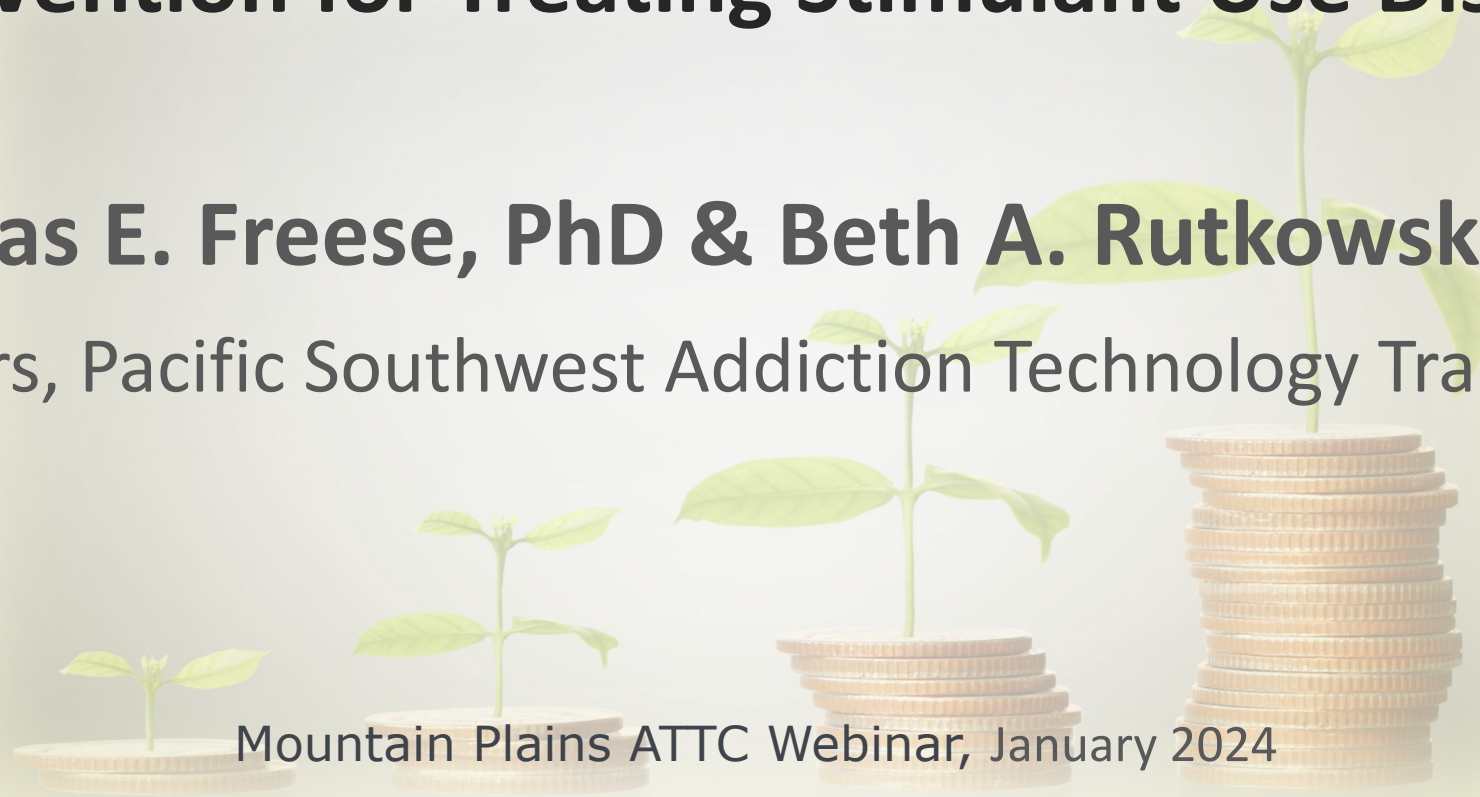
Contingency Management: An Evidence-Based Behavioral Intervention for Treating Stimulant Use Disorder

Thomas E. Freese, PhD & Beth A. Rutkowski, MPH

Co-Directors, Pacific Southwest Addiction Technology Transfer Center



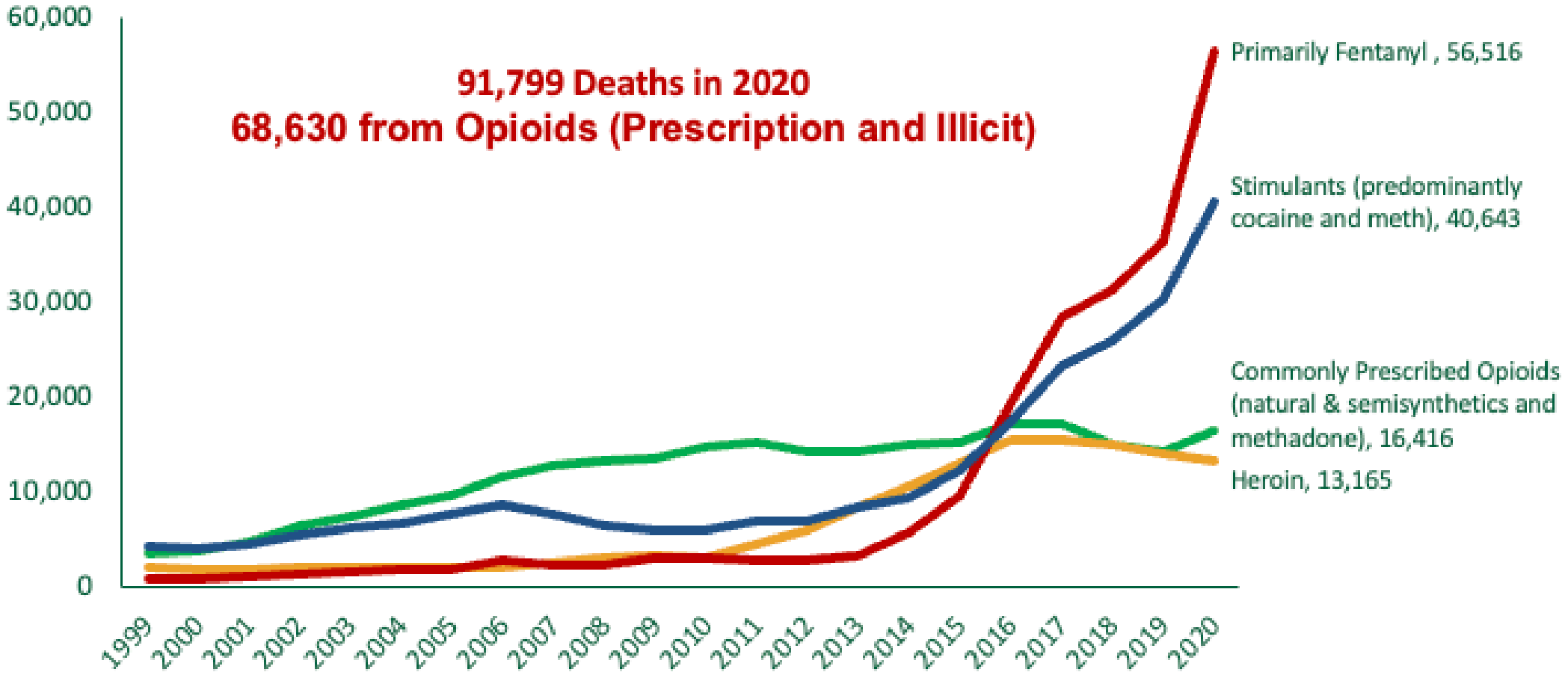
Mountain Plains ATTC Webinar, January 2024

UCLA David Geffen School of Medicine Integrated Substance Abuse Programs

PRISM COLLABORATIVE

Evolution of Drivers of Overdose Deaths, All Ages

Analgesics → Heroin → Fentanyl → Stimulants



The Multiple Cause of Death data are produced by the Division of Vital Statistics, National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC), United States Department of Health and Human Services (US DHHS).

Charting the Fourth Wave: Geographic, Temporal, Race/Ethnicity, and Demographic Trends in Polysubstance Fentanyl Overdose Deaths in the United States, 2010-2021

Joseph Friedman, PhD, MPH[1] and Chelsea Shover, PhD[2]

[1]Center for Social Medicine and Humanities, University of California, Los Angeles
[2]Department of Internal Medicine, University of California, Los Angeles

- Purpose: examine polysubstance use in overdose deaths from 2010-2021 by year, state and demographics.

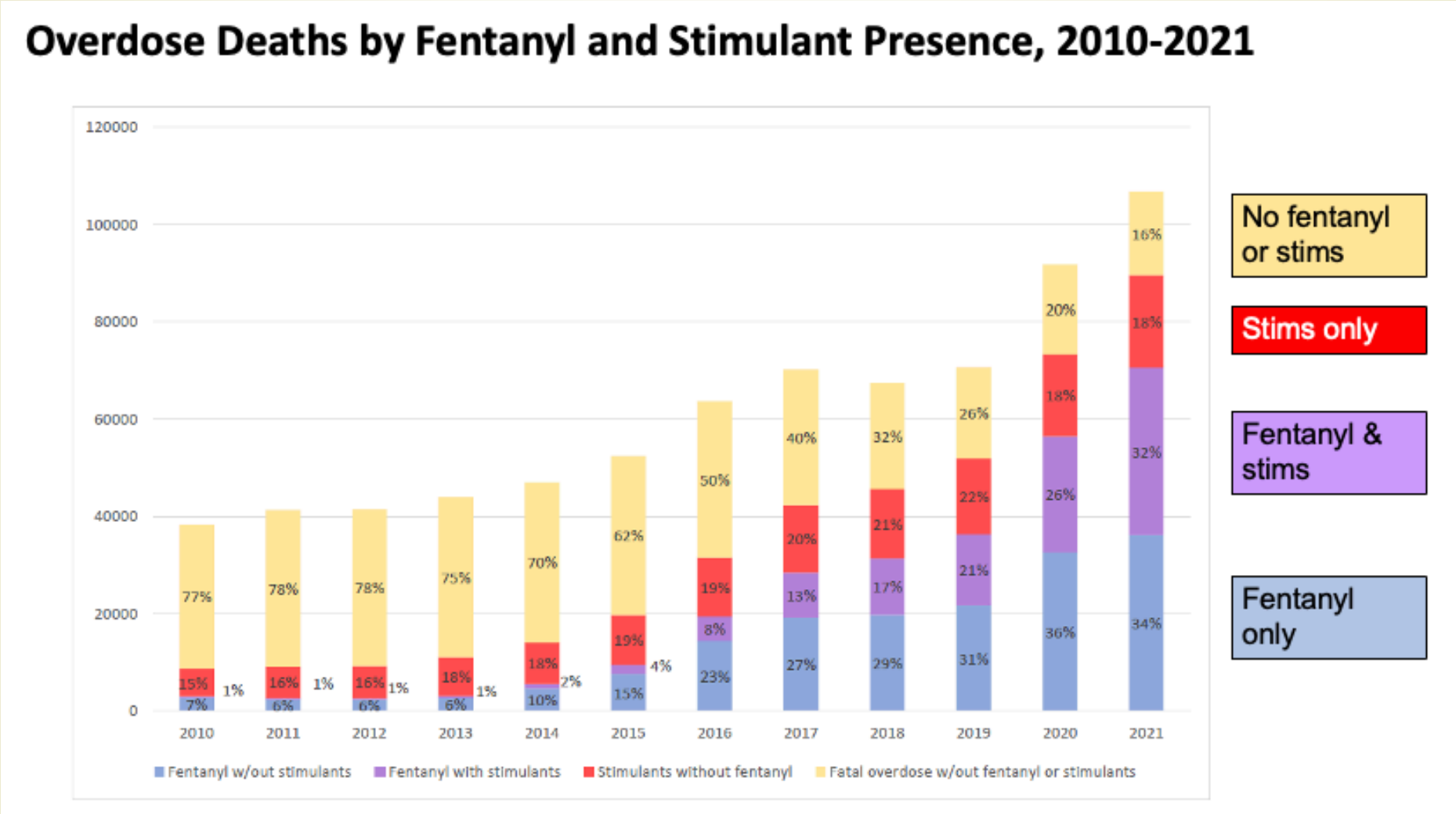
Friedman & Shover, 2022

Methods

- Data were obtained from the CDC Wide-ranging Online Database for Epidemiological Research (WONDER) from 2010 through 2021.
- All deaths with underlying cause of overdose were selected.
  - Among those, deaths with multiple causes were then selected.
- Annual percentage of overdose deaths were measured for those involving: fentanyl, stimulants, fentanyl and stimulants, and neither fentanyl or stimulants.

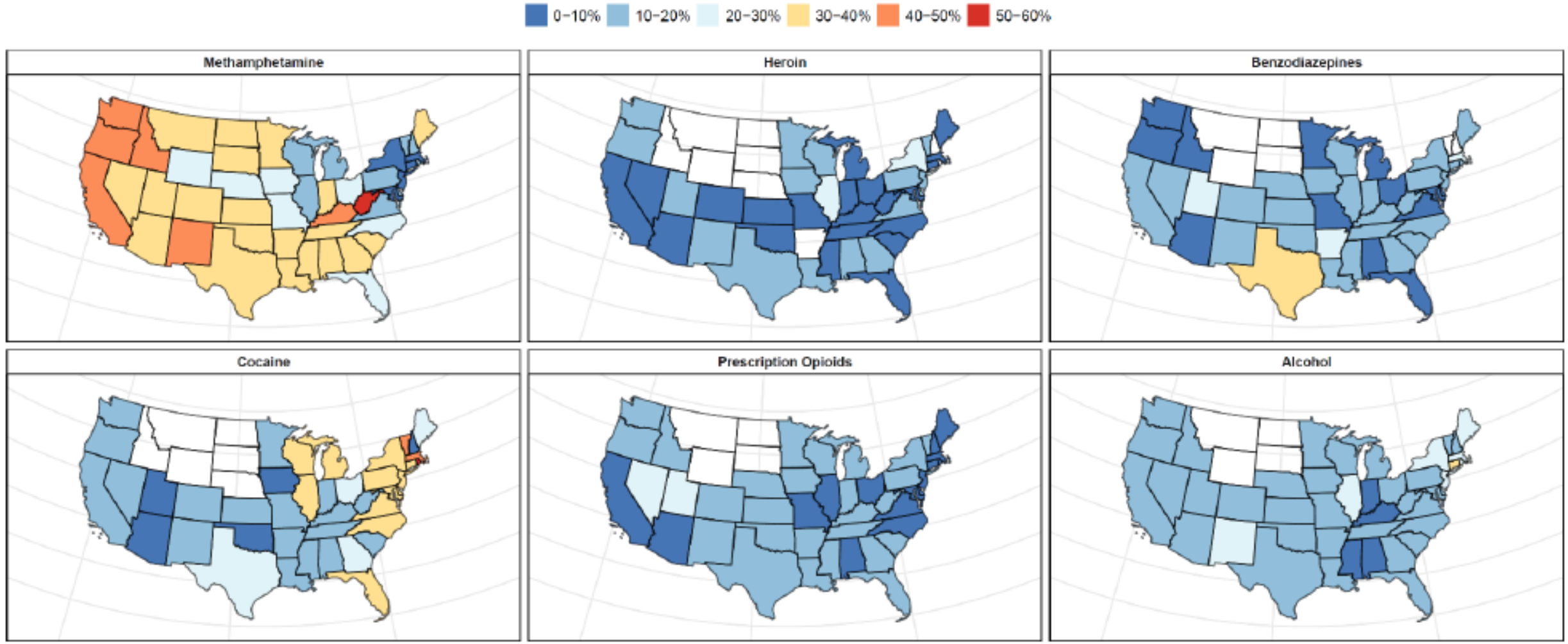
Friedman & Shover, 2022

Results



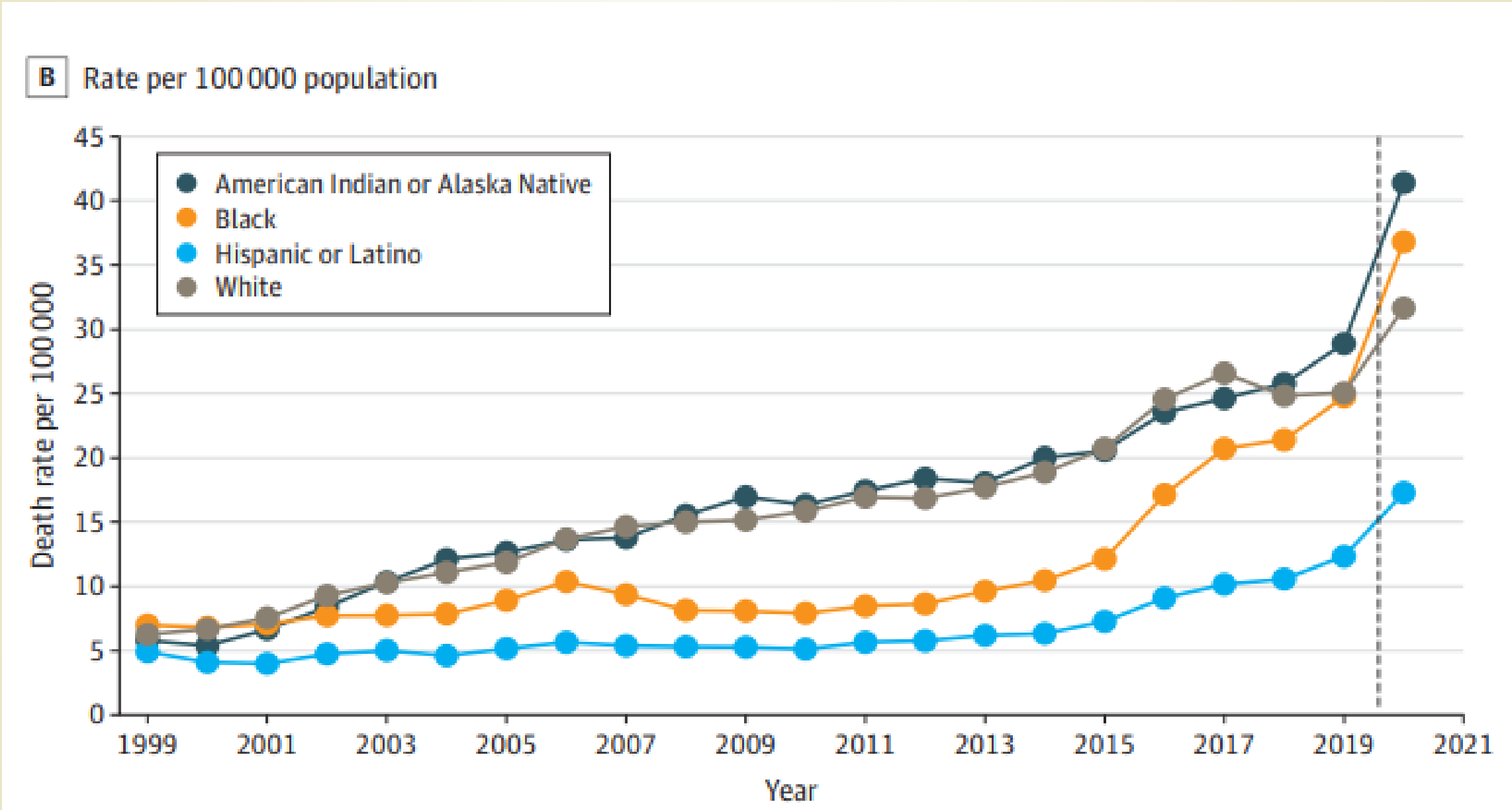
Friedman & Shover, 2022

Percent of Fentanyl Overdose Deaths Containing Other Drug Classes by State, 2021



Friedman JR, Hansen H. Evaluation of Increases in Drug Overdose Mortality Rates in the US by Race and Ethnicity Before and During the COVID-19 Pandemic. JAMA Psychiatry. 2022 Mar 2:e220004. doi: 10.1001/jamapsychiatry.2022.0004. Epub ahead of print. PMID: 35234815; PMCID: PMC8892360.

Drug Overdose Mortality per 100,000 Population



Takeaways

- Overdose deaths involving fentanyl and stimulants grew 60-fold between 2010 and 2021.
- By 2021, cocaine was the most widely used stimulant in the Northeast and upper Midwest; methamphetamine was the most common stimulant in the rest of the country.
- In most of the US, the cocaine and methamphetamine supply contains highly variable amounts of fentanyl.
- Rates of fentanyl-stimulant associated overdose deaths have increased for all groups, rates of increase have been greatest for AI/AN and Black individuals
- Individuals addicted to stimulants are at very high risk for fentanyl overdose. Effective treatment for stimulant use disorder is an essential component of overdose prevention efforts.

Friedman & Shover, 2022

TREATMENT FOR STIMULANT USE DISORDER

There are currently no FDA-approved medications for treating individuals with stimulant use disorder

Effective Treatment for Individuals with Stimulant Use Disorder is Contingency Management

Contingency Management for Stimulant Use Disorder

A behavioral technique employing the systematic delivery of positive reinforcement for desired behaviors that are incompatible with stimulant use. In the treatment of stimulant use disorder, tangible items (e.g. gift cards) can be “earned” for submission of stimulant-free urine samples or for completion of other target behaviors.

Types of Learning/Conditioning

- **Classical conditioning**
  - Association between a stimulus and a response
  - In substance use, this explains the development of “triggers”, which are stimuli that produce a conditioned response (thoughts/cravings of the substance)
- **Operant conditioning**
  - Positive reinforcement (increases targeted behavior)
  - Negative reinforcement (increases targeted behavior)
  - Punishment (decreases targeted behavior)
- Contingency Management utilizes ***positive reinforcement***

Operant Conditioning

Behavior → Consequence → Behavior Change

	Reinforcement (Increase / maintain behavior)	
Positive (add stimulus)	**Add** pleasant stimulus to **Increase / maintain** behavior	The euphoria and any other pleasant experiences while high (i.e., sex) positively reinforce substance use
Negative (remove stimulus)	**Remove** aversive stimulus to **Increase / maintain** behavior	Withdrawal symptoms are experienced as unpleasant and increase substance use because using makes them go away

Reinforcement vs. Punishment

- Both can change behavior
- Most people prefer reinforcement over punishment
- Punishment does not teach a new behavior (only tells you what *not* to do)
- Most punishers lack the immediacy to be effective
- Punishment has unnecessary side effects, i.e., reduced self-esteem
- Only positive reinforcement teaches new behaviors in a way that builds self esteem, and self-efficacy

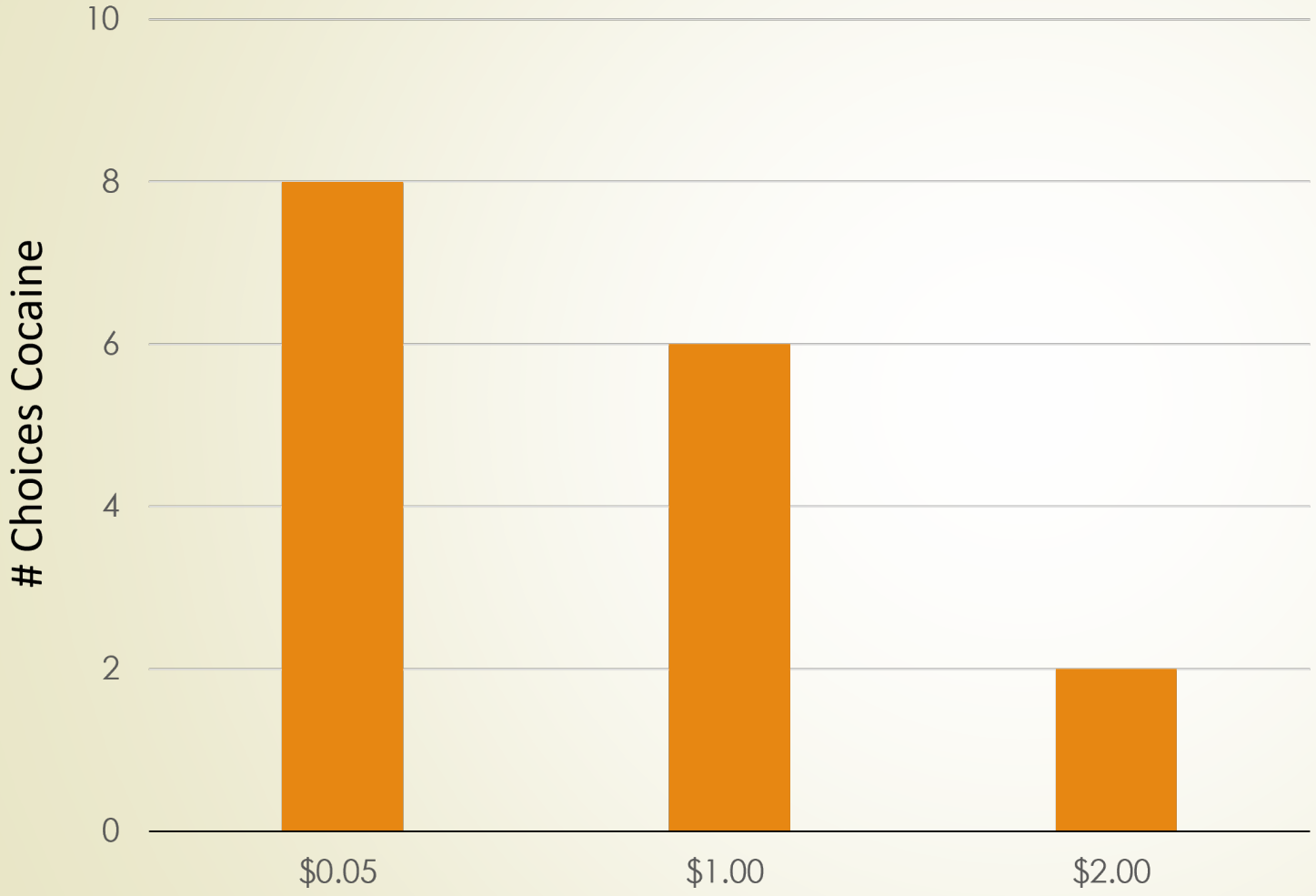
Punishment

Positive Reinforcement

CM Uses Positive Reinforcement to Help People Choose Abstinence Over Substance Use

- CM uses tangible incentives (i.e., gift cards).
- Incentives (i.e., gift cards) are only provided when a UDT is negative for stimulant drugs (e.g., cocaine, amphetamine and methamphetamine).
- Rewards (i.e., gift cards) increase, or escalate, over time when the stimulant abstinence is consistently achieved.

Cocaine vs. Reward



People who use drugs will choose relatively small rewards over drugs

SOURCE: Higgins, Bickel, & Hughes, 1994

CM for Stimulants: Research Summary (1)

- CM is the most effective way to help people stop using stimulant drugs (AshaRani et al., 2020; Bentzley, et al., 2021)
- Over 60 studies demonstrating that CM works to reduce stimulant use for people who are receiving MOUD (Medications for Opioid Use Disorder) treatment (Bolívar et al., 2021)
- CM has a higher retention rate than other stimulant use disorder treatments (Higgins et al., 1994)
- The effects of CM can last for up to one year after the intervention ends (Ginley et al., 2021)
- CM that targets stimulant abstinence leads to reduced alcohol use, cigarette smoking, depressive symptoms, and psychiatric hospitalizations (Miguel et al., 2017; McDonell et al., 2021b)
- CM is cost effective (Olmstead & Petry, 2009)

SOURCES: AshaRani et al., 2020; Bentzley et al., 2021; Bolívar et al., 2021; Ginley et al., 2021; Higgins et al., 1994; McDonell et al., 2021b; Miguel et al., 2017; Olmstead & Petry, 2009

CM for Stimulants: Research Summary (2)

Cultural factors:

- CM has demonstrated efficacy in the U.S., Brazil, China, and other countries (Hser et al., 2011; Miguel et al., 2022)
- CM has been adapted, tested, and found to be effective in partnership with American Indian and Alaska Native communities (McDonell et al., 2021a; McDonell et al., 2021b)
- CM has demonstrated efficacy for reducing methamphetamine use among Men Who Have Sex With Men (MSM) (Shoptaw et al., 2006)

Other Populations:

- CM is associated with reductions in substance use in populations with co-occurring serious mental illness (McDonell et al., 2013; Bellack et al., 2006)

SOURCES: Bellack et al., 2006; Hser et al., 2011; McDonell et al., 2013; McDonell et al., 2021a; McDonell et al., 2021b; Miguel et al., 2022; Shoptaw et al., 2006

JAMA Network | Open.

Original Investigation | Substance Use and Addiction

Comparison of Treatments for Cocaine Use Disorder Among Adults
A Systematic Review and Meta-analysis

Brandon S. Bentzley, MD, PhD; Summer S. Han, PhD; Sophie Neuner, BS; Keith Humphreys, PhD; Kyle M. Kampman, MD; Casey H. Halpern, MD

- Results: A total of 157 studies comprising 402 treatment groups and 15,842 participants were included
- Only contingency management was significantly associated with an increased likelihood of having a negative test result for the presence of cocaine (OR, 2.13)
- Conclusions: In this meta-analysis, contingency management programs were associated with the highest reductions in cocaine use among adults.

Bentzley et al., 2021

Contingency management for the treatment of methamphetamine use disorder: A systematic review

Hayley D. Brown, Anthony DeFulio *

Western Michigan University, United States

- A review of 27 studies.
- All included a contingency management intervention for individuals who use methamphetamine.
- Outcomes:
  - Drug abstinence
  - Retention in treatment
  - Attendance/treatment engagement
  - Sexual risk behavior
  - Mood/affect
  - Treatment response predictors

Brown & DeFulio, 2020

Results

- Reduced methamphetamine use in 26 of 27 studies.
- Longer retention in treatment.
- More therapy sessions attended; higher use of medical and other services.
- Reductions in risky sexual behavior.
- Increases in positive affect and decreases in negative affect.

Conclusion: “Evidence suggests strongly that outpatient programs that offer treatment for methamphetamine use disorder should prioritize adoption and implementation of contingency management intervention”

Brown & DeFulio, 2020

Current Challenges to the Use of CM

- Resistance to the use of incentives to promote behavior change
  - Stigma associated with: “Paying individuals to not use drugs”
- Limits on Federal Funds
  - SAMHSA/HRSA $75 cap per person per year
  - Incentives are taxable income, risking interference with entitlement benefits
- Confusion regarding OIG Anti-Kick/Inducements regulations
- Absence of Evidence-based Training and Implementation Strategies
- Optimal parameters for CM protocol design currently not well established

Financing CM

Where does the money come from? Currently, SAMHSA money, SOR grants and Block grants have a $75 max per patient. This is inadequate per the research literature.

In many of the published research studies with individuals being treatment for StimUD, protocols were 12-16 weeks in duration with max possible earnings of $1000-$1200.

In the ongoing, first statewide CM project in California, the incentive program is $599 max per patient per 6-month protocol. $599 is used as the max to avoid issuing 1099 tax forms since as present the IRS may classify incentives earned as taxable income.

Financing CM

Strategies for Financing CM

- Change in HHS policy about $75 limit on incentives
- 1115 waiver to CMS to allow use of Medicaid funds
- Use of opioid settlement funds
- Use of state funds
- Foundations

States with CM Funding Strategies

Medicaid Waivers

- California
- Washington
- Montana
- Delaware
- West Virginia

Opioid Settlement Funds

- Vermont
- Rhode Island

Contingency Management Fraud Prevention Guardrails

- What is permissible

- Incentives that have a direct connection to the coordination and management of care of the target population.
- CM incentives for objective, validated measures consistent with positive outcomes(e.g., abstinent drug tests, and other confirmed behavioral measures).

- What is not permissible

- Incentives that result in medically unnecessary or inappropriate services.
- Advertising patient incentives to recruit or steer patients away from other providers.
- Using incentives for the purpose of increasing fees.
- Inadequate protection against fraud.

Fraud Prevention “Guardrails”

•Research-validated evidence-based practices
• Formal implementation using a written protocol
• Rewards should not exceed $200/month/per patient
• Each patient must have a documented clinical diagnosis
•Ongoing attention to and audit-ready processes for (e.g., electronic health records, attendance records, established accounting procedures, etc.)

- Clear protections to avoid using incentives for recruitment (e.g., no advertisements) or suggestions of rebates, refunds, or kick-back
- Individualized care plans should document specific behavioral targets, amounts and schedules
- For each patient, a complete, written accounting of every payment, its purpose, the related behavioral expectation and the patient’s actual effort for which the reward has been received.
- Gift or monetary incentives and their distribution must be accurately inventoried.

Some CM Protocol Questions

- Type of CM model used (voucher or Prize CM)
- Duration of the CM treatment
- Target behavior (e.g., negative urinalysis, attendance)
- Urinalysis target (stimulants only, polysubstance)
- Frequency of visits
- Incentive magnitude
- Use of escalation, reset, and recovery to promote extended periods of abstinence
- Use of CM in combination with other behavioral treatments

Setting the Context

- California has had a major stimulant problem for 30+ years.
- More Californians were admitted into a treatment program for a stimulant-related problem than any other substance in 2020 and the first quarter of 2021 (DHCS, CalOMS, 2022).
- No FDA-approved medications exist.
- National data indicates that stimulant use has be increasing significantly in recent years along with associated overdose deaths. Interventions to reduce stimulant use are critically needed (NIHCM Foundation, 2021; SAMHSA, 2021).
- Contingency Management (CM) has dozens of studies and six meta-analyses supporting the efficacy of CM for stimulant use disorders (Hadich, 2010; Knapp et al., 2007; DeCrescenzo et al., 2018; Brown & DeFulio, 2020; Bentzley et al., 2021; Farrell et al., 2019).

Recovery Incentives: California's Contingency Management Pilot

UCLA David Geffen School of Medicine
Integrated Substance Abuse Programs

PRISM COLLABORATIVE

Recovery Incentives: California's Contingency Management Pilot: Overview

- The California CM Pilot will be the first large-scale implementation of CM for treating stimulant use disorder outside the Department of Veterans Affairs (VA).
- This project is the first implementation of CM to be approved to be covered under Medicaid as part of the CalAIM 1115 Demonstration.
- CM implementation will require a very new set of procedures and knowledge and skills.
- The successful use of CM will require the implementation of a very specific protocol/methodology.
- All providers/personnel delivering CM will be required to vigorously follow the procedures of the protocol.
- The methods of delivering and accounting for incentives will be very similar to procedures used for dispensing medications.

Key Elements of the Recovery Incentives Program

Participate in a structured **24-week Recovery Incentives Program**. 12 weeks with twice weekly testing/incentives and a 12-week continuation with once weekly testing/incentives

Receive incentives for testing **negative for stimulants only** even if they test positive for other drugs

Earn a **maximum of $599** over the 24-week period in the form of gift cards

Generate incentives and track progress using **Incentive Manager** software

Recovery Incentives Program Counties

24 DMC-ODS counties will participate in the Recovery Incentives Program:	
Alameda	San Diego
Contra Costa	San Francisco
Fresno	San Joaquin
Imperial	San Luis Obispo
Kern	San Mateo
Los Angeles	Santa Barbara
Marin	Santa Clara
Nevada	Santa Cruz
Orange	Shasta
Riverside	Tulare
Sacramento	Ventura
San Bernardino	Yolo

The CM Coordinator

- The key to the successful implementation is the CM Coordinator.
- Individuals trained as CM Coordinators will be the only individuals to conduct CM-related activities.
- CM Coordinators will be regularly audited by a CM Supervisor.
- The project will require buy-in and oversight of agency/county leadership.
- All staff will participate in promoting recruitment of patients with StimUD into the CM pilot.

CM Coordinator – Core Competencies

- Excellent organizational skills
- Effective skills in following lab and specimen handling procedures
- Good computer skills and ability to learn new computer programs
- Excellent communication skills
- Excellent understanding of application of federal and state privacy rules that protect all protected health information (PHI) as required by HIPAA and confidentiality/disclosure requirements of 42 CFR Part 2

CM Coordinator – Key Responsibilities (1)

- Explain and collect the Recovery Incentives consent form.
- Enter information for reimbursement and reporting purposes.
- Enter test results into the CM incentive manager, understanding the incentive amount and being able to explain it to the participant.
- Ensure delivery of the incentive to the participant.
- Communicate with clinical staff regarding UDT results and any information of clinical relevance, including test results positive for opioids.
- Effectively and safely interact with participants who may be intoxicated.

CM Coordinator – Key Responsibilities (2)

- Collect UDT samples and recognize sample tampering efforts.
- Effectively communicate with participants about the need for a new sample.
- Refer participants to treatment and recovery staff for follow-up treatment.
- Follow proper laboratory procedures to ensure good lab practice.
- Try to contact participant in case of missed session.
- Provide praise for stimulant-negative test; provide encouragement in the case of stimulant-positive test.

Additional CM Team Members

- CM Coordinator is one member of overall Treatment Team
  - Counselor to provide other behavioral treatments
  - Care manager
  - Recovery support provider/referrals
  - Medical care/referrals
  - Other service providers as needed
- Back-up CM Coordinator
- CM Supervisor
- County Auditor

The Four Essential "Ingredients" of CM

1. Clearly define target behavior
2. Frequently measure behavior
3. Provide tangible incentives soon after behavior is observed
4. Withhold incentive when behavior is not observed while ***maintaining supportive attitude***

1. Clearly Define the Behavior Goal

Goal: Stimulant abstinence measured by point-of-care Urine Drug Test (UDT)

- **Focused:** does not require abstinence from other substances, only stimulants
- **Objective:** does not rely on self-report, relies on UDTs
- **Immediate results:** essential for positive reinforcement
- **Feasible:** cost effective for frequent use, does not take specialized training
- **Achievable:** a 2 to 4-day stimulant metabolite detection window means rewards can be earned within first few days of abstinence

2. Frequently Measure the Behavior

- Collect urine tests and provide incentives:
  - Ex: ***2 x per week for weeks 1-12***
  - Ex: ***1 x per week for weeks 13-24***
- Communicate attendance requirements (missed visit means missed opportunity for reward and reset of recovery incentive value to baseline)
- Schedule on non-sequential days (e.g., Mon/Thurs or Tues/Fri)

3. Provide Desirable/Immediate Rewards

Desirable:

- An Incentive Manager vendor can provide a wide array of options for incentives
- Starting value of $10 per stimulant-negative UDT, increasing by $1.50 for every week of non-use of stimulants (i.e., two consecutive stimulant-negative UDTs)

Immediate:

- Incentives can be electronically delivered, with the option to print gift cards onsite for those without reliable access to technology

4. Contingent AND Positive

Contingent:

- No incentive given when urine test is not submitted or is positive for stimulants

Positive:

- Encouragement/support is offered without punishment even if the urine drug test is positive for stimulants

Training and Implementation Support

01

Overview (2-hours – self-paced)

02

Implementation (6-hours live virtual)

03

Readiness Self study, Interview, Practice Cases

04

Monthly Coaching Implementation Zoom Sessions

05

Fidelity Monitoring (2x first 6 mo, 1x every 6 mo after)

CM Overview Training – Core Focus Areas

- Key elements of CM
- Types of reinforcers
- Common misconceptions about CM
- Research support for CM
- OIG Final Rule

CM Overview Training – Format

- Self-paced online course housed on **PSATTC e-Learn Site**
- Two hours in length
- Continuing education credit available for a variety of disciplines (physicians, psychologists, nurses, marriage and family therapists, social workers, counselors)
- Open to the community at large
- Serves a pre-requisite to attend the 6-hour live virtual CM Nuts and Bolts training

CM Implementation (Nuts & Bolts) Training – Core Focus Areas

- In depth review of CM protocol
- CM implementation tasks
  - UDT procedures
  - Using the Incentive Manager
  - Client flow and scheduling
  - Readiness and Fidelity Monitoring procedures
- Creating a CM Program that is compliant with state and federal requirements
- Communicating with potential participants about the Recovery Incentives Program
- Effective CM conversation demonstrations/role plays

CM Implementation (Nuts & Bolts) Training – Format

- Two-part live virtual training (6 hours of content)
  - Offered in two 3-hour sessions
- Continuing education credit available for a variety of disciplines (physicians, psychologists, nurses, marriage and family therapists, social workers, counselors)
- Required for CM Coordinator/Back-up and Supervisor
- Must show proof of competing CM Overview Training to register

Core CM Element
Escalation, Reset, and Recovery

- Initial incentive value for first sample negative for stimulants in a series is $10. For each week the participant demonstrates non-use of stimulants (2 consecutive (-) UDTs), the value of the incentive is **increased by** $1.50.
- A **“reset”** will occur when a participant submits a positive sample or has an unexcused absence. The next time a (-) UDT is submitted, the incentive amount will return to the initial value (i.e., $10)
- A **“recovery”** of the pre-reset value will occur after two consecutive stimulant (-) urine samples. At that time, the participant will recover their previously earned incentive level without having to restart the process.

Incentive Delivery Schedule – ***Escalation***

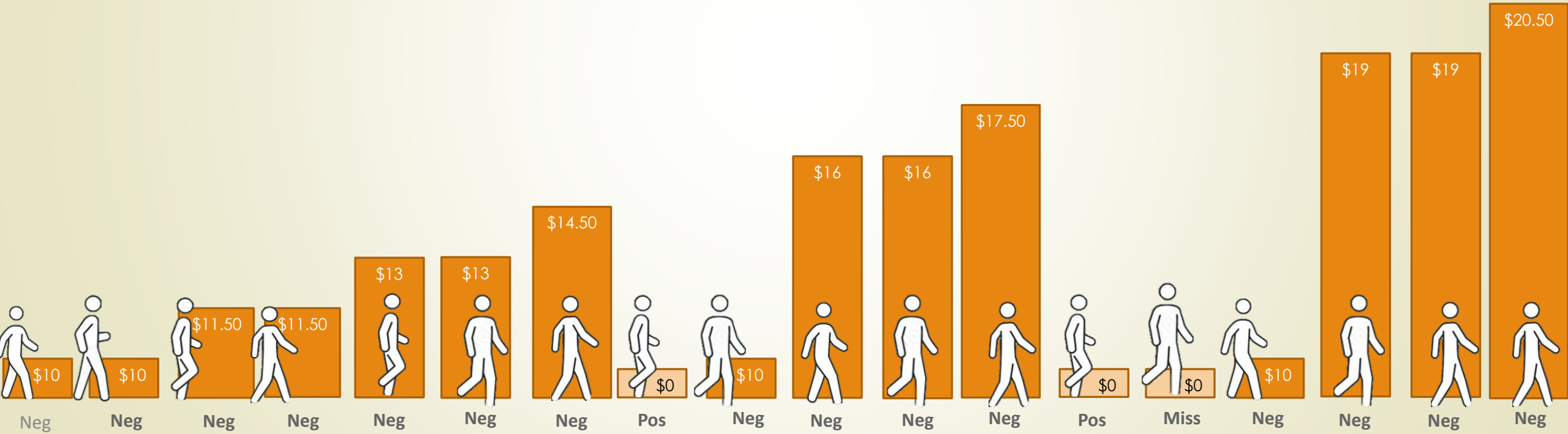
Graph shows weeks 1-9 with all stimulant-negative samples. By week 12, each sample would receive $26.50 with continued stimulant-negative samples each week.

Full Incentive Schedule with 100% Stimulant-Negative UDTs

Week	Incentive 2x/week ($)	Weekly Total ($)
1	$10.00 + $10.00	**$20.00**
2	$11.50 + $11.50	**$23.00**
3	$13.00 + $13.00	**$26.00**
4	$14.50 + $14.50	**$29.00**
5	$16.00 + $16.00	**$32.00**
6	$17.50 + $17.50	**$35.00**
7	$19.00 + $19.00	**$38.00**
8	$20.50 + $20.50	**$41.00**
9	$22.00 + $22.00	**$44.00**
10	$23.50 + $23.50	**$47.00**
11	$25.00 + $25.00	**$50.00**
12	$26.50 + $26.50	**$53.00**
Total		**$438.00**

Week	Incentive 1x/week ($)	
13	$15.00	
14	$15.00	
15	$15.00	
16	$15.00	
17	$15.00	
18	$15.00	
19	$10.00	
20	$10.00	
21	$10.00	
22	$10.00	
23	$10.00	
24	$21.00	
Total	**$161.00**	**$599.00**

Incentive Delivery Schedule with Multiple Stimulant-Positive UDTs



CM Reimbursement Guidance

- DHCS has developed a recommended interim rate range for DHCS payment to counties of $35.83 to $39.42 per 15-minute unit of service.
- The interim rates include expected staffing costs, indirect overhead, expected productivity, and costs of the urine drug testing supplies (e.g., testing cups and strips).
- Counties may choose to submit a higher interim rate to DHCS, using the standard process.

Getting Started: The Readiness Review

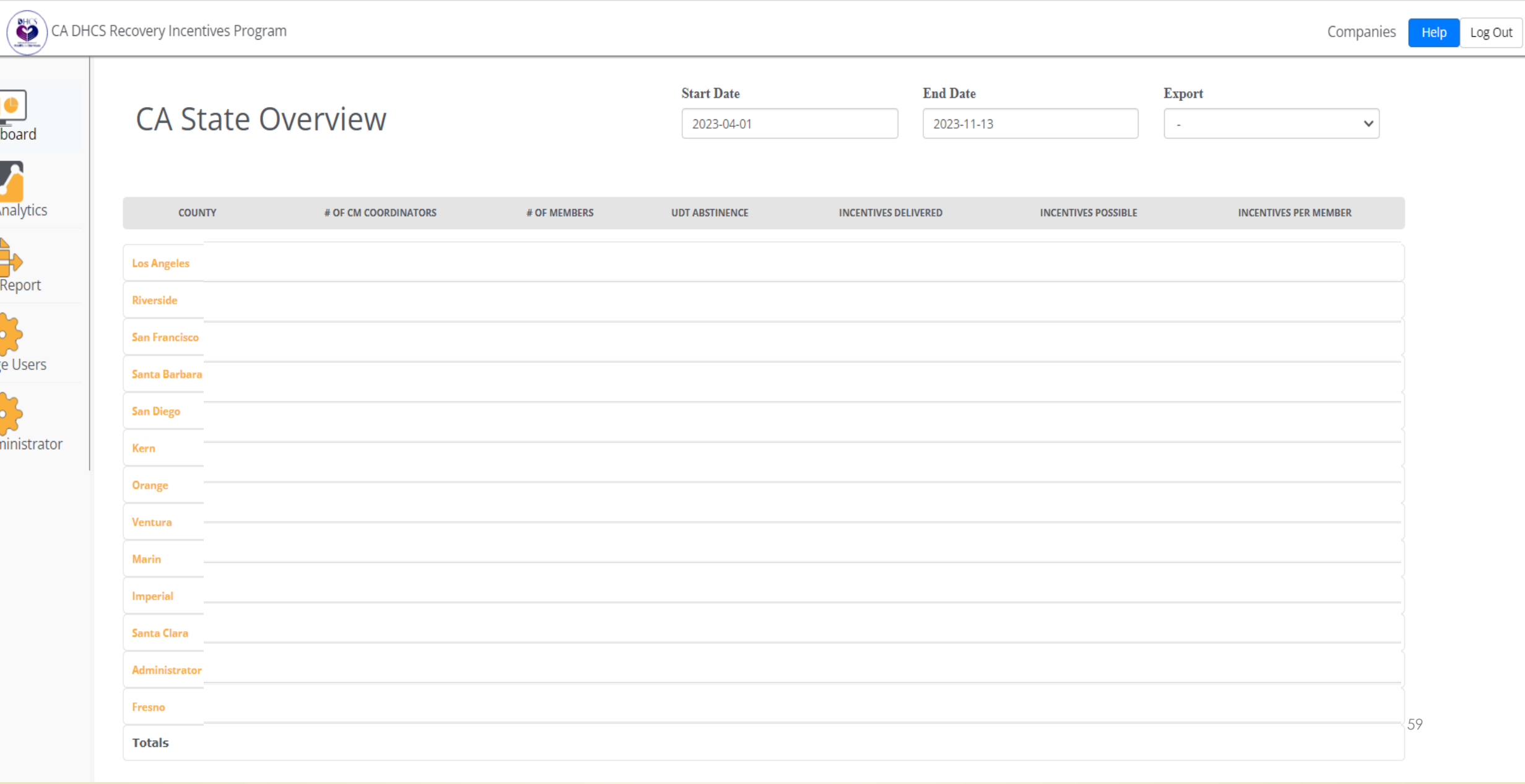
Readiness Review

- After completing the required Recovery Incentives training, provider organizations will be required to successfully complete a readiness review to administer CM. The review will include:
  - Reviewing site-specific CM processes and procedures, including staff hiring, UDT set-up and procedures, managing client flow/schedule, incorporating incentive manager, billing, and documentation procedures
  - Entering pilot CM cases into incentive manager to demonstrate proficiency with the tools
  - Understanding and demonstrating standard response to negative and positive UDT
  - Demonstrating procedures for entry of other clinical data (e.g., opioid positive UDT tests and referrals) into participant's medical record
  - Demonstrating responses to pre-set scenarios, including how to handle disputes over test results, tampered samples, and positive results for drugs other than stimulants

Incentive Manager

- DHCS intends to contract with an Incentive Manager vendor to manage the tracking and distribution of incentives to program participants. The Incentive Manager will have the ability to:
  - Calculate incentive amounts based on urine drug test results
  - Disburse incentives to program participants
  - Track incentive payment dates and amounts over time

The Incentive Manager Portal



Urine Drug Testing Vendor Recommendations

- UCLA worked with an expert toxicologist to develop a list of recommended products that met a standard set of requirements including cutoff levels and validity measures
- Samples will be collected 2x per week in first 12 weeks; weekly in weeks 13-24
- Point of care test cups will be utilized and immediate results for recent stimulant use will be obtained

Ongoing Support

Coaching and Implementation Support

Fidelity Monitoring

Implementation Coaching Support

- Monthly Coaching Calls
- Individualized onsite or virtual implementation support available by request
- Additional Training
- Fidelity Monitoring
- CM Implementation Webpage on UCLA ISAP website
  - Warm line for ongoing consultation, questions, problem solving
  - Resources for training, implementation, readiness review, and fidelity monitoring

Fidelity Monitoring

- Conducted 2x in first six months of implementation and 1x every six months thereafter
- UCLA team will teach county auditing staff how to conduct fidelity monitoring after the conclusion of the pilot program

Evaluation

- **Existing data** – DMC Claims, CalOMS, Incentive Manager Data

- **Provider and Client Surveys & Interviews** - Perceptions, implementation recommendations, etc.
  - UCLA will send an online survey link
  - We need help from counties to get it to your CM provider organizations (Counties provide UCLA with provider e-mail addresses or send the link to them directly)
  - We need providers to give the link to their CM clients
  - We'll take it from there!

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Recovery Incentives Data to Date

01/10/2024

- Total **planned** participants: 24 Counties, 160+ sites
- Currently **launched** participants: 14 counties, 68 sites
- Participants **enrolled**: 1,426
  - **Active**ly Receiving CM Services 841 (59%)
  - **Disenrolled** any reason 485 (34%)
  - **Completed**: 100 (7%)
- Total **UAs Conducted**: 20,215
  - UA Neg/**Total UAs Conducted**: 96%
  - UA Neg/Total UAs Conducted + **Unexcused Absences**: 74%
  - UA Neg/Total UAs Conducted + **All Absences**: 71%
- Total Amount of Incentives **Earned**: $296,016.00
  - Total Incentive Amount **Distributed**: $244,416.00
  - Total Incentive Amount **Banked**: $51,600.00

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Open Discussion

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Thank You For Your Time!