone or naltrexone treatment (Intervention) result in a greater reduction in opioid use (Outcome) when compared to methadone treatment (Comparison)?
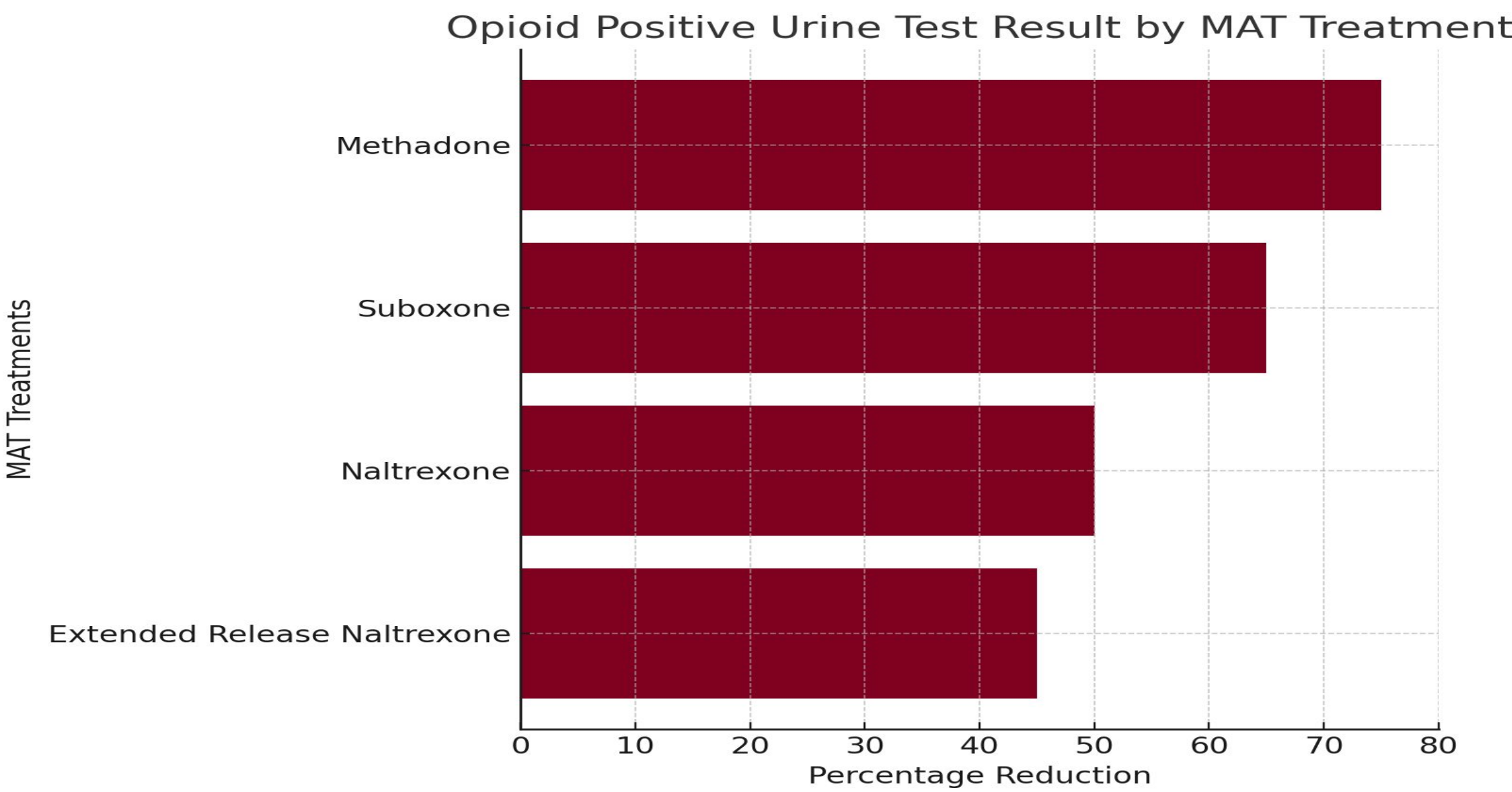
Methods

- **Design** Integrative review of quantitative studies.
- **Search Strategy:** Systematic search of PubMed, CINAHL, and Embase databases.
- **Inclusion/Exclusion Criteria:** Inclusion: Studies comparing methadone and buprenorphine (or Suboxone), adult populations, and urinalysis outcomes. Exclusion: Articles with no urinalysis outcome measure.
- **Critical Appraisal Tool:** Joanna Briggs Institute (JBI).
- **Synthesis:** Urine test results from nine studies with 4,014 participants were synthesized to evaluate the efficacy of medication-assisted therapy.

MAT Synthesis Results

Study	Medication Comparison	"Clean" Opioid Urine Tests	Conclusion
Piralishvili et al., 2015	Suboxone vs Methadone	Suboxone: 0.2%; Methadone: 1.5%	Suboxone was superior in reducing opioid-positive tests compared to methadone.
Bizzarri et al., 2016	Suboxone vs Methadone (HRT/OAT)	Suboxone had higher clean urine rates for heroin and cocaine in both HRT and OAT groups.	Suboxone showed better effectiveness in achieving clean urine results compared to Methadone.
Hser et al., 2016	Buprenorphine vs Methadone	Buprenorphine showed higher heroin and opioid use (21–30 days range) compared to Methadone.	Methadone outperformed Buprenorphine in reducing opioid-positive urine tests in prolonged use scenarios.
Bakouni et al., 2023	Suboxone vs Methadone	Suboxone: 68.32%; Methadone: 76.62%	Suboxone was more effective in reducing opioid-positive urine tests compared to methadone.
Mokri et al., 2016	Naltrexone vs Buprenorphine	Naltrexone (Opium): 9.0%; Buprenorphine (Opium): 17.1%	Naltrexone showed better results in reducing opioid-positive tests for opium users compared to buprenorphine.
Ling et al., 2016	XR-NXT vs Suboxone	XR-NXT: 54.6% opioid-negative at 3-month follow-up; Suboxone: 50.9% at 3 months.	Extended-Release Naltrexone demonstrated slightly better opioid-negative results compared to Suboxone.
Ling et al., 2020	Long-acting Buprenorphine	Pre-trial opioid-negative tests: 14.1%; Post-trial (12-month visit): 56.9%.	Long-acting buprenorphine significantly improved opioid-negative test rates after treatment.
Lee et al., 2018	XR-NXT vs Buprenorphine	XR-NXT had significantly higher weekly opioid-negative urine results compared to buprenorphine.	Extended-Release naltrexone outperformed buprenorphine in reducing opioid-positive results over time.

Findings

Opioid Positive Urine Test Result by MAT Treatment

Methadone: 76.62% positive urine test result
Suboxone: 68.32% opioid positive urine test result
Naltrexone: 50.5% opioid positive urine test result
Extended-Release naltrexone: 45.4% opioid positive urine test result

Conclusion

- All MAT treatment effectively reduced opioid use amongst adults with OUD.
- **Suboxone resulted in fewer opioid-positive urine analysis** when compared to methadone.
- Extended-release naltrexone and high-dose treatments of these medications demonstrated potential for effectively treating OUD.
- Long-acting buprenorphine also showed effectiveness over time.

Recommendations

- MAT treatment should be based on patient needs, preferences, and goals.
- Adjust methadone and Suboxone dosages to get the best results while minimizing side effects.
- Patient should be provided with better education and support to improve treatment commitment and success rates.

References