# Comparative effectiveness of buprenorphine/naloxone and methadone on methamphetamine/amphetamine use among people with prescription-type opioid use disorder in Canada

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## Introduction

- It has been suggested that opioid agonist therapy (OAT) may have a secondary benefit of reducing methamphetamine/amphetamine (MA/A) use.
- However, current evidence is limited and conflicting, and little is known on differential impacts of different oat.
- **The aim of this study was to examine the comparative effectiveness of buprenorphine/naloxone (BUP/NX) and methadone on MA/A use among individuals with prescription-type opioid use disorder (POUD) initiating OAT in Canada.**

## Methods

- Secondary analysis of the OPTIMA study, a pan-Canadian pragmatic trial conducted between 2017 and 2020 comparing supervised methadone and flexible take-home dosing BUP/NX models of care among POUD.
- This analysis considered all eligible OPTIMA participants who were randomized to a treatment arm, initiated the assigned OAT within 14 days, and had valid (positive or negative) baseline urine drug test (UDT) results or self-report data for methamphetamine or amphetamine.
- Baseline characteristics of the study sample, stratified by baseline MA/A use, were summarized using Wilcoxon's rank sum test for continuous variables, Pearson's $\chi^2$ test for categorical variables, and Fisher's exact test for categorical variables with low cell count (< 10).
- Generalized linear mixed models (GLMM) were used to evaluate the independent effect of treatment (i.e., methadone or BUP/NX) and time in treatment (i.e., week 2 through 24, continuous) on MA/A use (measured by UDT and self-report).

## Results

**Table 1. Baseline characteristics of 210 people with POUD in the OPTIMA study initiating OAT, stratified by baseline MA/A use**

| | Total, n (%) (N = 210) | Baseline MA/A use, n (%) No (n = 80) | Yes (n = 130) | p-value |
|---|---|---|---|---|
| **Study arm** | | | | |
| Assigned OAT | | | | 0.829 |
| Methadone | 107 (51.0) | 40 (50.0) | 67 (51.5) | |
| BUP/NX | 103 (49.0) | 40 (50.0) | 63 (48.5) | |
| **Socio-demographics** | | | | |
| Age (median, IQR) | 39 (31-48) | 39 (33-52) | 38 (31-47) | 0.304[a] |
| Gender | | | | 0.753 |
| Man | 139 (66.2) | 54 (67.5) | 85 (65.4) | |
| Woman[b] | 71 (33.8) | 26 (32.5) | 45 (34.6) | |
| Ethnicity | | | | **0.001*** |
| White | 149 (71.0) | 67 (83.8) | 82 (63.1) | |
| BIPOC | 61 (30.0) | 13 (16.2) | 48 (36.9) | |
| **Substance use-related factors** | | | | |
| Opioid use last 30 days | | | | **< 0.001[c]*** |
| Opioids only (excluding fentanyl) | 77 (36.7) | 59 (73.8) | 18 (13.8) | |
| Fentanyl only | 13 (6.2) | 1 (1.2) | 12 (9.2) | |
| Fentanyl and other opioids | 120 (57.1) | 20 (25.0) | 100 (76.9) | |
| Cocaine use last 30 days | 104 (49.5) | 39 (48.8) | 65 (50.0) | 0.860 |
| Cannabis use last 30 days | 149 (71.0) | 55 (68.8) | 94 (72.3) | 0.581 |
| **Health-care-related factors** | | | | |
| Injection drug use last 30 days | 101 (48.1) | 30 (37.5) | 71 (54.6) | **0.016*** |
| **Structural-level factors** | | | | |
| Province | | | | **< 0.001[c]*** |
| British Columbia | 52 (24.8) | 2 (2.5) | 50 (38.5) | |
| Alberta | 47 (22.4) | 4 (5.0) | 43 (33.1) | |
| Ontario | 43 (20.5) | 29 (36.3) | 14 (10.8) | |
| Quebec | 68 (32.4) | 45 (56.3) | 23 (17.7) | |
| Current unstable housing | 71 (33.8) | 19 (23.8) | 52 (40.0) | **0.016*** |
| Employment last 30 days | 71 (33.8) | 32 (40.0) | 39 (30.0) | 0.137 |

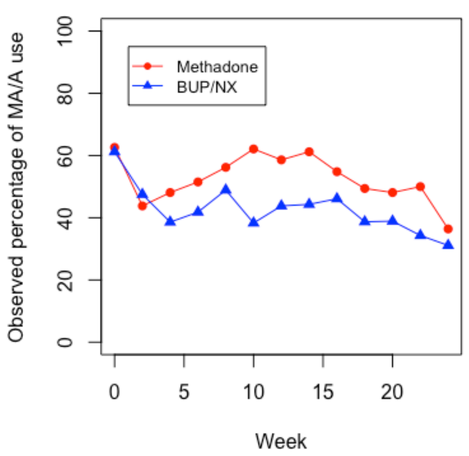


**Figure 1. Observed percentages of MA/A use (UDT or TLFB) by week among OPTIMA participants who initiated treatment (n=210), stratified by methadone and BUP/NX treatment arms.**

**Table 2. Predictors of MA/A use from GLMM with individual-level random effects among 210 people with POUD in the OPTIMA trial who initiated treatment.**

| | Unadjusted OR (95% CI) | Adjusted OR (95% CI) |
|---|---|---|
| **Predictor variables** | | |
| BUP/NX (ref: methadone) | **0.46 (0.22, 0.96)*** | 0.61 (0.34, 1.08) |
| Time in treatment (per 1 week) | **0.35 (0.22, 0.57)*** | 0.73 (0.40, 1.28) |
| BUP/NX*Time in treatment | 0.64 (0.24, 1.69) | |
| **Socio-demographics** | | |
| Age (per 1 year older) | 1.01 (0.97, 1.04) | 1.01 (0.98, 1.04) |
| Woman | 0.67 (0.30, 1.46) | 0.64 (0.35, 1.20) |
| White (ref: BIPOC) | **0.27 (0.12, 0.60)*** | 0.58 (0.29, 1.15) |
| **Substance use-related factors** | | |
| MA/A use at baseline | **27.97 (13.32, 58.76)*** | **6.80 (3.24, 14.28)*** |
| Opioid use last 14 days (ref: no) | | |
| Opioids (excluding fentanyl) | **2.45 (1.63, 3.68)*** | **2.06 (1.36, 3.13)*** |
| Fentanyl only | **21.27 (13.69, 33.04)*** | **17.03 (10.89, 26.61)*** |
| Fentanyl and other opioids | **31.44 (20.53, 48.13)*** | **17.66 (11.39, 27.27)*** |
| Cocaine use last 14 days | **1.81 (1.34, 2.44)*** | 1.16 (0.82, 1.65) |
| Cannabis use last 14 days | **2.69 (1.96, 3.70)*** | **2.00 (1.41, 2.83)*** |
| **Health-care-related factors** | | |
| Injection drug use last 14 days | **7.96 (5.00, 12.69)*** | **3.30 (2.00, 5.44)*** |
| **Structural-level factors** | | |
| Province (ref: British Columbia) | | |
| Alberta | 0.53 (0.21, 1.35) | 1.06 (0.46, 2.46) |
| Ontario | **0.04 (0.02, 0.11)*** | **0.27 (0.10, 0.74)*** |
| Quebec | **0.07 (0.03, 0.17)*** | 1.00 (0.39, 2.59) |
| Unstable housing last 14 days | 0.62 (0.34, 1.13) | 0.56 (0.29, 1.07) |
| Employment last 30 days | 0.93 (0.62, 1.38) | 1.21 (0.78, 1.89) |

BUP/NX = buprenorphine/naloxone; IQR = interquartile range; BIPOC = black, Indigenous, and people of colour; MA/A = methamphetamine/amphetamine; OPTIMA; Optimizing Patient Centered-Care: A Pragmatic Randomized Control Trial of Comparing Models of Care in the Management of Prescription Opioid Misuse; OR = odds ratio; CI = confidence interval.

[a] Wilcoxon rank sum test

[b] Based on self-report data. Categories were the following: man, woman, transgender (man, woman, neither, both), other, don't know, choose not to answer.

[c] Fisher's exact test

* $p < 0.05$

## Conclusions

- This secondary analysis of the OPTIMA trial showed that MA/A use was common among this sample of people with POUD initiating OAT in Canada.
- Although there were decreases in MA/A use over time, overall it remained high during the course of the study.
- Over the 24-week intervention period, BUP/NX and methadone did not impact MA/A use, thus suggesting no differential treatment impacts.

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