

ISUDT 2ND ANNUAL OUTCOME REPORT: APRIL 2023

Impacts of the Integrated Substance Use Disorder Treatment (ISUDT) Program *on Morbidity and Mortality*

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CALIFORNIA CORRECTIONAL HEALTH CARE SERVICES

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EXECUTIVE SUMMARY

In response to high rates of substance use disorder (SUD) related morbidity and mortality among individuals incarcerated within the California Department of Corrections and Rehabilitation (CDCR), the Department, with support from California's Legislature, began implementation of the Integrated Substance Use Disorder Treatment (ISUDT) Program in January 2020.

The purpose of this report is to provide an update on the status of ISUDT Program implementation and to determine if the program is achieving its goal of reducing SUD-related morbidity and mortality. This report presents drug overdose death trends and examines the impact of medication assisted treatment (MAT) adherence on overdose-related utilization of community hospital and emergency department services, and hepatitis c virus (HCV) reinfections.

The United States (U.S.), including prisons and jails, continues to face unprecedented numbers of drug overdose deaths. In 2021, the U.S. reached a grim milestone of 106,699 lives lost due to overdose, which is a record high.¹ This public health crisis is driven by synthetic opioids (primarily fentanyl) with 82% of opioid-involved overdose deaths attributable to synthetic opioids.^{2,3,4} In 2022, California seized enough fentanyl to kill the entire population of North America, twice. There is a surge of fentanyl coming directly into California through San Diego with fentanyl seizures increasing 300% between March and May 2023.^{5,6}

In addition to the lives lost due to opioids, the U.S. is experiencing a surge in emergency department visits resulting from non-fatal opioid overdoses with over 180,000 recorded between March 2022 and March 2023.^{7,8} The opioid epidemic is widespread, impacting people across the nation from all demographic and socioeconomic groups.⁹ In addition to the heavy toll opioids take on families and communities, opioid overdoses have a devastating economic impact on the U.S. with costs increasing 37% in 5-years, totaling \$1.5 trillion in 2020.^{10,11}

The impacts of opioids also include links to mass-incarceration and high rates of infectious disease transmission among justice-involved populations.^{12,13} Overdose remains a leading cause of death for people in prison, and the leading cause of death among those recently released from incarceration.^{14,15}

16 17 18 19 20

1 <https://www.commonwealthfund.org/blog/2023/overdose-deaths-declined-remained-near-record-levels-during-first-nine-months-2022-states#:~:text=An%20estimated%2079%2C117%20Americans%20died,higher%20than%20pre%2D2020%20levels>

2 <https://www.cdc.gov/drugoverdose/deaths/index.html>

3 <https://www.cdc.gov/drugoverdose/deaths/synthetic/index.html>

4 <https://wisqars.cdc.gov/data/explore-data/home>

5 <https://www.gov.ca.gov/2022/12/23/california-seized-enough-fentanyl-to-potentially-kill-the-entire-population-of-north-america-twice/>

6 <https://www.justice.gov/usao-sdca/pr/fentanyl-enforcement-surge-results-massive-increase-seizures-and-arrests>

7 <https://nemsis.org/opioid-overdose-tracker/>

8 <https://www.cnn.com/2022/12/08/health/nonfatal-opioid-overdose-data-system/index.html#:~:text=There%20were%20about%20181%2C806%20nonfatal,the%20White%20House%20debuted%20Thursday>

9 <https://www.webmd.com/mental-health/addiction/opioid-use-statistics>

10 <https://beyer.house.gov/news/documentsingle.aspx?DocumentID=5684>

11 <https://pubmed.ncbi.nlm.nih.gov/33121867/>

12 <https://store.samhsa.gov/sites/default/files/pep20-05-02-001.pdf>

13 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6280039/>

14 <https://www.mass.gov/doc/chapter-55-report-excerpt/download>

15 <https://pubmed.ncbi.nlm.nih.gov/20579009/>

16 <https://www.michigan.gov/-/media/Project/Websites/mdhhs/Folder4/Folder28/Folder3/Folder128/Folder2/Folder228/Folder1/Folder328/Michigan-Opioids-Task-Force-Report.pdf?rev=3ece06433a5544a59eb6969979051b5b>

17 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2955973/>

18 <https://ascpjournals.biomedcentral.com/articles/10.1186/s13722-019-0145-5>

19 <https://cchcs.ca.gov/wp-content/uploads/sites/60/Analysis-of-2021-CCHCS-Mortality-Reviews.pdf>

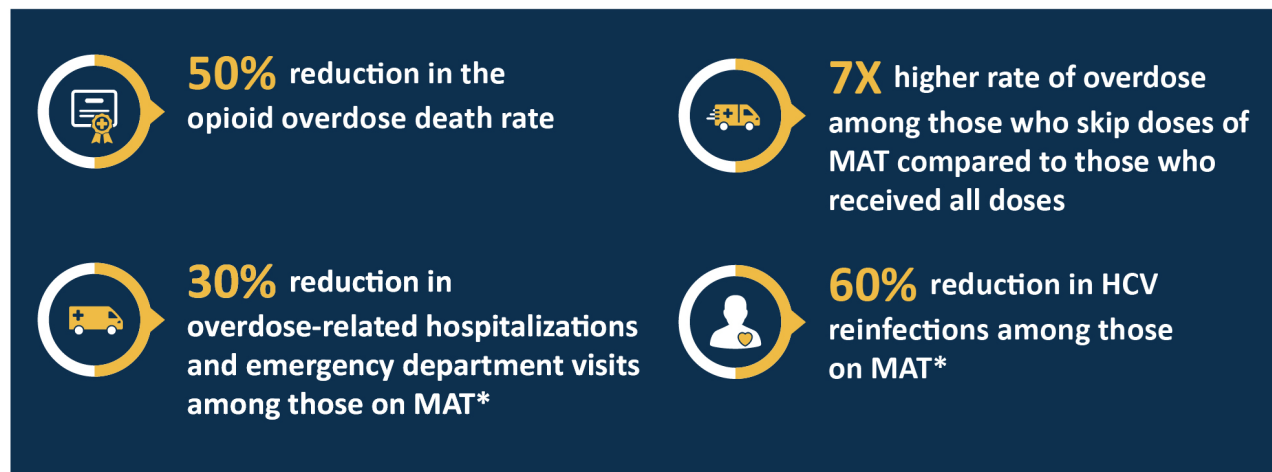
20 <https://www.vera.org/publications/overdose-deaths-and-jail-incarceration/national-trends-and-racial-disparities>

The national opioid crisis continues to impact individuals incarcerated in CDCR, which had the highest overdose death rate of any state correctional system in the U.S. (52 per 100,000) in 2019 prior to implementation of the ISUDT Program. To address these trends, CDCR began implementation of the ISUDT Program in January 2020. In Fiscal Year (FY) 2022-23 CDCR gained approval for the next phase of the ISUDT Program and has implemented, to varying degrees, all five core components of the program including: 1) SUD Screening and Assessment; 2) MAT; 3) Behavioral Interventions (Cognitive Behavioral Interventions - CBI and Cognitive Behavioral Therapy - CBT); 4) Supportive Housing; and 5) Enhanced Pre-Release Planning and Transition Services.

Data show the ISUDT Program has made a significant impact on reducing overdose deaths during the last three years of implementation. As previously noted, in 2019, CDCR reported an overdose death rate of 52 per 100,000 and in 2021 (the latest year of complete data available), CDCR's overdose death rate was 25 per 100,000, which is less than half of the rate prior to ISUDT Program implementation. This finding is particularly noteworthy since opioid-involved deaths nationally and in California are continuing to rise, especially between 2020 and 2021 with Center for Disease Control and Prevention (CDC) data showing community overdose deaths are 50% higher in 2022 than prior to the pandemic.²¹

CDCR is one of the largest health care providers of MAT in the nation with screening, assessment, and linkage to treatment for SUD beginning at arrival to CDCR and continuing through an individual's transition back to the community. ISUDT Program data demonstrate the importance of providing SUD treatment with a focus on opioid use disorder (OUD) during incarceration with key outcomes of interest presented in this report.

KEY OUTCOMES**



**Compared to those with OUD not on MAT*

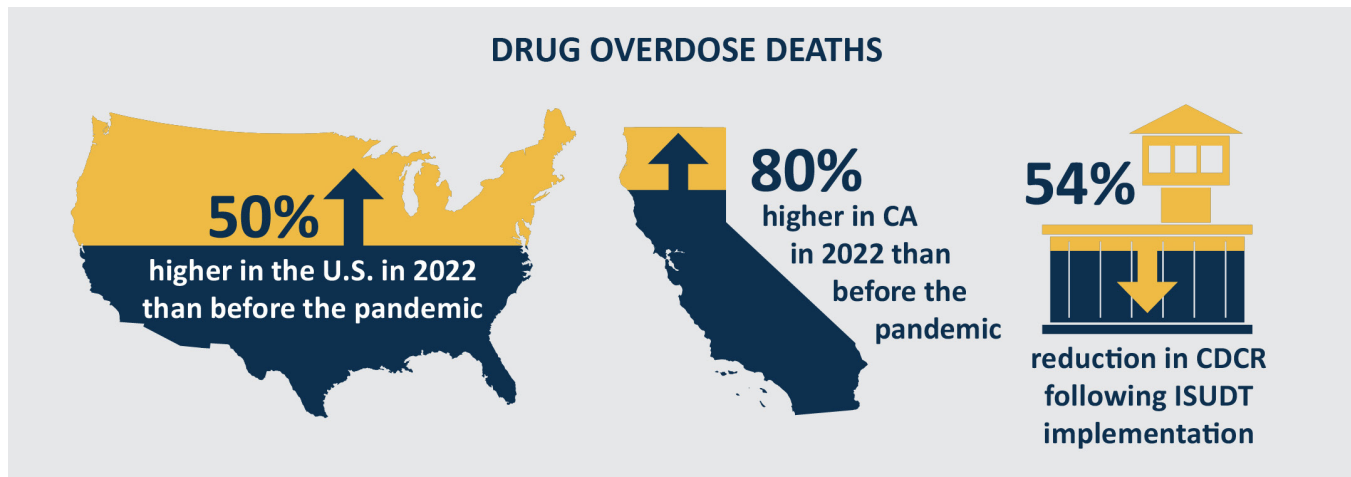
***Numbers and percents are rounded to the next whole number*

²¹ <https://www.commonwealthfund.org/blog/2023/overdose-deaths-declined-remained-near-record-levels-during-first-nine-months-2022-states#:~:text=An%20estimated%2079%2C17%20Americans%20died,higher%20than%20pre%2D2020%20levels>

BACKGROUND

The National Overdose Crisis

The U.S. continues to face unprecedented numbers of drug overdose deaths, with the rate of drug overdose death increasing nearly 15% from 2020 to 2021 (age-adjusted). In 2021, (the most recent year of complete national data), the CDC reported a record 106,699 lives lost due to overdose, and the highest overdose death rate ever (32.4 per 100,000 standard population).²² Provisional CDC data from March 2023 suggest a steady slowing in the rate of increase in drug overdose deaths in the first nine months of 2022, compared to the same period in 2021. Specifically, an estimated 79,117 Americans died from a drug overdose between January and September 2022, fewer than the 81,155 people who died during the first nine months of 2021. Drug overdose deaths remain 50% higher in the U.S. and 80% higher in California in 2022 compared to pre-pandemic levels, and remains a leading cause of death in the U.S.^{23 24 25} In 2019, CDCR reported an overdose death rate of 52 per 100,000 - higher than any other correctional system in the nation. However, in 2021, CDCR's overdose death rate was 25 per 100,000, which is less than half of the rate prior to ISUDT Program implementation.



Fentanyl seizures in the U.S. increased nearly 50-fold between 2018 and 2021, and continue to increase exponentially. In 2022, the Drug Enforcement Agency (DEA) seized enough fentanyl to kill every American. In 2019, nearly 1.6 million fentanyl-laced pills were seized with this number surging to 50.6 million fentanyl-laced pill seizures in 2022, representing more than 379 million potentially deadly doses of fentanyl. California is at the forefront of the battle to keep fentanyl out of the U.S. with enough fentanyl seized in California in 2022 to kill the entire population of North America, twice. There is a surge of fentanyl coming directly into California through San Diego with multi-agency efforts increasing fentanyl seizures 300% between March and May 2023 alone.^{26 27 28 29 30 31}

22 <https://www.cdc.gov/nchs/data/databriefs/db457.pdf>

23 <https://www.commonwealthfund.org/blog/2023/overdose-deaths-declined-remained-near-record-levels-during-first-nine-months-2022-states#:~:text=An%20estimated%2079%2C117%20Americans%20died,higher%20than%20pre%2D2020%20levels>

24 <https://www.cdc.gov/drugoverdose/epidemic/index.html>

25 <https://www.commonwealthfund.org/blog/2023/overdose-deaths-declined-remained-near-record-levels-during-first-nine-months-2022-states>

26 <https://www.bbc.com/news/world-us-canada-64047688>

27 <https://www.dea.gov/#:~:text=In%202022%2C%20DEA%20seized%20more,million%20lethal%20doses%20of%20fentanyl>

28 <https://nida.nih.gov/news-events/news-releases/2022/03/law-enforcement-seizures-of-pills-containing-fentanyl-increased-dramatically-between-2018-2021>

29 <https://www.cbp.gov/newsroom/stats/drug-seizure-statistics>

30 <https://www.justice.gov/usao-sdca/pr/fentanyl-enforcement-surge-results-massive-increase-seizures-and-arrests>

31 <https://www.gov.ca.gov/2022/12/23/california-seized-enough-fentanyl-to-potentially-kill-the-entire-population-of-north-america-twice/>

In 2022

the DEA seized
enough fentanyl
to kill every American



Opioids continue to be the main driver of overdose deaths in the U.S., and are involved in nearly 75% of all overdose deaths. The CDC continues to identify synthetic opioids (primarily fentanyl) as a public health crisis and attributes over 82% of opioid-involved overdose deaths to synthetic opioids. Notably, synthetic opioid-involved death rates increased by over 56% from 2019 to 2020 (the latest CDC data available), and the rate of overdose deaths involving synthetic opioids was more than 18 times higher in 2020 than in 2013 when the CDC first began its tracking.^{32 33} In 2019 and 2020, fentanyl overdose was the leading cause of death for individuals between the ages of 18 and 45.³⁴

Incarcerated and formerly incarcerated individuals continue to be disproportionately impacted by OUD and are at high-risk of overdose death during incarceration and post-release. Specifically, in the U.S., overdose is the third leading cause of death among people in prison, and opioid-related overdose mortality is the leading cause of death among people recently released from incarceration. This risk is exponentially higher within the first 2-weeks following release where the risk of overdose death is 40 times higher among formerly incarcerated individuals compared to the rest of the adult population.³⁵
^{36 37 38 39 40} Overdose deaths have risen sharply in correctional settings across the nation with the Bureau of Justice Statistics reporting a 600% increase in the number of people who died of drug or alcohol intoxication in state prisons in recent years.⁴¹ And the risk of drug and/or alcohol-related mortality among incarcerated populations remains high - even as incarceration rates decline. According to a study conducted by the PEW Charitable Trusts, drug and alcohol-related mortality rates increased fivefold in prisons and threefold in jails despite decreases in the number of people incarcerated for drug offenses.⁴²

32 <https://www.cdc.gov/drugoverdose/deaths/index.html>

33 <https://www.cdc.gov/drugoverdose/deaths/synthetic/index.html>

34 <https://wisqars.cdc.gov/data/explore-data/home>

35 <https://www.mass.gov/doc/chapter-55-report-excerpt/download>

36 <https://pubmed.ncbi.nlm.nih.gov/20579009/>

37 <https://www.michigan.gov/-/media/Project/Websites/mdhhs/Folder4/Folder28/Folder3/Folder128/Folder2/Folder228/Folder1/Folder328/Michigan-Opioids-Task-Force-Report.pdf?rev=3ece06433a5544a59eb6969979051b5b>

38 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2955973/>

39 <https://ascjournal.biomedcentral.com/articles/10.1186/s13722-019-0145-5>

40 <https://www.vera.org/publications/overdose-deaths-and-jail-incarceration/national-trends-and-racial-disparities>

41 <https://bjs.ojp.gov/content/pub/pdf/msfp0118st.pdf>

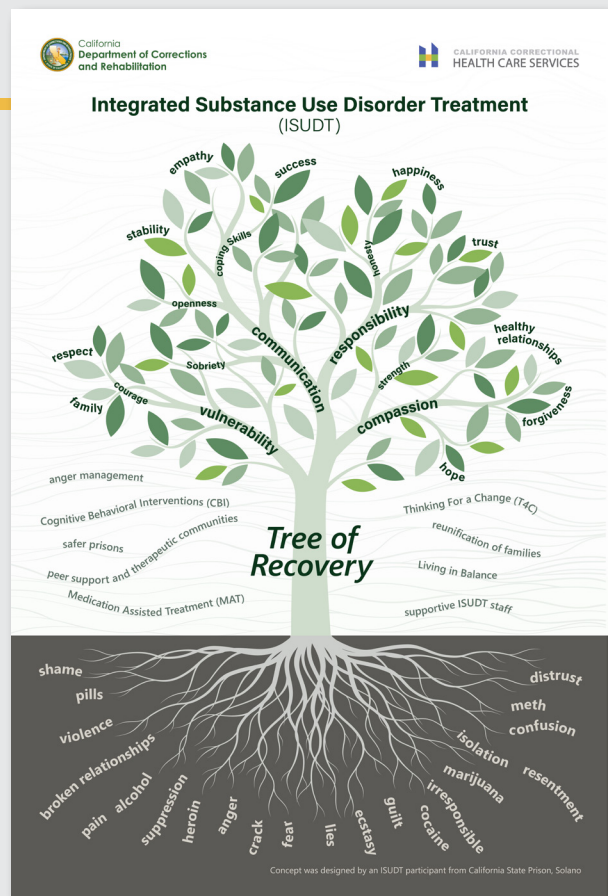
42 <https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2022/02/drug-arrests-stayed-high-even-as-imprisonment-fell-from-2009-to-2019>

Context for Change within CDCR

In 2019, prior to implementing the ISUDT Program, CDCR had the highest overdose death rate of any state correctional system in the U.S. (52 per 100,000). In response to this crisis, in FY 2019-20, the California Legislature approved the Department's request to initiate the first phase of the ISUDT Program, which began implementation in January 2020. In FY 2022-23 CDCR gained approval for the next phase of the ISUDT Program and has implemented, in varying degrees, all five core program components: 1) SUD Screening and Assessment, 2) MAT, 3) CBI and CBT, 4) Supportive Housing; and 5) Enhanced Pre-Release Planning and Transition Services. It is important to note Supportive Housing currently does offer formalized programming but several institutions have self-help groups facilitated by incarcerated people, and aftercare will be implemented in some Supportive Housing locations (where space permits) by the end of Summer 2023.

While data show the ISUDT Program has resulted in overall reductions in overdose deaths, the national opioid epidemic continues to impact individuals incarcerated in CDCR. Specifically, overdose deaths among CDCR's population attributable to opioids increased from 2018 to 2021, and fentanyl is responsible for increasing proportions of these deaths - demonstrating the need for continued screening, assessment, and SUD treatment during incarceration. This report is intended to provide an update on the status of ISUDT Program implementation and its impact on morbidity and mortality for individuals receiving MAT services. As the ISUDT Program matures, and as additional data becomes available, the Department will expand its evaluation efforts.

In May 2023, a new poster was distributed to all California prisons to share core ISUDT Program concepts. This poster's colorful design focuses on the growth achieved through ISUDT, and the ability to thrive in recovery despite the root causes and risks associated with SUDs. It was designed by an incarcerated person at California State Prison, Solano, and was selected among many submissions from ISUDT participants across the state.



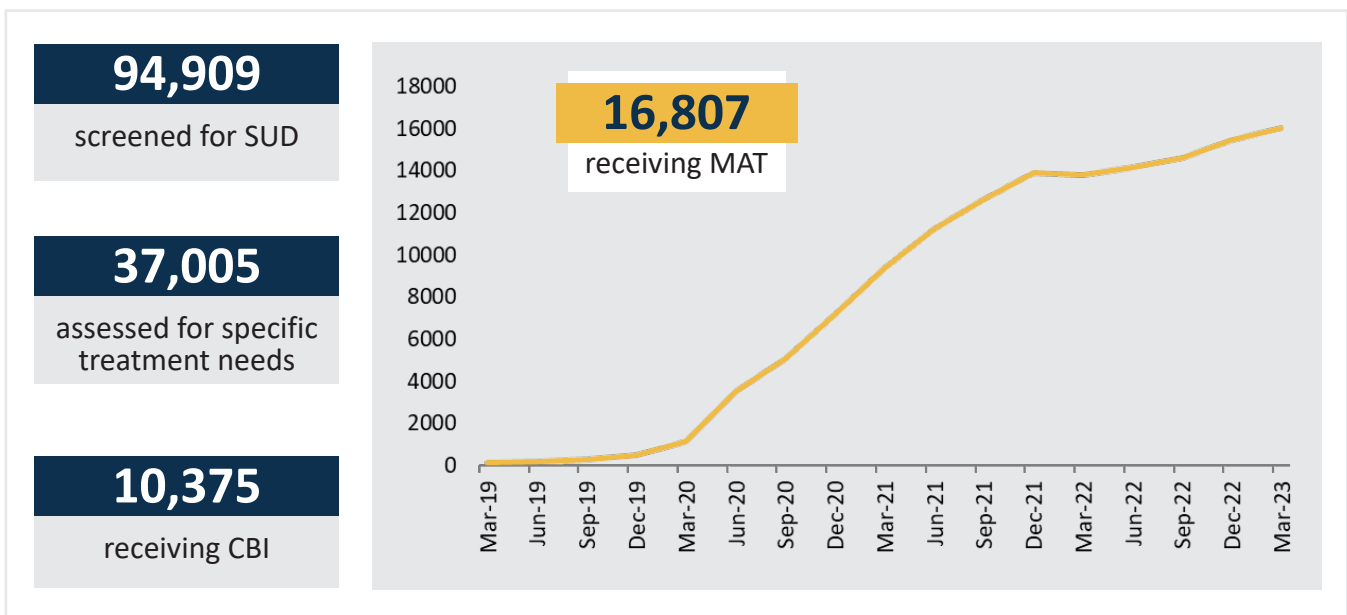
STATUS OF THE ISUDT PROGRAM IMPLEMENTATION

Recognizing Substance Use Disorder as a Treatable Chronic Condition

The use of MAT, and specifically buprenorphine, to treat OUD is the gold-standard of care in the community. While there are national and state efforts to expand access to MAT, access remains limited in most communities including correctional settings.⁴³ And when MAT is available in correctional settings, it is often only available just prior to release. State and federal courts have ruled denial of MAT for incarcerated individuals with OUD violates the Americans with Disabilities Act (ADA).⁴⁴ For example, in April 2019, the U.S. Court of Appeals for the First Circuit found the denial of MAT (specifically buprenorphine for OUD) to an incarcerated individual would cause serious and irreparable harm and violates the ADA.^{45 46}

From inception, the ISUDT Program has recognized the importance and effectiveness of treating SUD, with a particular focus on OUD during incarceration. The ISUDT Program recognizes SUD as a treatable, chronic condition with biological, genetic, psychological, environmental, and social components. To reduce stigma and normalize SUD as a treatable chronic condition, screening, assessment, and linkage to treatment for SUD begins at admission to CDCR and managing individuals incarcerated within CDCR on MAT has been integrated within primary care with support from addiction medicine physicians in a “hub and spoke model”. CDCR’s current population data shows progress made in identifying SUD among individuals incarcerated within CDCR and linkages to MAT and CBI (See Figure 1).

Figure 1: CDCR’s Population Receiving MAT
Data as of April 2023



43 https://store.samhsa.gov/sites/default/files/d7/priv/pep19-matbriefcjs_0.pdf

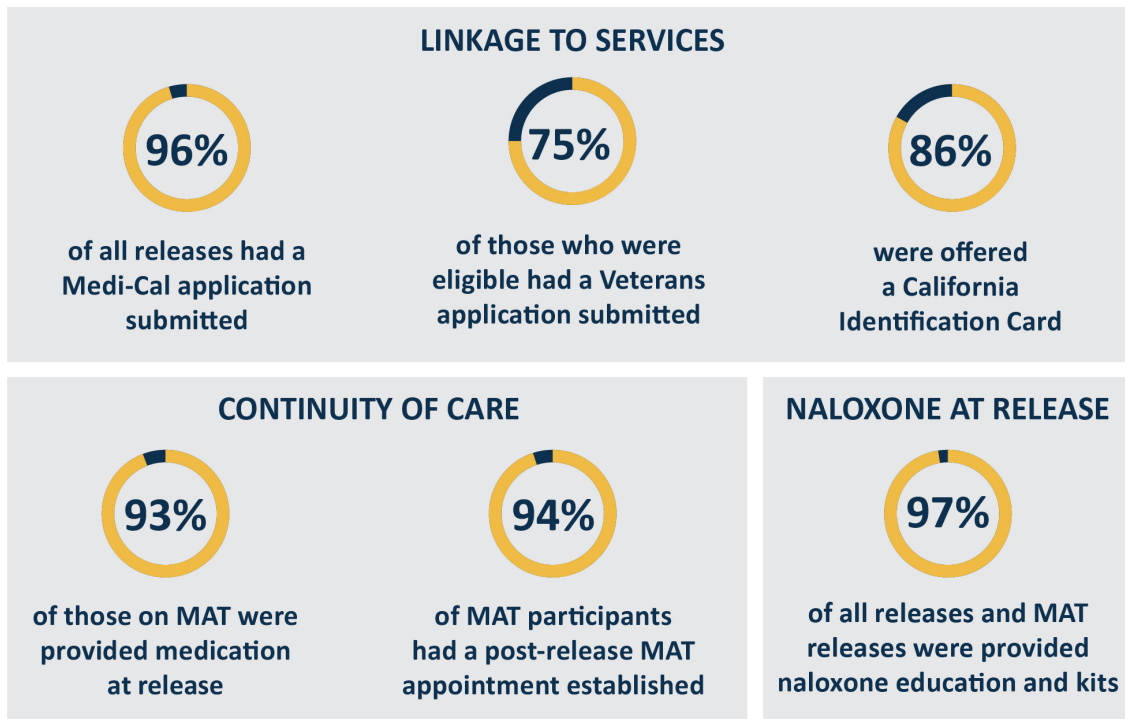
44 <http://legislativeanalysis.org/wp-content/uploads/2020/02/Medication-Assisted-Treatment-and-the-Americans-With-Disabilities-Act.pdf>

45 <https://www.aclumaine.org/en/press-releases/federal-appeals-court-upholds-ruling-jail-must-provide-maine-woman-medication>

46 https://www.aclumaine.org/sites/default/files/field_documents/smith_appeal_order.pdf

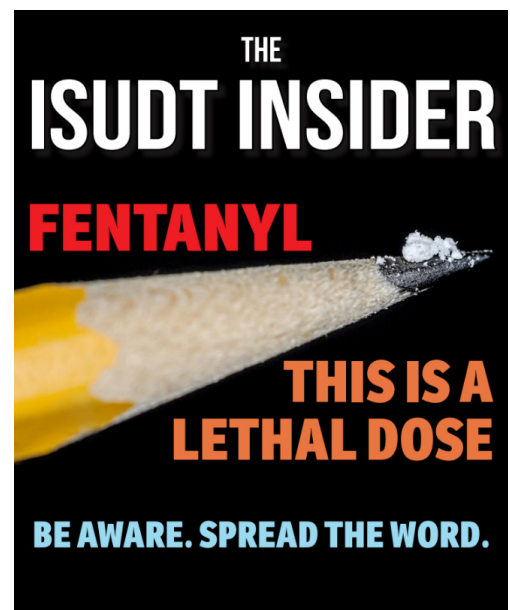
Nearly all of CDCR’s population preparing for release had Medi-Cal applications submitted to obtain health plan benefits and were provided with naloxone education and kits in case of an opioid overdose post-release. In addition, for those receiving MAT while incarcerated in CDCR, more than 90% received a 30-day supply of medications and had medical appointments scheduled with community providers to continue MAT following release (See Figure 2).

Figure 2: Enhanced Pre-Release & Transition Services
Data April 2023



Communications and Outreach Efforts

The Department continues its efforts to reduce stigma associated with SUD among staff and incarcerated individuals. In July 2020, the Department initiated the ISUDT Insider, a monthly newsletter-style resource for CDCR’s population. This print publication is aimed at raising awareness that SUD is a treatable condition, reducing SUD stigma and increasing treatment engagement, providing resource materials, recovery-focused activities, journaling, and enables incarcerated individuals to submit artwork and share testimonials on how ISUDT has impacted their lives. To-date, 486,472 copies and 33 editions of the Insider have been distributed to CDCR’s population. This was particularly important during the pandemic when incarcerated individuals could not participate in CBI groups due to COVID restrictions. The ISUDT Insider network has also inspired over 1,000 submissions of feedback, journal entries and artwork from ISUDT Program participants, many of which were included in future issues, to share this peer-to-peer messaging statewide.



In addition, in August 2021, the Department initiated the ISUDT Leader staff newsletter, focused on reducing SUD stigma among staff and sharing program goals and accomplishments. To-date, four editions of this digital publication have been created and shared with CDCR and CCHCS staff. The Department also empowers the ISUDT Ambassador Program with regional and institutional staff who serve as local champions among their peers to educate and promote ISUDT goals and support local ISUDT Steering committees.

ISUDT Program Implementation - What's Coming Next

Through the ISUDT Program, the Department is initiating CBT groups to address co-occurring trauma and addiction that afflicts a majority of incarcerated individuals with plans to implement CBT groups at 16 institutions by the end of 2023, and the remaining institutions in 2024. In addition, short-term programming will be implemented in late 2023, for those who arrive at CDCR who are identified with a SUD, have less than 6-months to serve and would otherwise not have access to services due to their short sentences. This will include an individual or group session with an Alcohol or Other Drug (AOD) Counselor and a packet program that can be completed individually. Under short-term programming, participants can request follow-up sessions with an AOD Counselor if they have questions about the packet program or require additional support or assistance.

Also, in August 2023, aftercare will be implemented in some Supportive Housing units as well as other locations for those who complete SUD-focused CBI to provide relapse prevention and to support ongoing recovery. While Supportive Housing has been initiated at all CDCR institutions, in some capacity, with 14,976 current and former ISUDT participants in these housing units, elements of the program are still being developed. A Peer Specialist Certification Program is under development and will be implemented in FY 2023-24 aimed at providing additional peer support within Supportive Housing environments, and to enable CDCR's population to earn peer specialist certifications that provides employment opportunities post-release. The Department will continue to address physical space and staffing challenges to ensure access to clinicians conducting assessments, and pre-release planning and behavioral interventions.

TREATMENT OUTCOMES

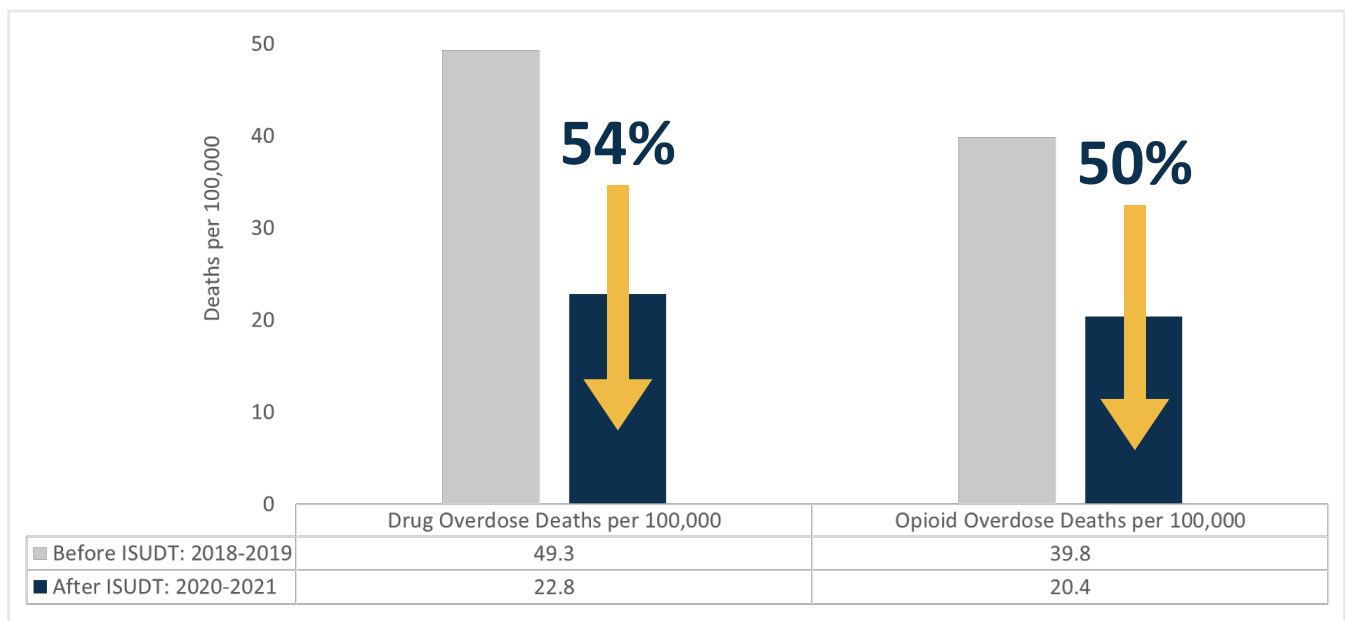
This section of the report presents analyses of drug overdose death trends and impacts of MAT on drug overdose-related utilization of community emergency department and hospital services, and HCV reinfections. As the ISUDT Program matures, and as additional data becomes available, the Department will expand its evaluation efforts and refine methods used for data analysis. It is important to note the timeframes included in this report overlap with the COVID-19 pandemic which may have introduced other variables contributing, in part, to reductions in overdose-related utilization of community emergency department and hospital services as well as overdose deaths. During the timeframes included in this report, fatal and non-fatal overdoses increased significantly in the community and in other correctional institutions.⁴⁷ However, CDCR did not experience the same spikes in overdose deaths and community emergency department and hospital utilization as observed outside of CDCR.

⁴⁷ <https://www.aclu.org/news/prisoners-rights/as-overdoses-spike-during-coronavirus-treating-addiction-in-prisons-and-jails-is-a-matter-of-life-and-death>

Overdose Death Rates Among CDCR’s Population

The following analysis was conducted to determine whether there were reductions in drug overdose deaths since implementation of the ISUDT Program comparing 2018 and 2019 death rates with death rates in 2020 and 2021. Since the impact of COVID-related disruptions may have differed between 2020 and 2021, the analysis examines these years both separately and combined. Data show the drug overdose death rate was 54% lower ($p < 0.0001$) in 2020-2021 compared to 2018-2019. Separately, the drug overdose death rate in 2020 was 57% lower ($p = 0.0001$), and the rate in 2021 was 50% lower ($p = 0.0009$) compared to 2018-2019. Notably, the opioid overdose death rate was nearly 50% lower in 2020-2021 compared to 2018-2019 (prior to implementation of the ISUDT Program). Based on these analyses it is concluded drug overdose death rates in general and related to opioid overdose have decreased significantly among CDCR’s population following implementation of the ISUDT Program (See Figure 3 and Appendix B). This finding is particularly promising since opioid-involved deaths nationally are continuing to rise, especially between 2020 and 2021.

Figure 3: Drug Overdose Death Rates & Opioid Overdose Death Rates among CDCR’s Population Pre (2018-2019) & Post (2020-2021) ISUDT Program Implementation



Although drug overdose deaths have declined following ISUDT implementation, heroin and synthetic opioids continue to cause most overdose deaths within CDCR, increasing from 2018 to 2021, with fentanyl causing increasing proportions of deaths from opioids. In 2021, 79% of overdose deaths among CDCR’s population were related to opioids, and of the deaths from opioids, 84% were caused by fentanyl which is consistent with community trends. It is important to note there have not been opioid-related overdose deaths caused by buprenorphine nor overdose deaths among those fully adherent to MAT in the preceding days before death.

MAT Adherence and Impact on Drug Overdose Events

The second set of analyses were conducted to answer the question whether exposure to MAT and the degree of MAT adherence prescribed for OUD impacted the utilization of community emergency department and hospital services from January 2020 to June 2022. Although individuals incarcerated in CDCR with a National Institute on Drug Abuse (NIDA) Modified ASSIST substance involvement (SI)

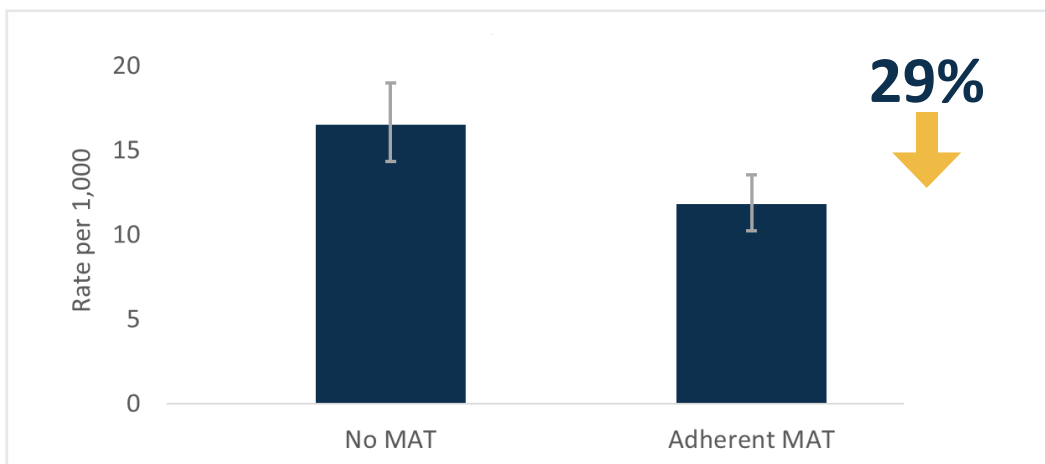
score of 4 or more for opioids are referred for a MAT evaluation, these analyses focused on individuals with elevated NIDA Modified ASSIST SI scores > 16 for opioids - making them high-risk. This was done for two reasons: 1) the Department initiated MAT with a targeted focus on treating individuals at highest risk of overdose; and 2) to consistently measure program impacts using an “apples to apples” comparison, the SI score was used to control for overdose risk.

During the study period (January 2020-June 2022), 26,166 individuals incarcerated within CDCR who were assessed using the NIDA Modified ASSIST had a SI score > 16 on at least one of the opioid SI scores (either prescription or illicit opioids). Individuals with elevated opioid SI scores represent 57% of individuals assessed, and 15% of those who lived in a CDCR institution during this period. This is important because although the Department has not yet assessed the entire population, data show a large proportion of those assessed are high-risk for SUD and especially for OUD.

The analysis stratified people into two groups: 1) Individuals with OUD on MAT (with an opioid SI score of >16); and 2) Individuals with OUD not currently on MAT (with an opioid SI score of >16) to determine if adherence to MAT was associated with lower rates of drug overdose-related utilization of community emergency department and hospital services. The majority (55%) of the “No MAT” group with OUD were waiting on an initial MAT evaluation but had not yet started MAT, and the remaining 45% in the “No MAT” group had an initial MAT evaluation but either did not start MAT or stopped MAT. MAT is dosed either daily (taken orally) or monthly (as an injectable). Community data shows non-adherence to MAT (i.e. skipping doses) or stopping MAT increases risk of overdose.^{48 49}

Results of these analyses show at any given time, 95% of those on MAT were adherent to treatment - meaning they received at least 5 doses of MAT in the preceding week. Of significance, the drug overdose rate was 29% lower among those with OUD who were adherent to MAT compared to those with OUD not on MAT or not adherent to MAT (RR = 0.71, p = 0.0007). Findings indicate among those on MAT, the more days the individual completed doses in the preceding week, the lower the rate of drug overdose (See Figure 4 and Appendix B). This finding is consistent with community data that shows adherence to MAT improves retention in treatment and outcomes.⁵⁰

Figure 4: Drug Overdose Rates among CDCR’s Population with OUD by MAT Status, January 2020 - June 2022



48 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9664560/>

49 <https://pubmed.ncbi.nlm.nih.gov/36197659/#:~:text=Importance%3A%20Nonadherence%20to%20buprenorphine%20may,inform%20clinical%20practice%20and%20policy>

50 <https://www.mcstap.com/docs/Effect of Buprenorphine Dose on Treatment Outcome.pdf>

Among those who had any MAT in the preceding week, individuals who had a dose administered everyday had the lowest rate of drug overdose. These findings show the more days of MAT that were missed, the higher the rate of drug overdose, with the rate of overdose nearly 7 times higher among those who received doses for only 1 or 2 days in the preceding week compared to those who received all doses in the preceding week ($p < 0.0001$). Consistent with the community, MAT adherence among CDCR's population is a challenge with approximately 20% discontinuing treatment. These findings demonstrate the importance of improving adherence to MAT, and the critical need to address root causes of non-adherence to treatment (See Figure 5).

MAT and Hepatitis C Reinfections

The majority of individuals with Hepatitis C were infected with the virus through injection drug use. This analysis indicates that MAT is associated with a significant reduction in risk of HCV reinfection - by 60% among CDCR's population with OUD on MAT. Specifically, Figure 6 shows HCV reinfection rates among those with OUD who were on MAT compared with those with OUD who were not on MAT during a 14-month post treatment period following eradication of HCV infection. (7% vs. 17%; $p=0.01$). Those with OUD on MAT who were successfully treated for HCV had a 60% lower reinfection rate relative to those who were not on MAT (Rate Ratio=0.40; 95% Confidence Interval: 0.22–0.76). Of note, among CDCR's population who were not on MAT at the time of sustained virologic response, 76% (326) initiated MAT during the 14-month follow-up period and therefore were ineligible for inclusion in the comparison group for this analysis. These findings are note-worthy as treating HCV in an incarcerated setting is very expensive for taxpayers, and reducing reinfection rates means not having to continue expensive treatment. And liver disease resulting from HCV can be life-threatening and results in complications that are difficult and expensive to manage.

Figure 5: Drug Overdose Rates among CDCR's Population with OUD on Oral MAT by Adherence January 2020 - June 2022

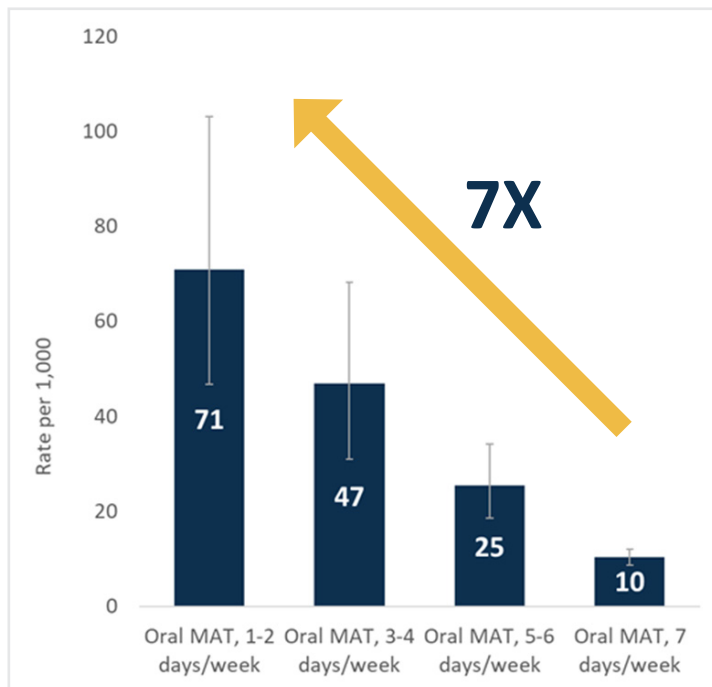
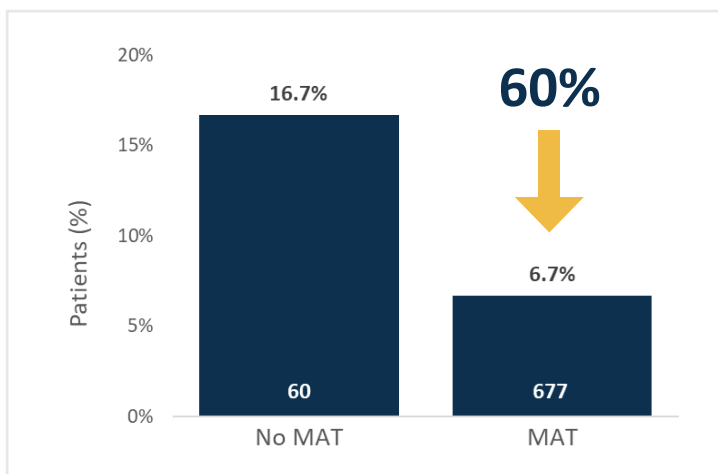


Figure 6: HCV Reinfection Rate



PROGRAM PRIORITIES AND STRATEGIC CONNECTIONS

While the Department is pleased with the ISUDT Program outcomes to date, there is more work to be done to support recovery and rehabilitation among incarcerated individuals with SUD. Though much of CDCR's population has been assessed and provided with SUD treatment, there are individuals waiting to be assessed and others who are reluctant to be assessed and to initiate and remain in treatment. Therefore, it is a priority to understand and intervene at individual, population, and organizational levels to improve rates of accessing services and adherence to treatment. It is also a priority for CDCR to continue efforts to mitigate the distribution of fentanyl and other illicit drugs brought into our prisons. The best approach to thwarting drug diversion and the illicit drug supply is to ensure people who need SUD treatment are provided access to evidence-based treatments in a safe, supportive, and humane environment conducive to helping people address their underlying trauma and addiction, while incentivizing prosocial and healthy behaviors.

In the future, the Department will partner with stakeholders to implement the California Advancing and Innovating Medi-Cal (CalAIM) initiative to reduce health disparities and improve transitions of care and health outcomes for those releasing from state prison.

CalAIM directly links to the ISUDT Program and supports the Department's mission to facilitate the successful reintegration of the individuals in our care back to their communities equipped with the tools to be drug-free, healthy, and employable members of society by providing SUD treatment, rehabilitative services, and continuity of care.

The Department will continue to monitor and report on ISUDT Program related progress and outcomes. Future areas of analyses may include evaluating impacts of each component of the program on specific in-prison outcomes as well as post-release outcomes among ISUDT participants, which will be contingent upon data sharing agreements among stakeholders to allow access to relevant data.

APPENDIX A: Drug Overdose Deaths, Opioid-related Overdose Deaths & Fentanyl-related Overdose Deaths among CDCR's Population, Counts & Rates, 2018-2021

Year	Total Deaths	# of Drug Overdose Deaths (Closed)	Fentanyl related	Other Opiate/Opioid related	Non-opiate/opioid related	Average Population	Total Deaths per 100K	Drug Overdose Deaths per 100K	Fentanyl Related per 100K	Other Opiate/Opioid Related per 100K	Non-Opiate/Opioid Related per 100K
2018	452	62	19	27	16	121997	371	51	16	22	13
2019	399	64	18	36	10	121437	329	53	15	30	8
2020	492	23	11	11	1	108544	453	21	10	10	1
2021	392	24	16	3	5	97839	401	25	16	3	5

APPENDIX B: Drug Overdose Death Rates & Opioid Overdose Death Rates among CDCR's Population, Comparison of 2018-2019 to 2020-2021

Year(s)	Person-Years	Drug Overdose Deaths						Opioid Overdose Deaths					
		N	Rate per 100,000 PY	Rate 95% CI	Compare to 2018-2019			N	Rate per 100,000 PY	Rate 95% CI	Compare to 2018-2019		
					Rate ratio	RR 95% CI	p value				Rate ratio	RR 95% CI	p value
2018-2019	243,435	120	49.3	40.9, 58.9	ref	ref	ref	97	39.8	32.3, 48.6	ref	ref	ref
2020-2021	206,384	47	22.8	16.7, 30.3	0.4620	0.3272, 0.6442	< 0.0001	42	20.4	14.7, 27.5	0.5107	0.3527, 0.7300	0.0002
2020	108,544	23	21.2	13.4, 31.8	0.4299	0.2697, 0.6622	< 0.0001	22	20.3	12.7, 30.7	0.5087	0.3137, 0.7971	0.0025
2021	97,840	24	24.5	15.7, 36.5	0.4976	0.3150, 0.7612	0.0009	20	20.4	12.5, 31.6	0.5130	0.3097, 0.8174	0.0040

*One death from 2021 is still unresolved pending an autopsy report. Based on the toxicology results, this death was counted as an accidental drug overdose, but not as an opioid overdose.

APPENDIX C: Drug Overdose Rates by MAT Adherence, January 2020-June 2022

	Any MAT	Adherent MAT	Non-Adherent MAT	No MAT
Person-years	18,201.9	17,236.7	957.3	12,237.6
SUD-related OD				
N	257	203	54	202
Rate per 1,000	14.12	11.78	56.41	16.51
95% CI	12.45, 15.96	10.21, 13.51	42.38, 73.61	14.31, 18.95
Crude				
RR	0.8554	0.7135	3.418	ref
95% CI	0.7116, 1.029	0.5871, 0.8672	2.512, 4.589	
p-value	0.0977	0.0007	<0.0001	
Adj. for opioid risk				
RR	0.8474	0.7053	3.384	ref
95% CI	0.7044, 1.020	0.5799, 0.8580	2.486, 4.547	
p-value	0.0806	0.0005	<0.0001	
<i>Breslow-Day p-value</i>	0.5439	0.6905	0.5518	