



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

Courtney Ekhtator, SRNA
Abduljabar Calfos, SRNA

Faculty Advisors: Stephen A. Flaherty, CRNA PhD
Pamela Chambers, DNP, EJD, MSN, CRNA, CPPS, FAANA



Presenters



Abduljabar Calfos



Courtney Ekhaton



Presentation Objectives

- Discuss the prevalence and impact of Opioid use disorder (OUD), emphasizing the need for effective treatment strategies such as Medication assisted Therapy (MAT).
- Evaluate the comparative effectiveness of MAT — (Methadone, Buprenorphine/naloxone, and Naltrexone).
- Provide evidence-based recommendation for providers to improve patient outcome.

Our Why?



- ❑ To address the opioid crisis as a critical public health challenge.
- ❑ To provide evidence-based guidance on effective treatment options for OUD.
- ❑ To improve patient outcomes and reduce opioid-related harm.
- ❑ To contribute meaningful change in clinical practice and healthcare delivery.

Significance

Scale of the Problem:

- Over **932,000 deaths** from drug overdoses in the U.S. since 1999.
- In 2020, **69,000 opioid-related deaths**, with **82% involving synthetic opioids** (CDC, 2023).
- Overdose deaths involving opioids decreased from an estimated 84,181 in 2022 to 81,083 in 2023.
- In 2021, more than 46 million Americans aged 12 and older had a substance use disorder (SUD), with only 6% receiving SUD treatment.

Economic Impact:

- Opioid overdose hospitalizations cost **\$700 million annually** between 2001-2012 (Stoicea et al., 2019).

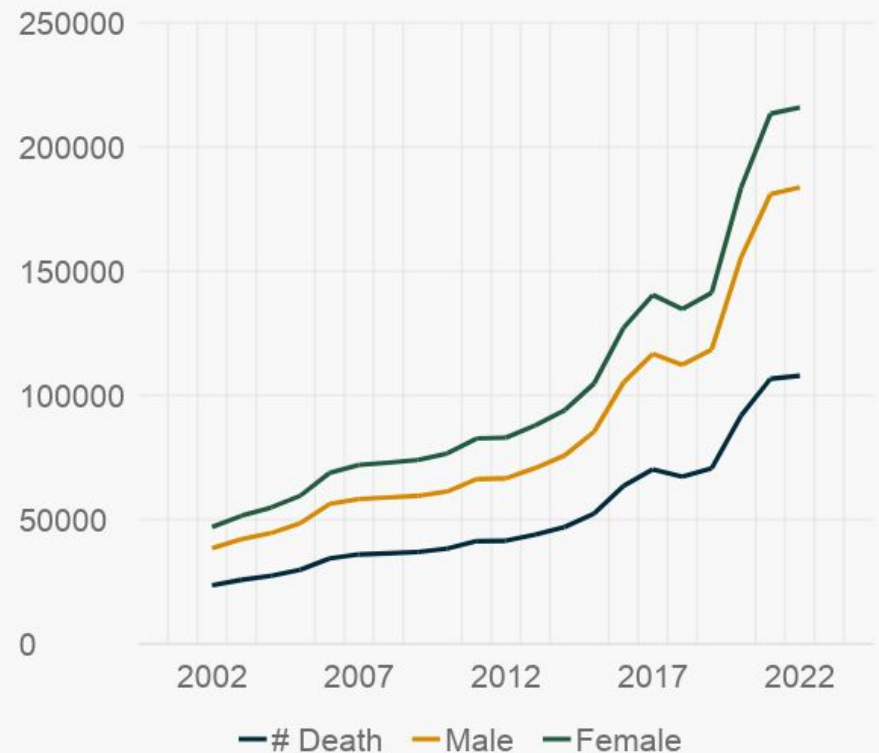
Treatment Gap:

- In 2021, only **1 in 5 adults with OUD** received medication-assisted treatment (NIDA, 2023).

Clinical Evidence:

- Methadone, Buprenorphine/Naloxone, and Naltrexone show significant reductions in opioid use and improved treatment retention.

**Drug Overdose Death Chart
2002-2022**



WHAT IS MAT?

MAT is the use of US Food and Drug Administration (FDA)- approved medications for the treatment of substance use disorder, in combination with counseling and behavioral therapies to provide a “whole-patient” approach for sustained recovery.

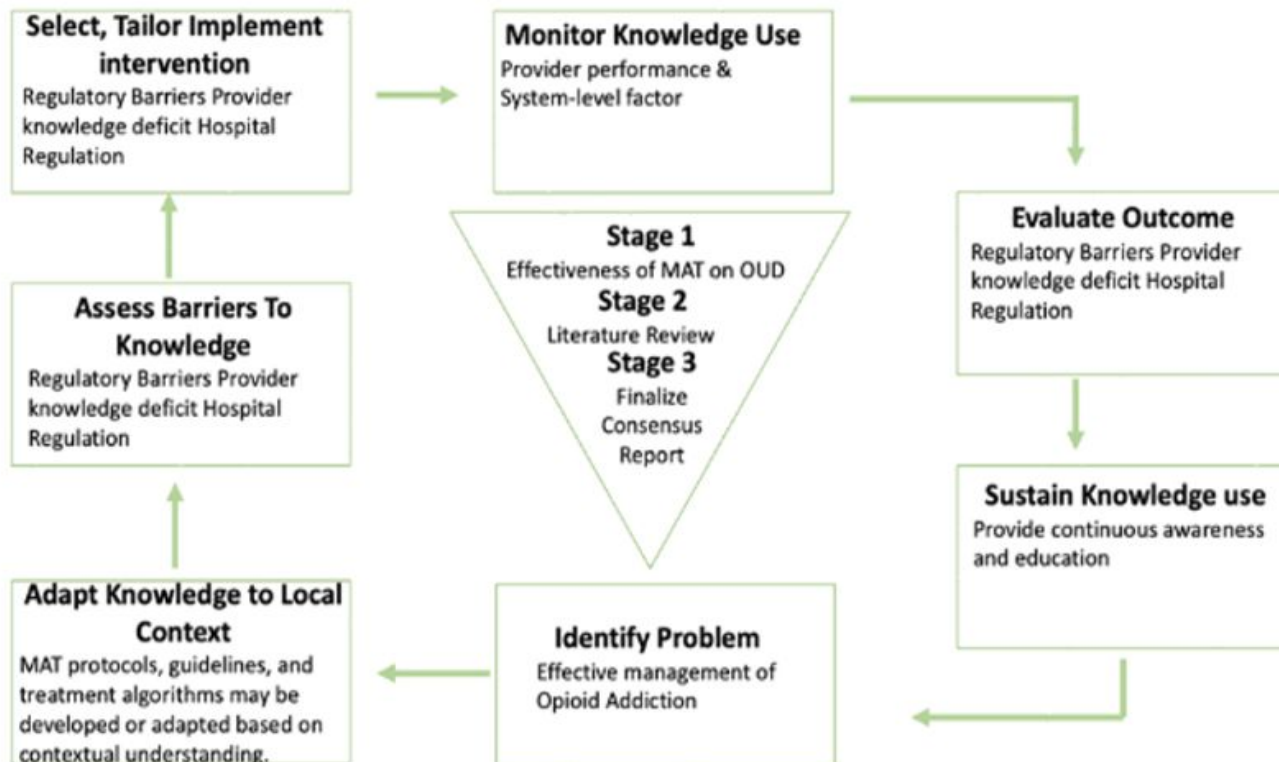
Approved MAT include:

- ❑ Methadone
- ❑ Buprenorphine
- ❑ Naltrexone

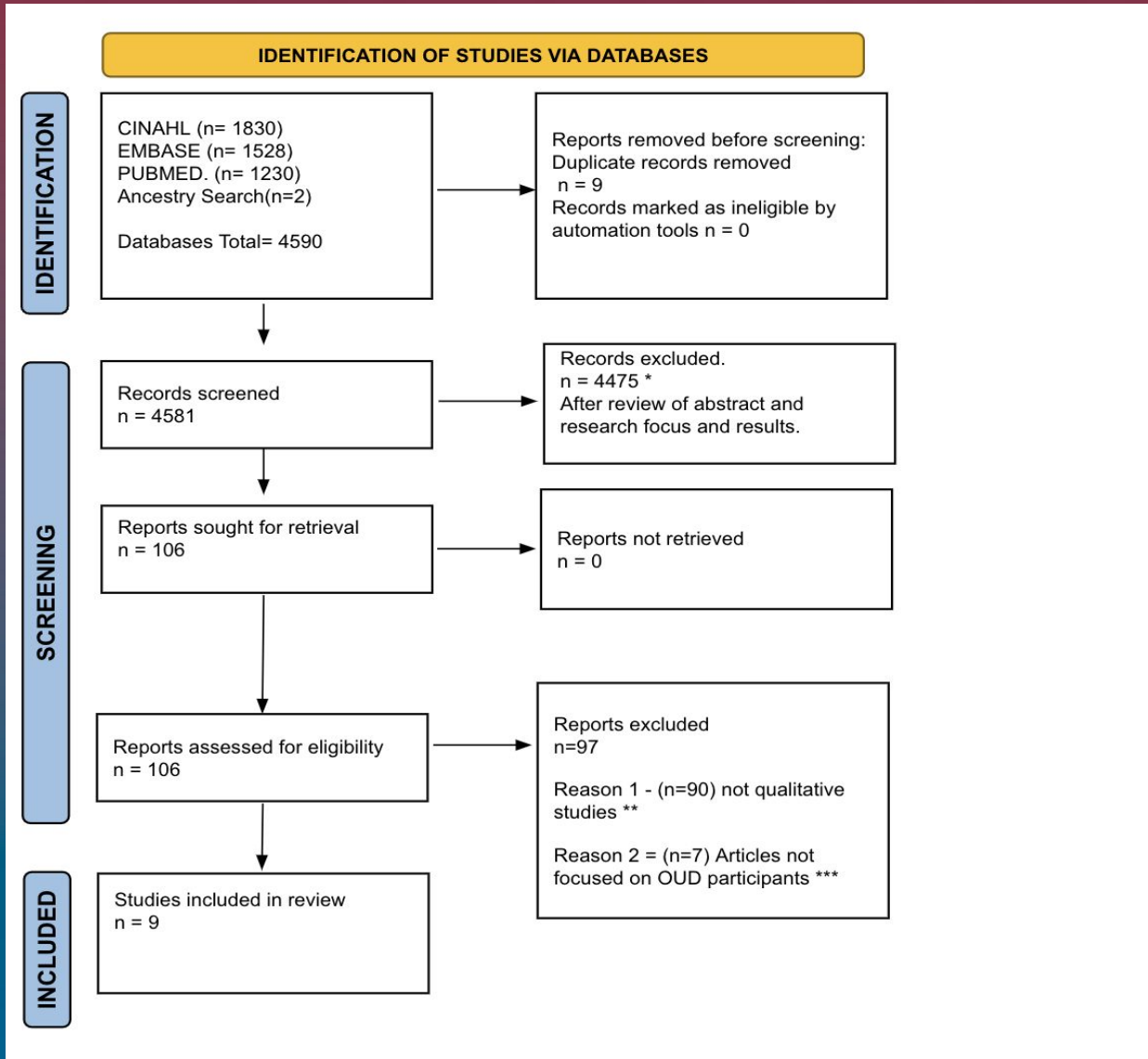
CLINICAL QUESTION

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

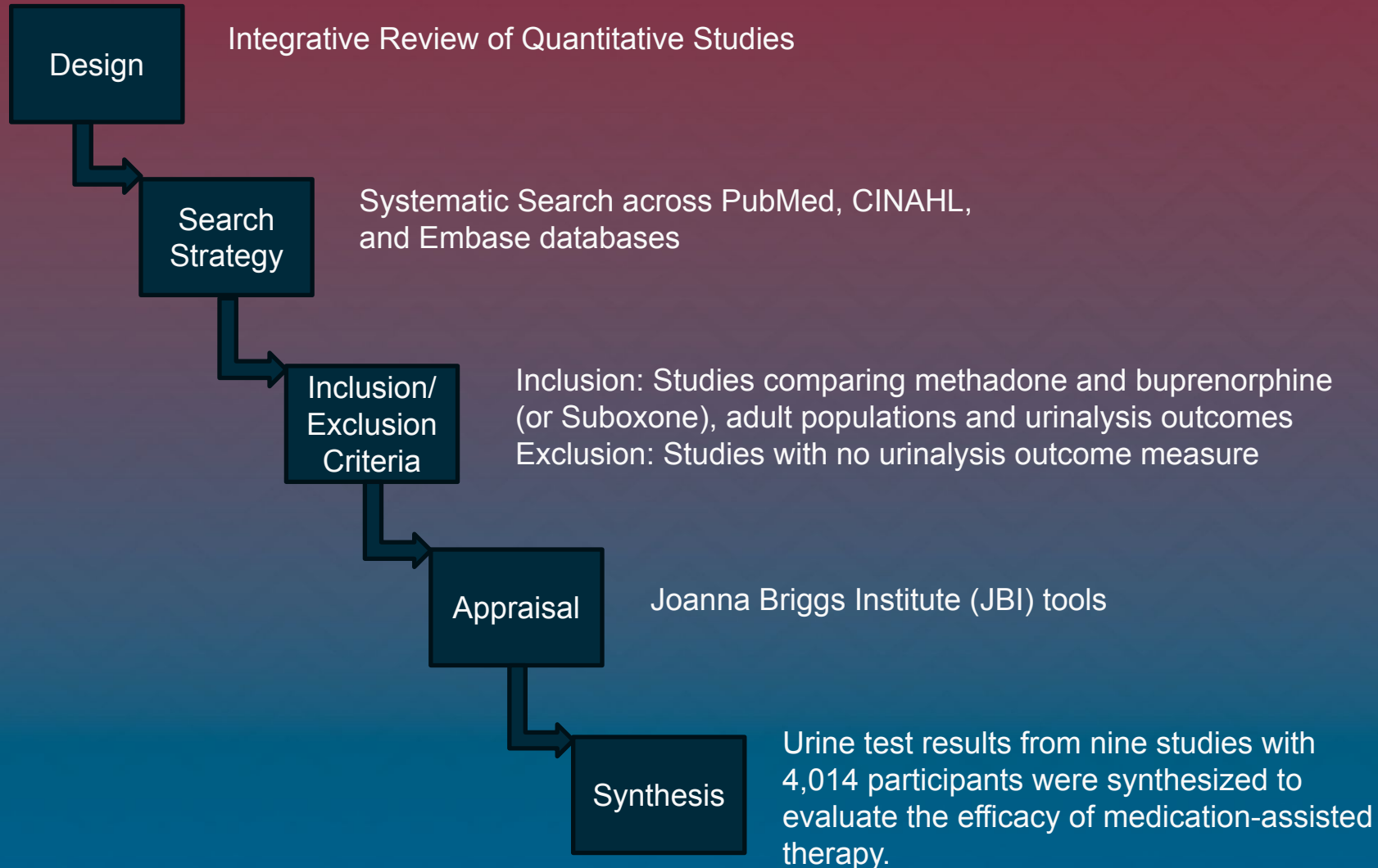
Knowledge to Action Framework



Preferred Reporting Items for Systematic Reviews and Meta-Analysis



Methods



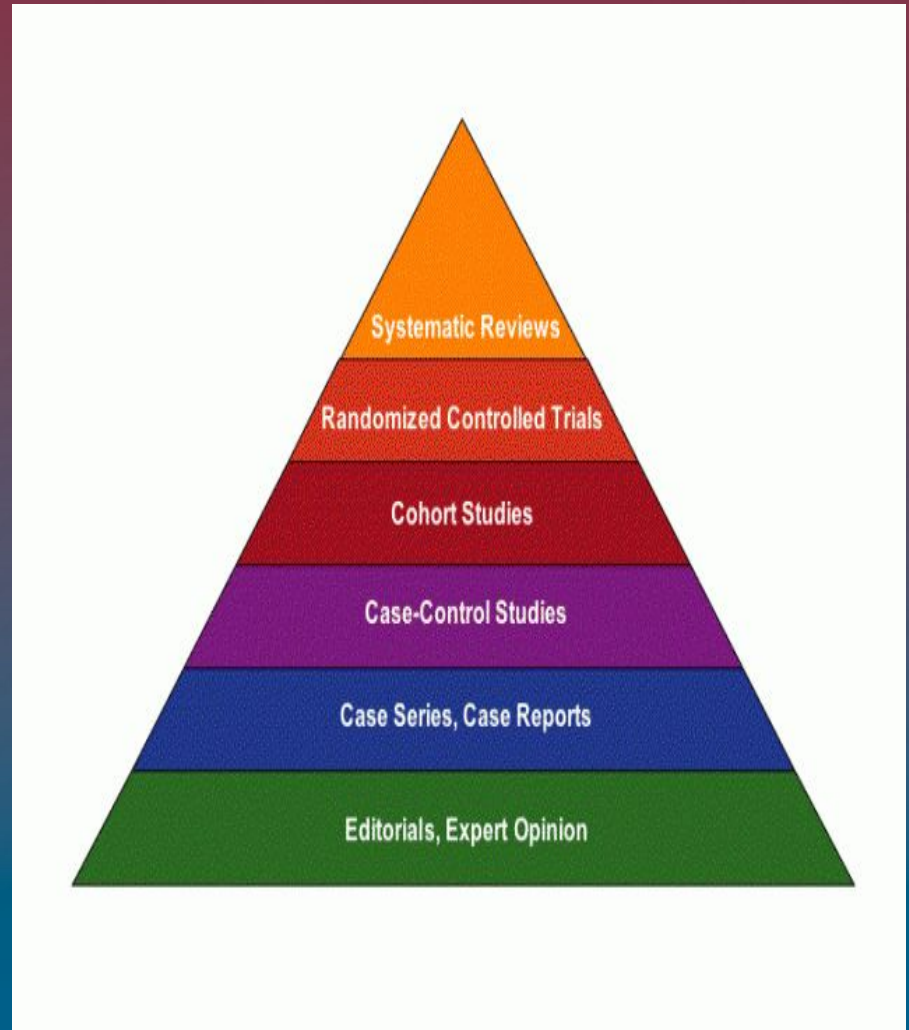
Evaluating Research Quality

- **Joanna Briggs Institute (JBI) Critical Appraisal Tools:**

- Assessed studies for internal validity and risk of bias
- Focused on methodology, sample size, and outcome measures.

Type of Primary Research Included:

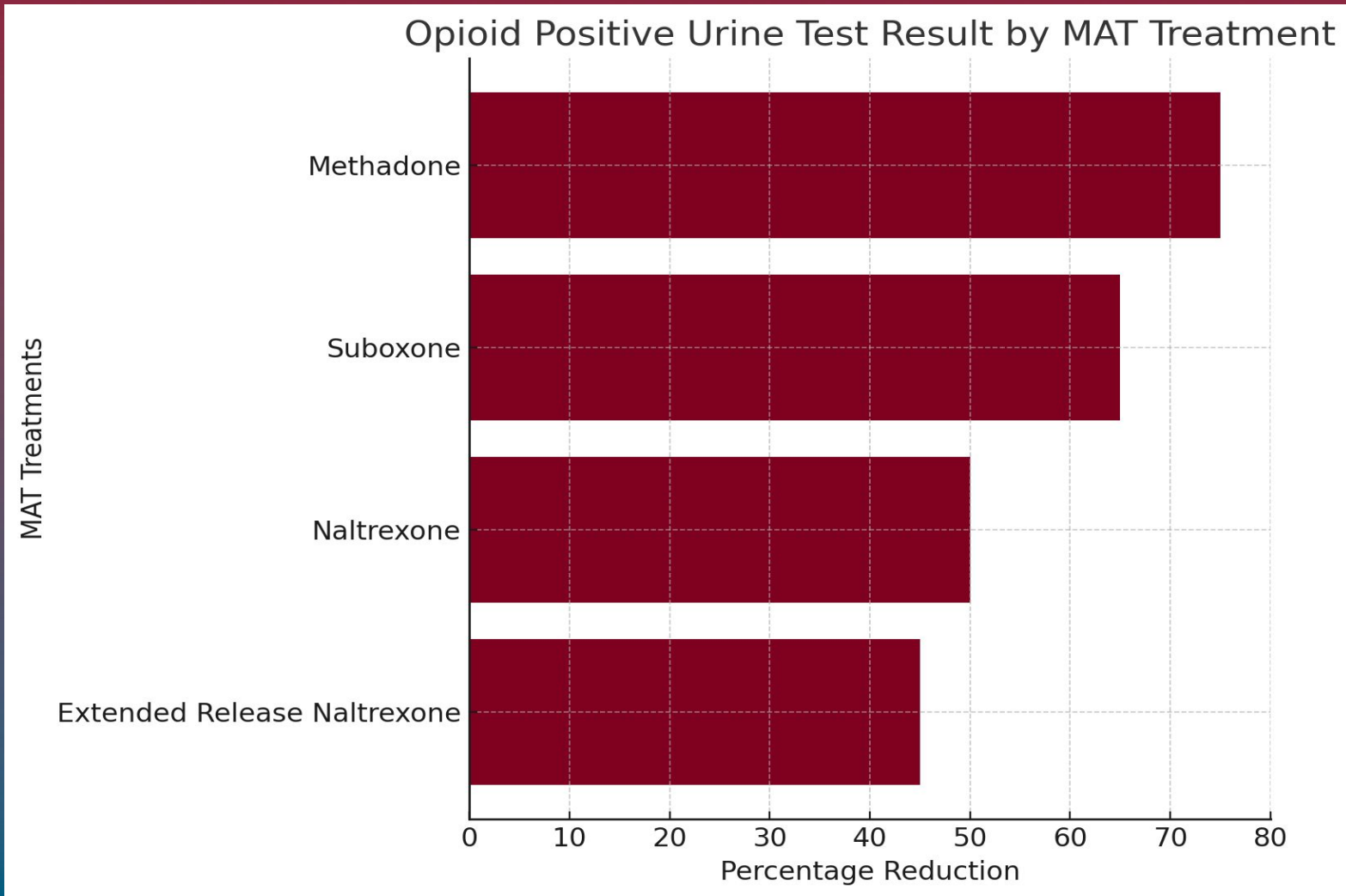
- **Quantitative Studies:**
 - Randomized controlled trials (RCTs)
 - Cohort studies
 - Cross-sectional studies



MAT Synthesis Results

Study	Medication Comparison	Results (Opioid Urine Tests)	Conclusion
Piralishvili et al., 2015	Suboxone vs Methadone	Suboxone: 0.2%; Methadone: 1.5%	Suboxone demonstrated better results in reducing opioid-positive tests compared to Methadone.
Bizzarri et al., 2016	Suboxone vs Methadone	Suboxone had higher clean urine rates	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 opioid users compared to Buprenorphine.
Ling et al., 2016	XR-NXT vs Suboxone *XR-NXT Extended-release naltrexone	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 Extended-release naltrexone	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.

Percent Reduction in Opioid Positive Tests



Methadone: 76.62% opioid 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.

Reduction in Opioid Positive Test with Treatment

Treatment	Opioid-Positive Tests (%)	Reduction Compared to Methadone (%)
Methadone	76.62	0
Suboxone	68.32	10.83
Naltrexone	50.5	34.09
Extended-Release Naltrexone	45.4	40.75

Practice Implications

Practice Implications for Certified Registered Nurse Anesthetists (CRNAs)

- ❑ Integration of MAT in Perioperative Care and Outpatient setting
- ❑ Ensuring continuity of MAT during surgery/hospitalization
- ❑ Harm Reduction Strategies
- ❑ Education and Advocacy
- ❑ Collaboration with Multidisciplinary Teams

Ongoing Research Recommendations:

- ❑ Bridge evidence to real-world practice.
- ❑ Focus on underserved populations and long-term outcomes.

Limitations

- ▣ Limited Long-Term Data
- ▣ Heterogeneity of the Studies
- ▣ Designs Population-Specific



Conclusion

- **MAT as an Effective Tool:** All MAT treatment effectively reduced opioid use amongst adults with OUD.
 - Buprenorphine/naloxone 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.
- **Future Directions:** Address gaps in long-term sustainability, underserved populations, and integration into broader healthcare systems.
- **Call to Action:** Providers should adopt evidence-based MAT, tailor treatments to patient needs, and expand access to underserved settings.

References

