# Contingency Management + Technology: Sustainable Use in Routine Care

David R Gastfriend, MD DFASAM

DISCLOSURES:
Chief Medical Officer, DynamiCare Health
Chief Architect, CONTINUUM - The ASAM Criteria Decision Engine™
Senior Research Scientist, Treatment Research Institute/Public Health Management Corp.

Editorials represent the opinions of the authors and *JAMA* and not those of the American Medical Association.

# Physician Substance Abuse and Recovery

## What Does It Mean for Physicians—and Everyone Else?

David R. Gastfriend, MD

THE 10% TO 15% PREVALENCE OF SUBSTANCE USE DISorders among physicians is similar to that in the general population,[1,2] but the quality and intensity of treatment given to physicians may far exceed that available to other individuals with these disorders.[3-5] Recognition of the impaired physician began to emerge only in the 1970s[6] and has led to the development of physician health programs (PHPs). These are now mature models, available in many states, usually through medical societies, as an alternative to monitoring by state government boards of registration in medicine.[7] In many cases, physicians who voluntarily contract with a PHP may remain anonymous[7] to the state medical board and the National Practitioner Data Bank, a feature designed to promote early intervention in the disease process, ie, before patients are harmed. Many PHPs now offer services to other health professionals also. Treatment in these programs is probably the most compre-

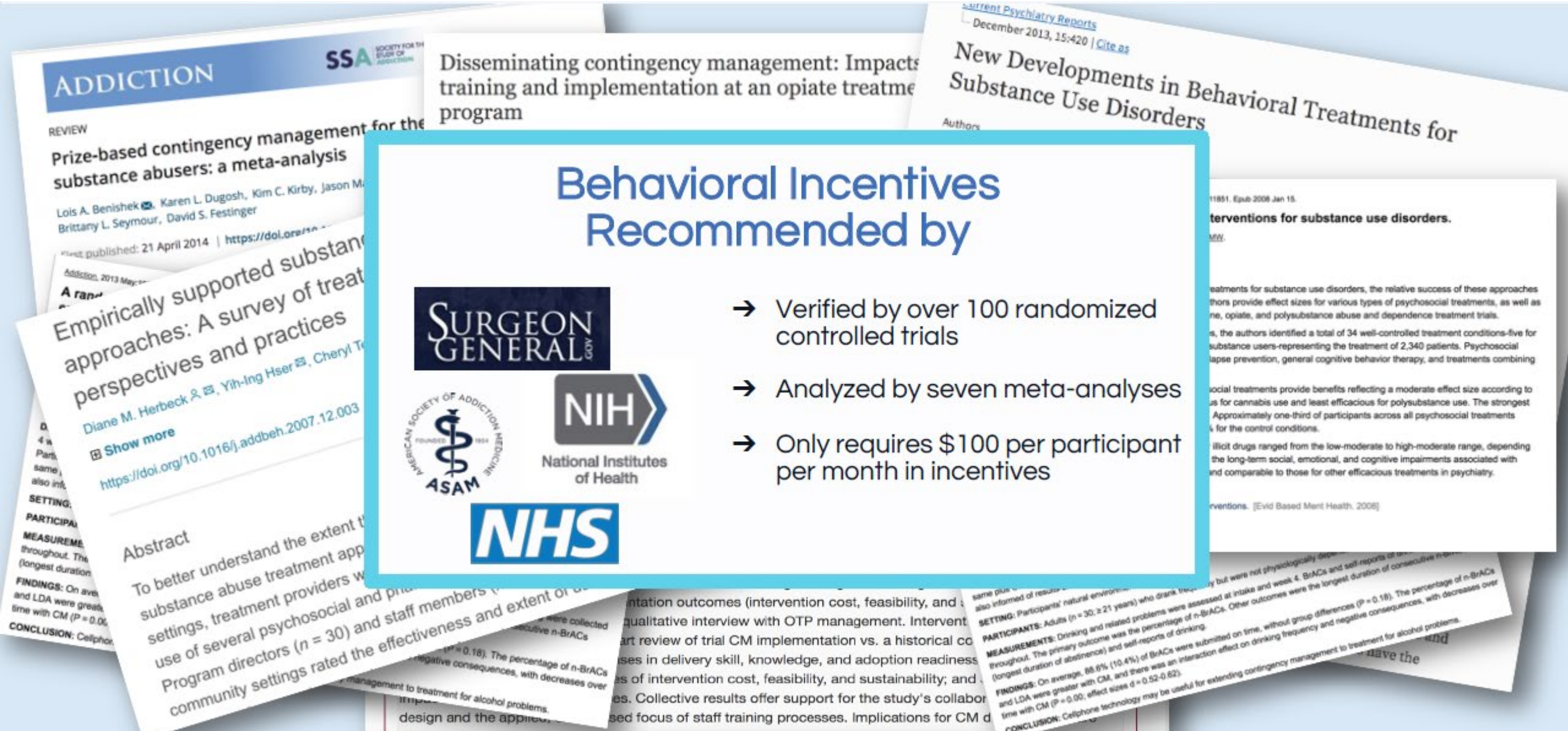
**See also p 1453.**

**Author Affiliations:** Addiction Research Program, Department of Psychiatry, Massachusetts General Hospital, and Department of Psychiatry, Harvard Medical School, Boston, Mass. Dr Gastfriend is now vice president of medical affairs, Alkermes Inc, Cambridge, Mass.

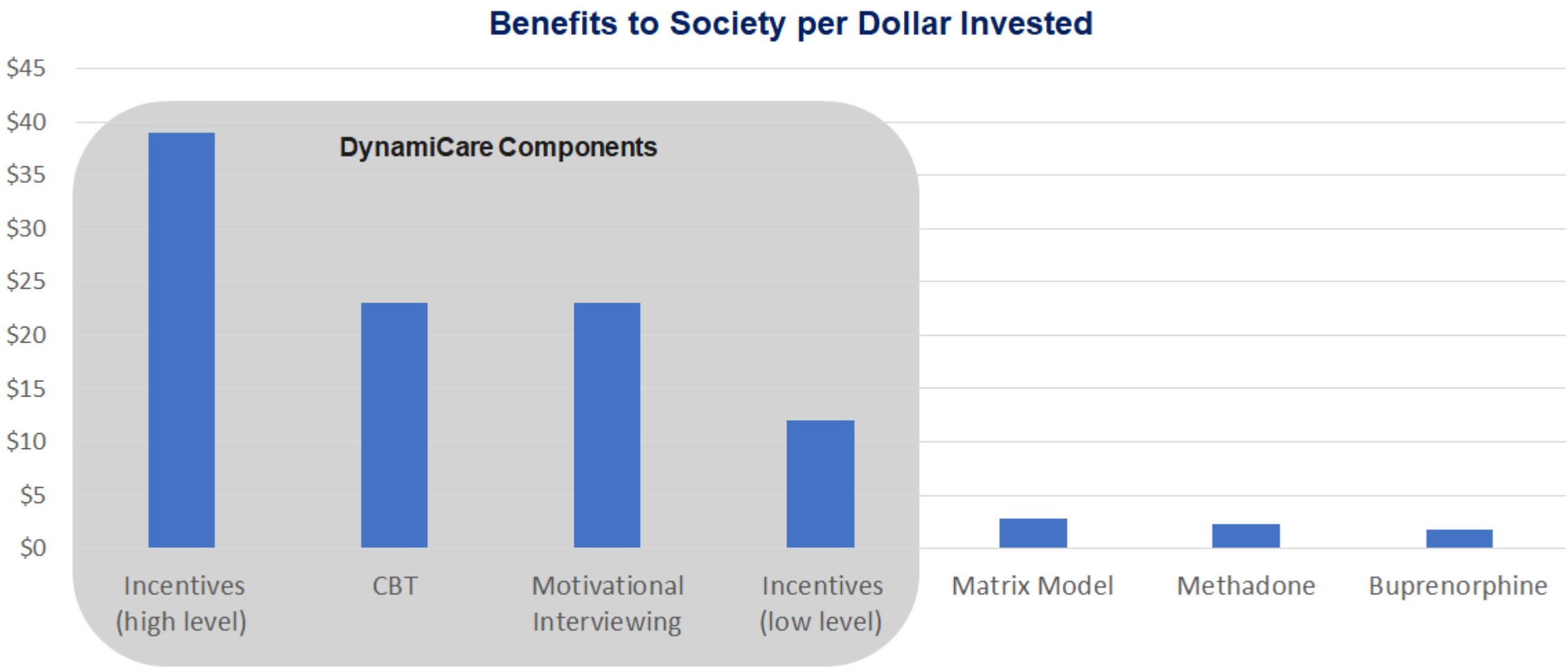
**Corresponding Author:** David R. Gastfriend, MD, Alkermes Inc, 64 Sidney St, Cambridge, MA 02139 (david.gastfriend@alkermes.com).

©2005 American Medical Association. All rights reserved.

# Contingency Management: The Evidence



# Contingency Management: The Evidence




**<u>Motivational Incentives: Benefits exceed costs beginning the first year</u> --** Wash. State Inst. for Public Policy, 12/2019

# CM: The Obstacles

1. Most drug testing is non-observed & non-random
   -- only occurs in a known weekday program schedule

2. Labor Intensive
   - Attendance tracking & on-time arrival are poorly tracked
   - Keeping track of reinforcement schedules
   - Prize distribution, accounting for small, constantly differing amounts

   Estimated $100 in staff time per patient for 12-week CM (Petry 2013)

3. Culture
   - Lack of awareness
   - Training needs
   - Lack of bandwidth
   - CM is not within the lived experience of providers/Inertia/Resistance

# CM + Tech: The Opportunity

Could technology possibly…

- Surmount these obstacles?
  - Ethics – paying patients with risk reduction?
  - Resources – sourcing funds, sustainably?
  - Testing – conduct frequent, true random, visually witnessed drug testing?
  - Management – rigorously account for small, constantly changing amounts?
- Enhance patient engagement?
- Predict relapse/dropout?

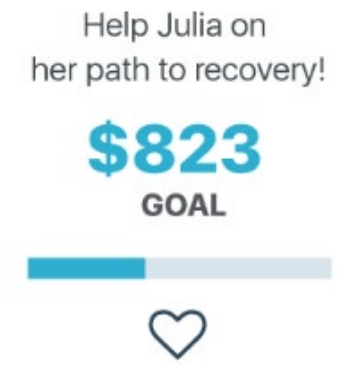
# Technology Assisted Care (TAC): The Opportunity

- In general, ***tech can solve obstacles*** in psychotherapy or SUD treatment
- Directly to patients, e.g., via the web.
- Media: Computers, tablets, phones
- Services: web-based support groups, interactive voice response, virtual reality sites & video games.
- Efficacy: Beneficial effects extending clinical interventions for Alcohol Use, Tobacco Cessation, Illicit Drug Use, and Gambling.

**Currently Available Examples of TAC/tools**

- TES or Pear Therapeutics re-SET
- CBT 4 CBT
- MOTIV8
- Project Quit
- Moderate Drinking.com (MD)
- Drinker's Checkup (DCU)
- A-CHESS
- MIIS
- DynamiCare Health

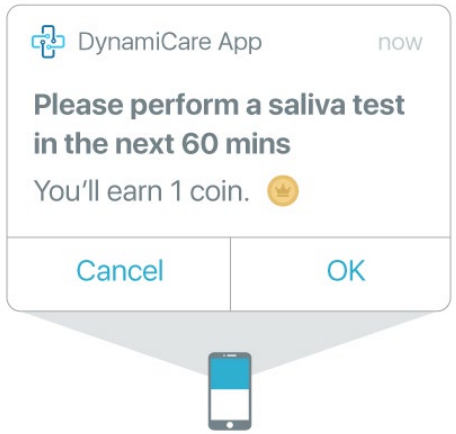
# CM + Tech: Reinforcing Abstinence




**Fund incentives from patient, family, employer, or payer**



**User receives app & drug testing device**




**User gets "random" alerts for drug testing**



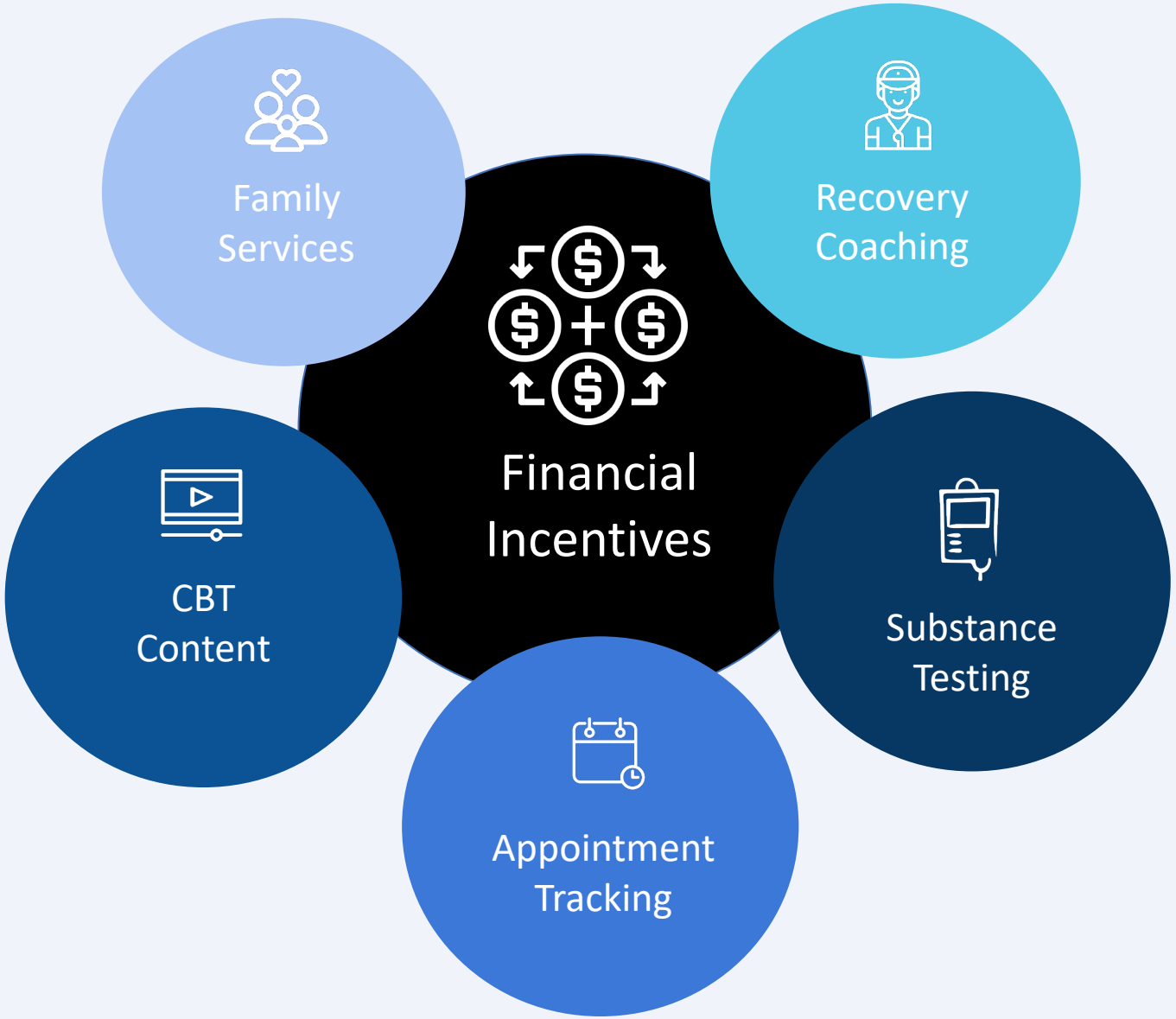
**User performs drug test with selfie, app verifies it**

REWARDS:




Money is deposited onto a debit card

# CM + Tech: A Suite of Care Services




Net Promoter Score:
**72**

# CM + Tech: A Care Pathway

Technology can provide a **12+ month** digital coaching program that helps people quit/moderate drugs, alcohol, or tobacco by promoting motivation and accountability.

Employer marketing

Payer referral

Provider referral

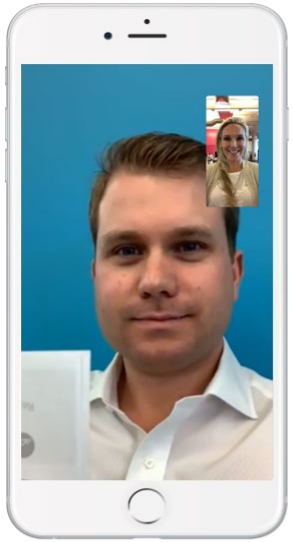
Direct marketing



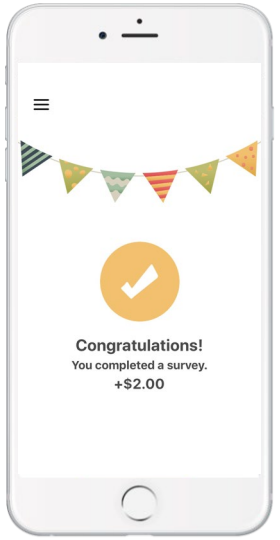
Assess member's needs & triage




Ship equipment & member orientation

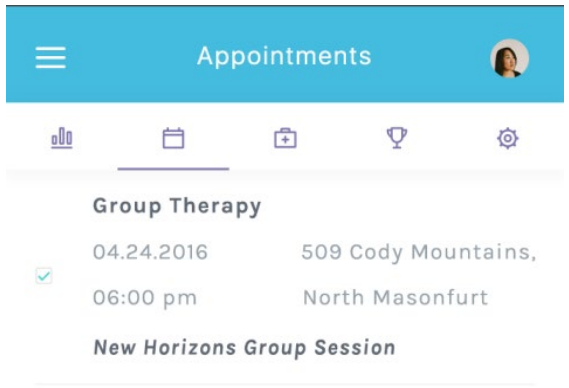


Weekly check-ins with Recovery Coach




12 months continuing care

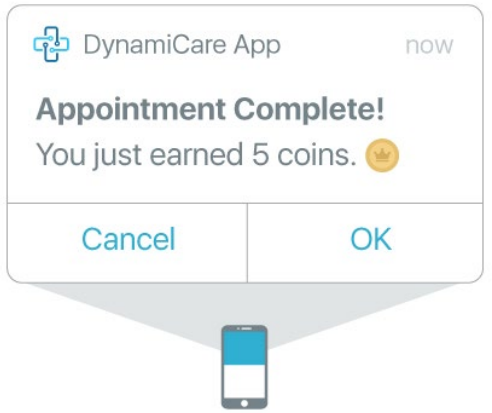
# CM + Tech: Reinforcing Attendance




**Automatically gather dates, times, locations of appointments**




**User receives reminder alerts for upcoming appointments**




**User is "checked-in" to appointment using GPS – right time, place & duration**

REWARDS:




Money is deposited onto a debit card

# CM Implementation: Rewards




Smart Debit Cards: for people in recovery

Key to providing incentive rewards, rapidly, safely/ethically with voluminous, 24/7, quantitative raw data for analytics

Features:



- Eliminates access to cash at ATMs, excess spending



- Cannot be spent at bars, liquor stores, casinos, etc.



- Fine-grain spending controls: retail store hour curfews



- Real-time, high-value, voluminous behavioral data

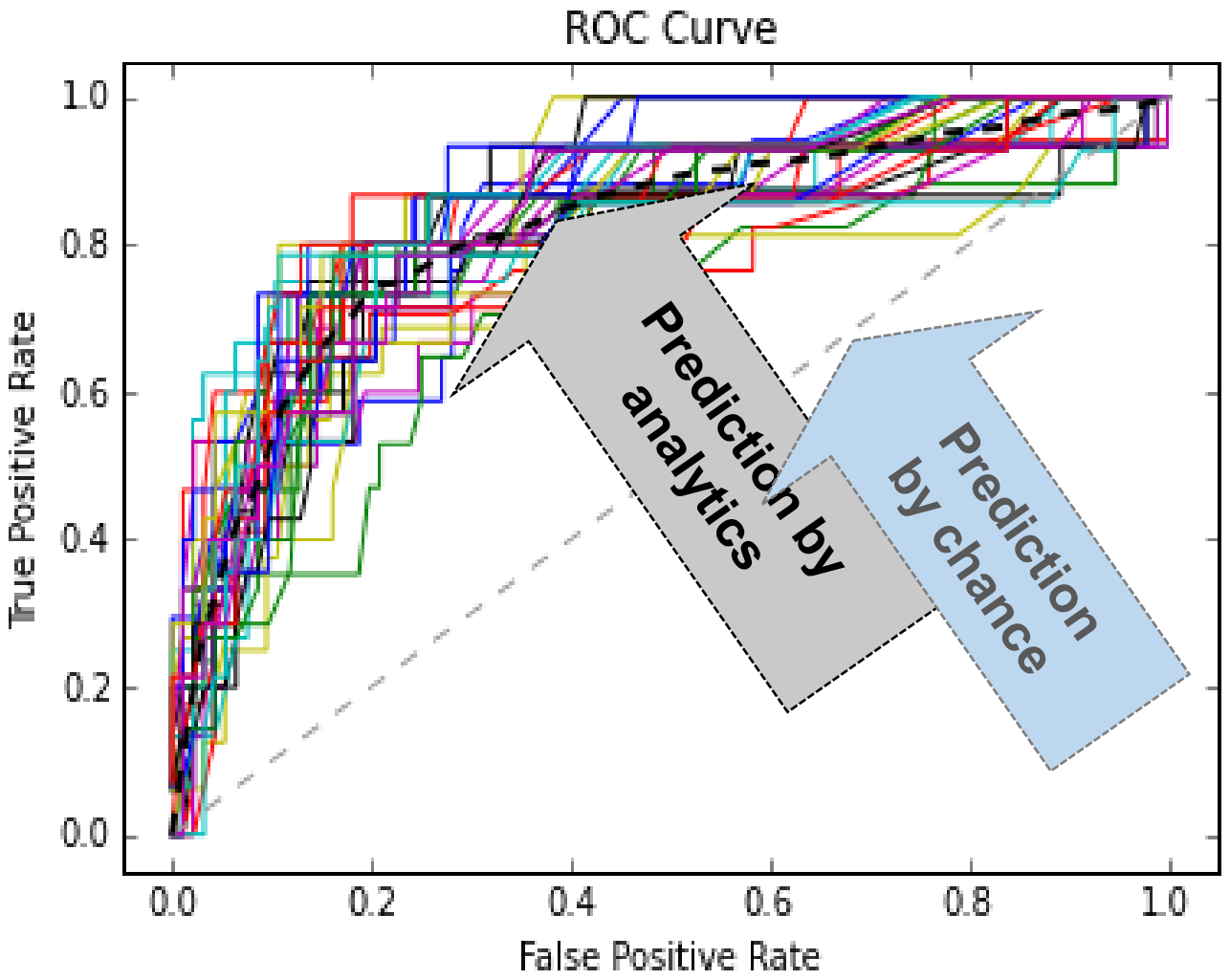
# Smartphone Financial Data: Analytics Opportunities

We compared the True Positive Rate (Sensitivity) to the False Positive Rate.

Results:
The model achieved a
- 70% True Positive Rate
- 20% False Positive Rate
  (black dotted line)

-- which is 3X better than chance
(with random guessing,
the True Positive and False Positive rates would be the same – gray dotted line).

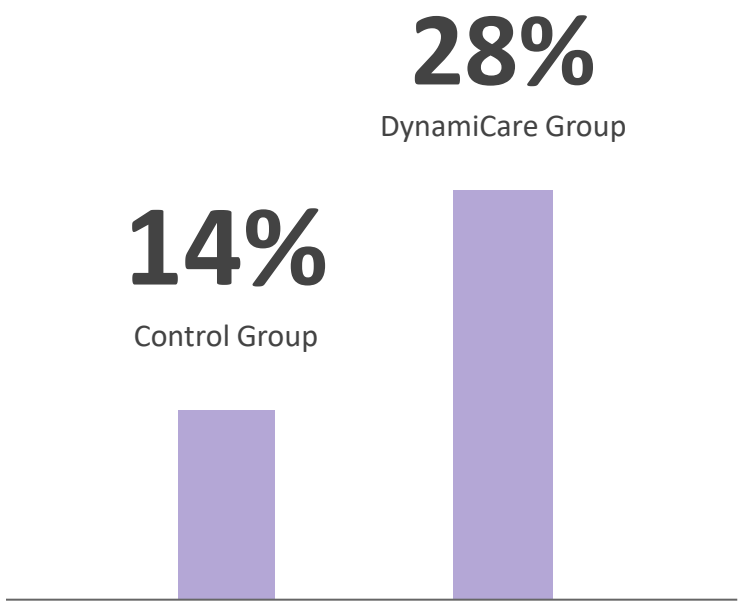
**Predicting Dropout in Next 24 Hours**



# CM + Tech: Broad Spectrum Clinical Effects

## Drug Abstinence
**increased by 2x**

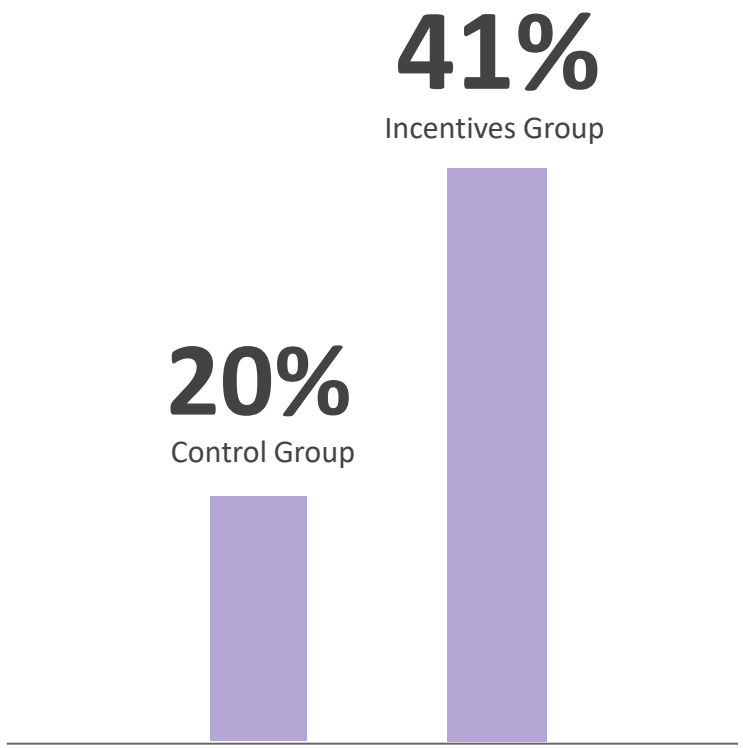
BrightView




% of urine tests consistent with medical expectations after 60 days, compared to statistically-matched control group.

## Alcohol Abstinence
**Increased by 2x**

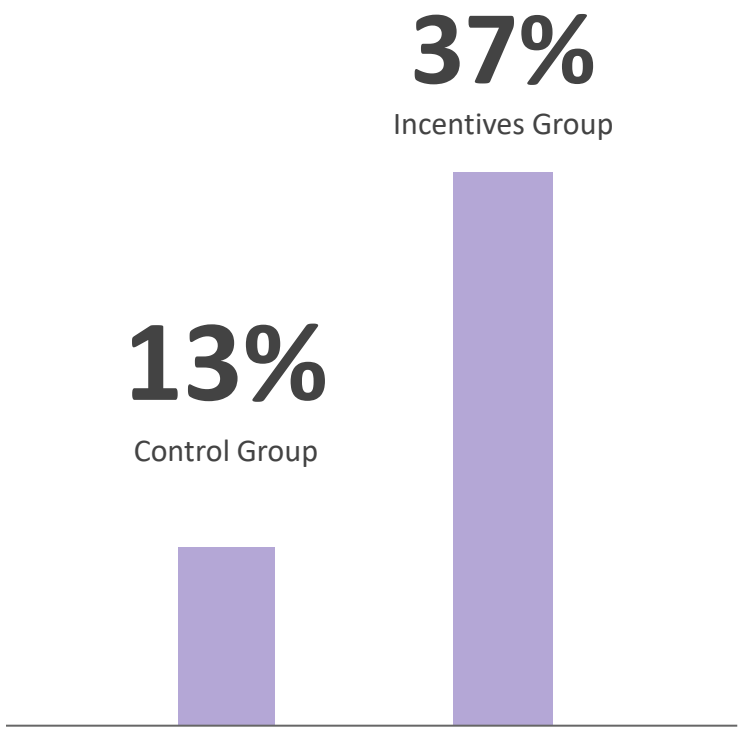
Gosnold




% of negative urine tests in NIH-funded 3-mo. randomized controlled trial of n=60 AUD patients in outpatient treatment at Gosnold on Cape Cod, MA.

## Smoking Quit Rates
**Increased by 2.8x**

The University of Vermont




Late pregnancy quit rate among n=60 pregnant smokers. PI Allison Kurti, PhD of UVM.

# CM Adoption & Implementation: Solutions

1. Technology can alleviate *almost all the burdens* of manual CM

2. Inter-patient & intra-treatment flexibility – *vs.* 1-size-fits-all,
   – Tech allows instant selection of many parameter specs

3. Remote tech solves schedule & rural access challenges, easily

4. Can make CM auditable, accountable & fraud-proof to HHS OIG

5. Nationally scalable CM tech can reignite NIH funding interest
   – It has (NIAAA SBIR grant for CM phone app & delivery system)

6. 50 years of research – yet, many parameters remain untested
   – Tech makes these infinitely configurable & modifiable,
   – With better data validity & resolution, little effort, at <u>low cost</u>