

# Medication-assisted treatment

## ► Intervention in brief

<p><b>High and rising risk:</b></p>	<p><b>Medication-assisted treatment (MAT)</b> combines medications (e.g., methadone, buprenorphine) with behavioral therapies to treat substance use disorders (primarily opioid use disorder and alcohol use disorder). The goal is to eliminate withdrawal symptoms and reduce chances of relapse or overdose while supporting psychosocial needs.</p>
<p><b>Strength of evidence</b></p>	 <p>High</p>
<p><b>Impact</b></p>	<ul style="list-style-type: none"> <li>• <b>Decreased cost (wide range):</b> Insignificant to 30% decreased overall costs<sup>1</sup>; 43-57% decreased inpatient costs<sup>1</sup>; 20-43% decreased outpatient costs<sup>1</sup>; 106-350% increased pharmacy costs<sup>1</sup></li> <li>• <b>Decreased utilization (wide range):</b> 67-78% decreased hospitalizations<sup>1</sup>; 42% decreased to 7% increased ED visits<sup>1</sup>; 7 day decreased length of stay for pregnant women<sup>1</sup></li> <li>• <b>Improved quality, clinical outcomes:</b> 13-54 percentage point increased abstinence rate, 18 percentage point increased retention; 22 days fewer of heroin per month; insignificant to 8% decreased drug-related HIV risk behaviors; insignificant to 16 percentage points fewer positive infant toxicology screens; insignificant impact on cocaine use, HIV infections, crimes committed, cognitive function, physical function, and occupational outcomes</li> <li>• <b>Increased access (wide range):</b> 10% decreased to 56% increased outpatient visits<sup>1</sup>; 264-day increased treatment with medication; 61% increased surgical specialist visits<sup>1</sup>; 40% decreased medical specialist visits<sup>1</sup></li> <li>• <b>Improved stakeholder satisfaction:</b> Not demonstrated</li> </ul>
<p><b>How to succeed</b></p>	<p>To build an effective medication-assisted treatment program:</p> <ul style="list-style-type: none"> <li>• Gain staff buy-in for addiction treatment through robust education about addiction, stigma, and medication-assisted treatment across all staff members (e.g., physicians, security)</li> <li>• Begin treatment during hospitalization, then incorporate MAT into existing outpatient assets, especially primary care, pain management, and community health clinics</li> <li>• Do not overinvest in counseling resources, as the most important part of an intervention is to quickly distribute the appropriate medication</li> <li>• Provide interim medication treatment for patients on waitlists, which has shown to significantly increase the likelihood of program enrollment and reduce opiate use</li> <li>• Enable broader community access to treatment by partnering with local government and philanthropies for funding and behavioral health providers to fill community gaps</li> </ul> <p>To learn more about developing an evidence-based approach, check out our Confronting the Opioid Epidemic brief <a href="#">here</a>.</p>

1) Compared to control.

Source: Population Health Advisor research and analysis.

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## ▶ Demonstrated impact

### Literature review summary

**Title:** Impact of Medication-Assisted Treatment for Opioid Addiction on Medicaid Expenditures and Health Services Utilization Rates in Vermont

**Publication:** Journal of Substance Abuse Treatment

**Date:** 2016

**Type:** Control trial

**Study population:** 8,652 Vermont Medicaid patients with opioid use disorder

**Major findings:** Compared with receiving a placebo or no medication, medication-assisted treatment resulted in:

- Insignificant overall impact on total expenditures (which includes cost of treatment); however, study also records:
  - Decreased total expenditures when omitting treatment costs (\$2,409)
  - Decreased inpatient expenditures (43%; \$2,132 vs. \$3,757)
  - Decreased outpatient expenditures (43%; \$345 vs. \$604)
  - Increased prescription expenditures (10%; \$4,461 vs. \$2,166)
- Reduced acute utilization
  - Decreased length of stay (49%; 1.46 inpatient days per person )
  - Decreased hospitalizations (42%; 0.22 discharges per person)
  - Decreased ED visits (42%; 1.04 visits per person)
- Mixed impact on outpatient utilization
  - Increased primary care use (56%; 5.46 visits per person)
  - Increased surgical specialist visits (61%; 1.15 visits per person)
  - Decreased medical specialist visits (40%; 0.33 visits per person)

**Source:** Full article [here](#).

# Medication-assisted treatment

**Title:** Cost and Utilization Outcomes of Opioid-Dependence Treatments

**Publication:** American Journal of Managed Care

**Date:** 2011

**Type:** Retrospective cohort study

**Study population:** 13,316 patients with opioid dependence who were part of a large U.S. health plan with data in the PharMetrics Integrated Database, some of whom received medication treatment

**Major findings:** Compared with receiving no medication, receiving medication for opioid dependence for six months resulted in:

- Decreased overall costs (29%; \$10,192 vs. \$14,353)
  - Reduced inpatient costs (57% lower; \$3,514 vs. \$8,090)
    - Reduced cost of detoxification and/or rehabilitation stay (\$205 vs. \$2,083)
    - Reduced cost of opioid-related inpatient admission (\$381 vs. \$1,823)
    - Reduced cost of non-opioid-related inpatient admission (\$2,928 vs. \$4,184)
  - Mixed impact on outpatient costs (29% lower, \$532 vs. \$749)
    - Increased ED costs (\$357 vs. \$288)
    - Increased cost of opioid-related physician visits (\$115 vs. \$91)
    - Reduced cost of opioid-related and substance abuse psychosocial provider visits (\$25 vs. \$47)
    - Reduced cost of on-opioid related outpatient visits (\$35 vs. \$323)
  - Increased pharmacy costs (350% higher; \$2,207 vs. \$490)
    - Increased cost of opioid dependence medication (\$1,078 vs. \$1)
    - Increased cost of psychiatric medication (\$176 vs. \$278)
    - Increased cost of non-psychiatric medication (\$851 vs. \$357)
- Reduced inpatient admissions per 1,000 patients (78% lower; 477 vs. 2,178), including:
  - Decreased detoxification and/or rehabilitation admissions (74 vs. 770)
  - Fewer opioid-related inpatient admissions (111 vs. 677)
  - Fewer non-opioid-related inpatient admissions (292 vs. 731)
- Mixed impact on outpatient visits per 1,000 patients (2% higher; 19,878 vs. 19,489), including:
  - Increased ED visits (1,084 vs. 1,041)
  - Increased opioid-related physician visits (1,104 vs. 776)
  - Decreased opioid-related and substance abuse psychosocial provider visits (301 vs. 553)
  - Insignificant impact on non-opioid-related outpatient visits

**Source:** Full article [here](#).

# Medication-assisted treatment

**Title:** Alcohol Dependence Treatments: Comprehensive Healthcare Costs, Utilization Outcomes, and Pharmacotherapy Persistence

**Publication:** American Journal of Managed Care

**Date:** 2011

**Type:** Retrospective cohort study

**Study population:** 20,752 patients with alcohol dependence who were part of a large U.S. health plan with data in the PharMetrics Integrated Database, some of whom received medication treatment

**Major findings:** Compared with patients who did not receive medication, patients who received medication for alcohol dependence for six months experienced:

- Reduced overall costs (30%; \$8,134 vs. \$11,677)
  - Decreased inpatient costs (49%; \$3,346 vs. \$6,565)
    - Decreased cost of detoxification and/or rehabilitation (85%; \$209 vs. \$1,350)
    - Decreased cost of alcohol-related inpatient admission (67%; \$801 vs. \$2,464)
    - Decreased cost of non-alcohol-related inpatient admission (15%; \$2,336 vs. \$2,751)
  - Mixed impact on outpatient costs (20%; \$514 vs. \$646)
    - Decreased cost of ED visit (\$207 vs. \$173)
    - Decreased cost of alcohol-related physician provider (\$199 vs. \$305)
    - Decreased cost of alcohol-related substance abuse psychosocial provider (\$87 vs. \$148)
    - Decreased non-alcohol-related outpatient visits (\$21 vs. \$20)
  - Increased pharmacy cost (184%; \$1,101 vs. \$387)
    - Increased cost of alcohol dependence medication (\$350 vs. \$1)
    - Increased cost of psychiatric medication (\$228 vs. \$95)
    - Increased cost of non-psychiatric medication (\$523 vs. \$291)
- Reduced inpatient admissions per 1,000 patients (67% lower; 544 vs. 1,630)
  - Decreased admissions for detoxification and/or rehabilitation (85 vs. 563)
  - Decreased alcohol-related admissions (202 vs. 660)
  - Decreased non-alcohol-related admissions (257 vs. 407)
- Increased outpatient visits per 1,000 patients (10% lower; 16,581 vs. 18,459)
  - Increased ED visits (787 vs. 648)
  - Decreased alcohol-related physician visits (1,454 vs. 1,970)
  - Decreased alcohol-related substance abuse psychosocial provider visits (991 vs. 1,740)
  - Decreased non-alcohol-related outpatient visits (13,349 vs. 14,101)

**Source:** Full article [here](#).

# Medication-assisted treatment

**Title:** Medication-Assisted Treatment with Methadone: Assessing the Evidence

**Publication:** Official Journal of the American Psychiatric Association

**Date:** 2014

**Type:** Systematic review

**Study population:** Seven randomized controlled trials and two retrospective, quasi-experimental studies of Methadone Maintenance Therapy (MMT) for opioid use disorder

**Major findings:**

- Compared with no medication treatment, methadone treatment resulted in:
  - Decreased length of stay for pregnant women (7 days)
  - Improved treatment retention (264 days longer in treatment for patients with medication; 18 percentage points higher retention after six months)
  - Decreased heroin use (22 days of heroin use per month)
  - Mixed impacts on drug-related HIV risk behaviors (insignificant to 8% lower rate)
  - Mixed impacts on neonatal abstinence symptoms among pregnant women (insignificant change to 16 percentage points fewer positive infant toxicology screens)
  - Insignificant impact on cocaine use, HIV infections, and crimes committed
- Compared to control, providing rapid access to methadone treatment<sup>1</sup> resulted in:
  - Increased comprehensive program enrollment (76% vs. 21%)
  - Fewer days per month using heroin (4.2 vs. 26.4)

More intense or additional psychosocial support did not significantly impact retention or abstinence from opiates, according to a systematic review of 35 studies.

**Source:** Full article [here](#).

**Title:** Medication-Assisted Treatment of Opioid Use Disorder: Review of the Evidence and Future Directions

**Publication:** Harvard Review of Psychiatry

**Date:** 2015

**Type:** Systematic review

**Study population:** Patients with opioid use disorder receiving medical management across randomized controlled trials, case reports, reviews, and meta-analyses with English abstracts

**Major findings:** Compared with placebo or no medication, medication-assisted treatment improved abstinence rates:

- Naltrexone (13 percentage points)
- Buprenorphine/naloxone (14-40 percentage points)
- Methadone (30 percentage points)

**Source:** Full article [here](#).

**Title:** Effects of Medication Assisted Treatment (MAT) for Opioid Use Disorder on Functional Outcomes: A Systematic Review

**Publication:** Journal of Substance Abuse Treatment

**Date:** 2018

**Type:** Systematic review

**Study population:** Patients with opioid use disorder treated with and without medication-assisted treatment across 30 randomized controlled trials and 10 observational studies

**Major findings:** MAT demonstrated insignificant impact on cognitive function, crime (percent of patients arrested or convicted), occupational function (e.g., return to work), and physical function.

**Source:** Full article [here](#).

1) Researchers compared outcomes of patients receiving interim methadone before program enrollment with patients on waiting lists only who did not receive interim medication. Follow-up interviews occurred after four months.

# Medication-assisted treatment

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## Appendix

- Mohlman MK, et al., “Impact of Medication-Assisted Treatment for Opioid Addiction on Medicaid Expenditures and Health Services Utilization Rates in Vermont,” *Journal of Substance Abuse Treatment*, 67, (2016), <https://www.ncbi.nlm.nih.gov/pubmed/27296656>.
- Baser O, et al., “Cost and Utilization Outcomes of Opioid-Dependence Treatments,” *American Journal of Managed Care*, 17, (2011), [https://www.ajmc.com/journals/supplement/2011/a369\\_june11/a369\\_11jun\\_alcohol\\_s235to48](https://www.ajmc.com/journals/supplement/2011/a369_june11/a369_11jun_alcohol_s235to48).
- Baser O, et al., “Alcohol Dependence Treatments: Comprehensive Healthcare Costs, Utilization Outcomes, and Pharmacotherapy Persistence,” *American Journal of Managed Care*, 17, (2011), [https://www.ajmc.com/journals/supplement/2011/a369\\_june11/a369\\_11jun\\_alcohol\\_s222to34?p=3](https://www.ajmc.com/journals/supplement/2011/a369_june11/a369_11jun_alcohol_s222to34?p=3).
- Fullerton CA, et al., “Medication-Assisted Treatment with Methadone: Assessing the Evidence,” *Official Journal of the American Psychiatric Association*, 65, no. 2 (2014), <https://ps.psychiatryonline.org/doi/full/10.1176/appi.ps.201300235>.
- Connery HS, “Medication-Assisted Treatment of Opioid Use Disorder: Review of the Evidence and Future Directions,” *Harvard Review of Psychiatry*, 23, no. 2 (2015), [https://journals.lww.com/hrjournal/Fulltext/2015/03000/Medication\\_Assisted\\_Treatment\\_of\\_Opioid\\_Use.2.aspx#pdf-link](https://journals.lww.com/hrjournal/Fulltext/2015/03000/Medication_Assisted_Treatment_of_Opioid_Use.2.aspx#pdf-link).
- Maglione MA, et al., “Effects of Medication Assisted Treatment (MAT) for Opioid Use Disorder on Functional Outcomes: A Systematic Review,” *Journal of Substance Abuse Treatment*, 89, (2018), <https://www.ncbi.nlm.nih.gov/pubmed/29706172>.