Lifestyle and Health: Our Choices Matter

Stephen T. Higgins, Ph.D.

Virginia H. Donaldson Endowed Professor of Translational Science

University Distinguished Professor of Psychiatry and Psychological Science

Departments of Psychiatry and Psychological Science

Vermont Center on Behavior and Health

mini med SCHOOL

University of Vermont Larner College of Medicine

University of Vermont College of Nursing and Health Sciences

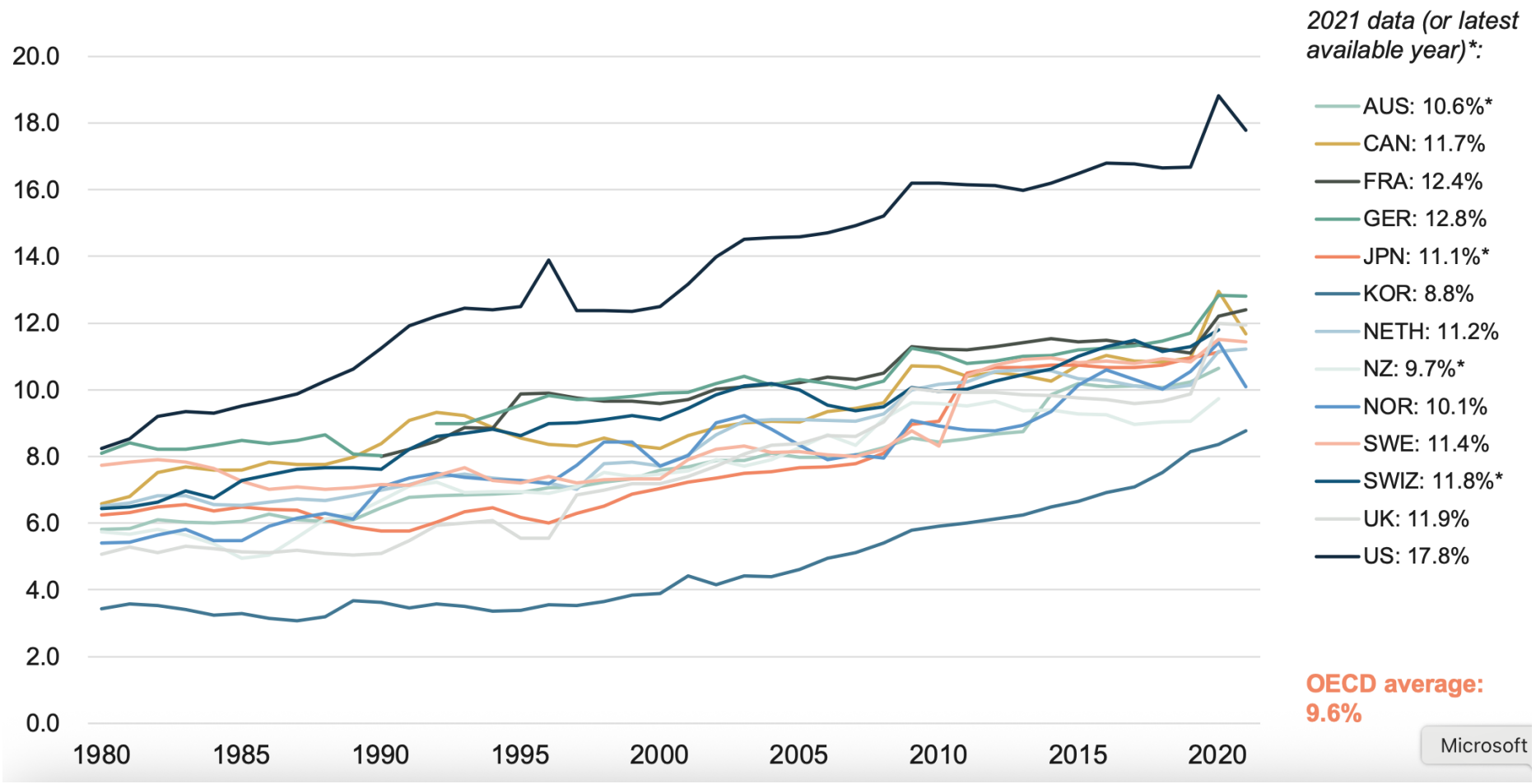
The University of Vermont Medical Center

Introduction

- U.S. population health is far worse than other developed nations despite spending much more on healthcare.
- Unhealthy behavior patterns (i.e., lifestyle) is the primary contributor.
- Tobacco and other substance misuse, obesity, and poor adherence to preventive medical regimens are exemplars.
- Healthy lifestyle choices are generally challenging but disproportionately so for certain subgroups leading to health disparities.
- The Vermont Center on Behavior and Health investigates mechanisms underpinning unhealthy choices and interventions to promote healthier choices.

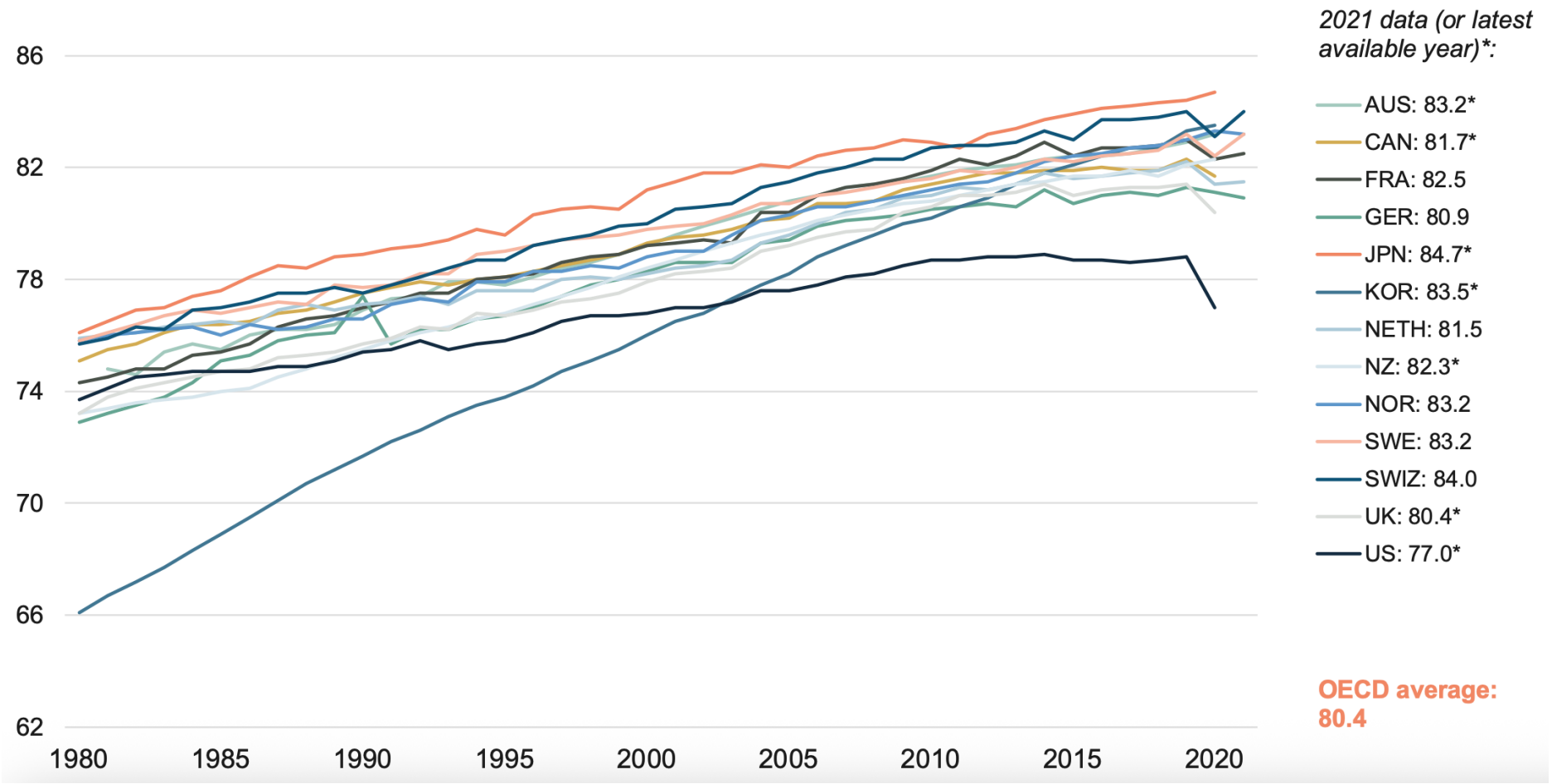
The U.S. is a world outlier when it comes to health care spending.

*Percent of GDP spent on health, 1980–2021**



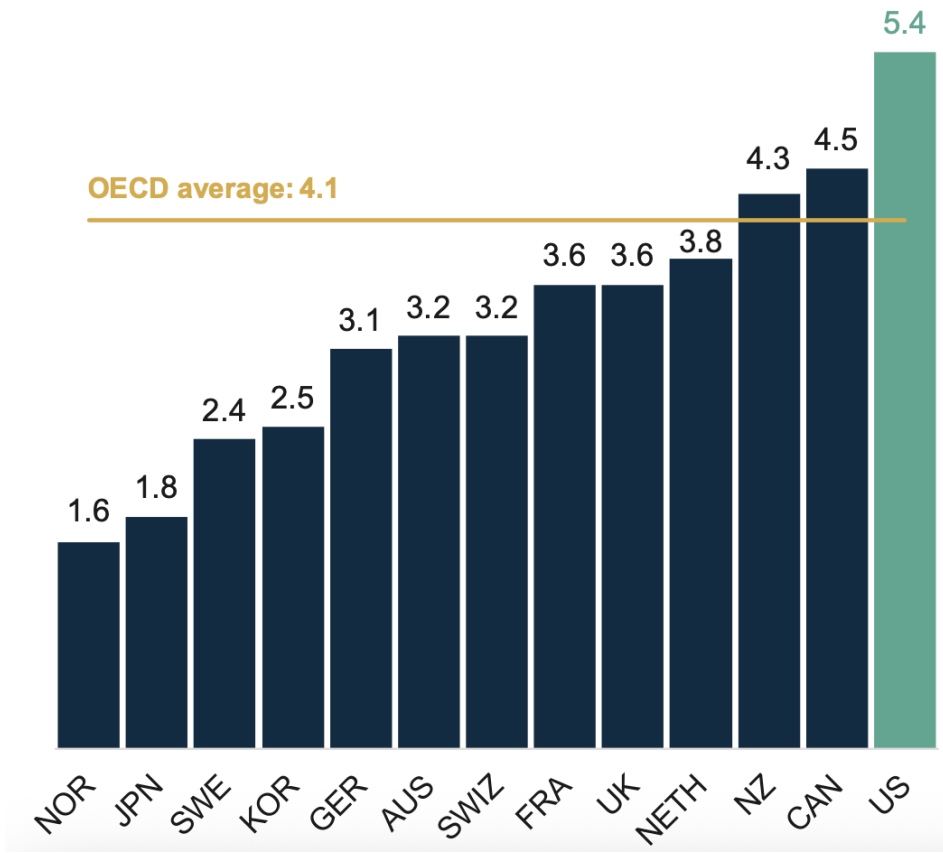
U.S. life expectancy at birth is three years lower than the OECD average.

*Years expected to live, 1980–2021**

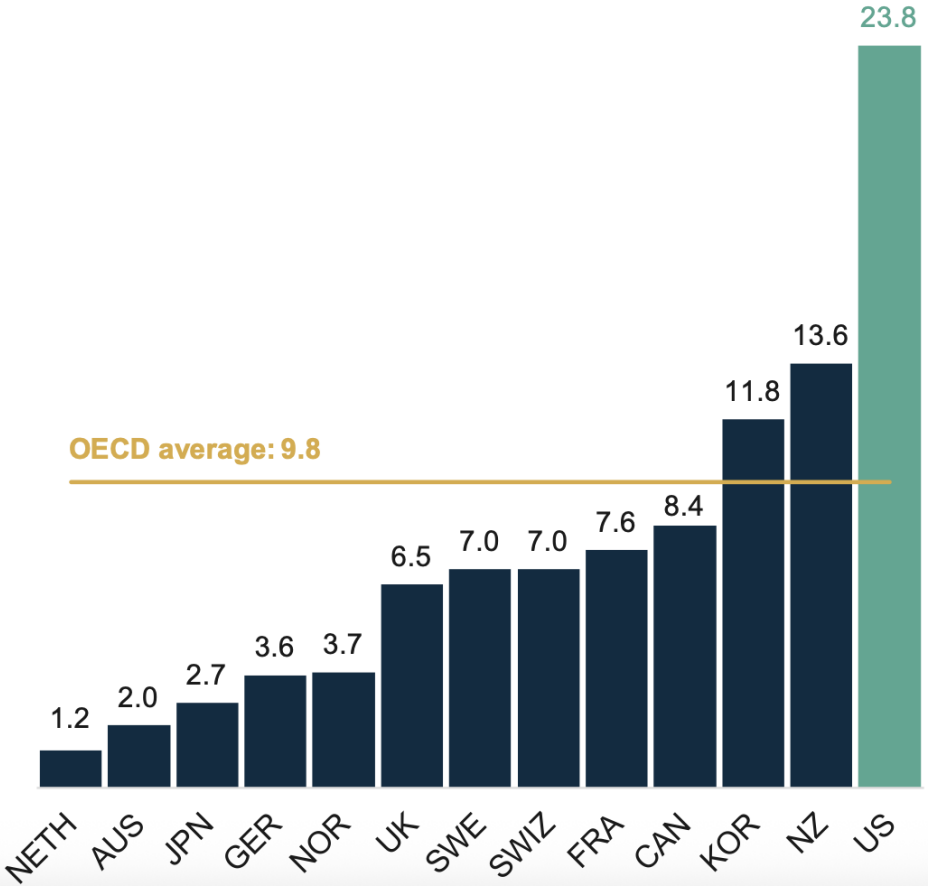


The U.S. has the highest rate of infant and maternal deaths.

Infant mortality, deaths per 1,000 live births



Maternal mortality, deaths per 100,000 live births



Examples of Vermont Center on Behavior and Health Projects

- Biases in decision making and risk factors for addiction and other behavioral-health disorders
- Impact of tobacco regulations on smoking in vulnerable populations
- Treating opioid use disorder in rural communities
- Preventing unplanned pregnancies in women with opioid use disorder
- Increasing use of Cardiac Rehabilitation among Medicaid-insured patients
- Incentivizing behavior change in vulnerable populations

Incentivizing Health-related Behavior Change

- In the 1990s, our group demonstrated that providing small financial rewards (vouchers redeemable for retail items) can increase healthy choices in treatment-recalcitrant populations.
- In a context where no other intervention was effective, we demonstrated increases in drug abstinence among outpatients with cocaine/methamphetamine use disorder.
- 35 years later, this treatment (contingency management) is the only effective intervention for stimulant use disorder in controlled trials.
- January 2025, it is now legal to use federal funds to treat stimulant and other additions using contingency management.

Perinatal Smoking

- Smoking is the leading preventable cause of poor pregnancy outcomes in the U.S.
- Increases risk for sudden infant death, small-for-gestational age (SGA) deliveries, other serious adverse birth outcomes.
- Rural and economically disadvantaged women are at increased risk.
- Efficacious cessation interventions are widely available to pregnant women, but antepartum quit rates are unacceptably low (~10%).
- Usual care is typically a referral to a quit line; best practices includes follow-up and further referral for continued smoking.
- Financial incentives for smoking abstinence represents an innovation that can reliably increase quit rates and improve birth outcomes.

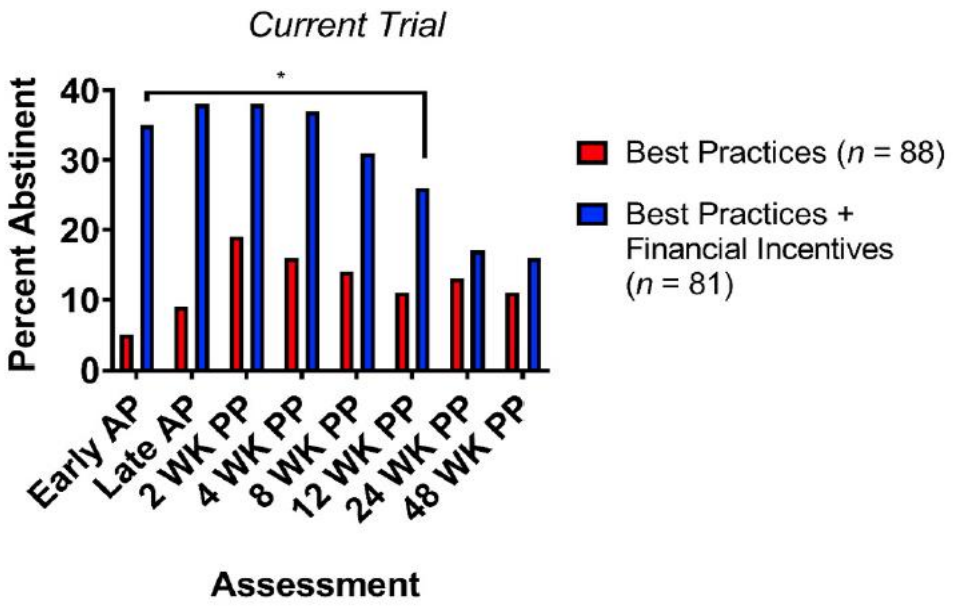
Methods

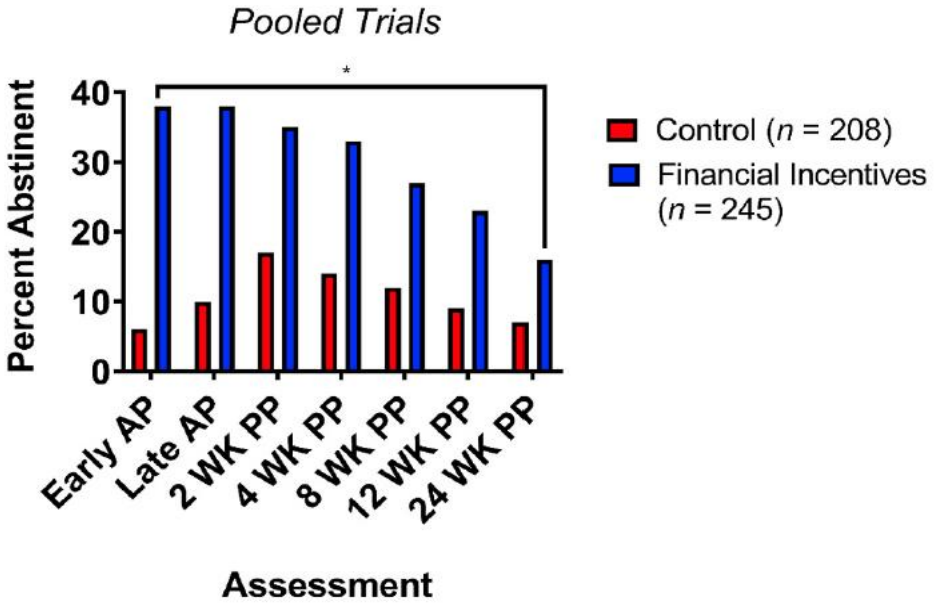
- **Recent Clinic-based Trial:** Compared best practices (BP) vs. BP + financial incentives (BP+FI) among 169 women still smoking at 1st AP visit; also included 80 never smokers (NS)
- **Primary outcome**: antepartum abstinence
- **Secondary outcomes**: birth outcomes (SGA, < 10th percentile for gestational age), craving/withdrawal, birth outcomes, postpartum abstinence, breastfeeding, cost-benefit analysis
- **Pooled data set**: current trial data were combined with four prior RCTs examining this FI model versus control conditions for a pooled total n=453 (FI=245; Controls=208)

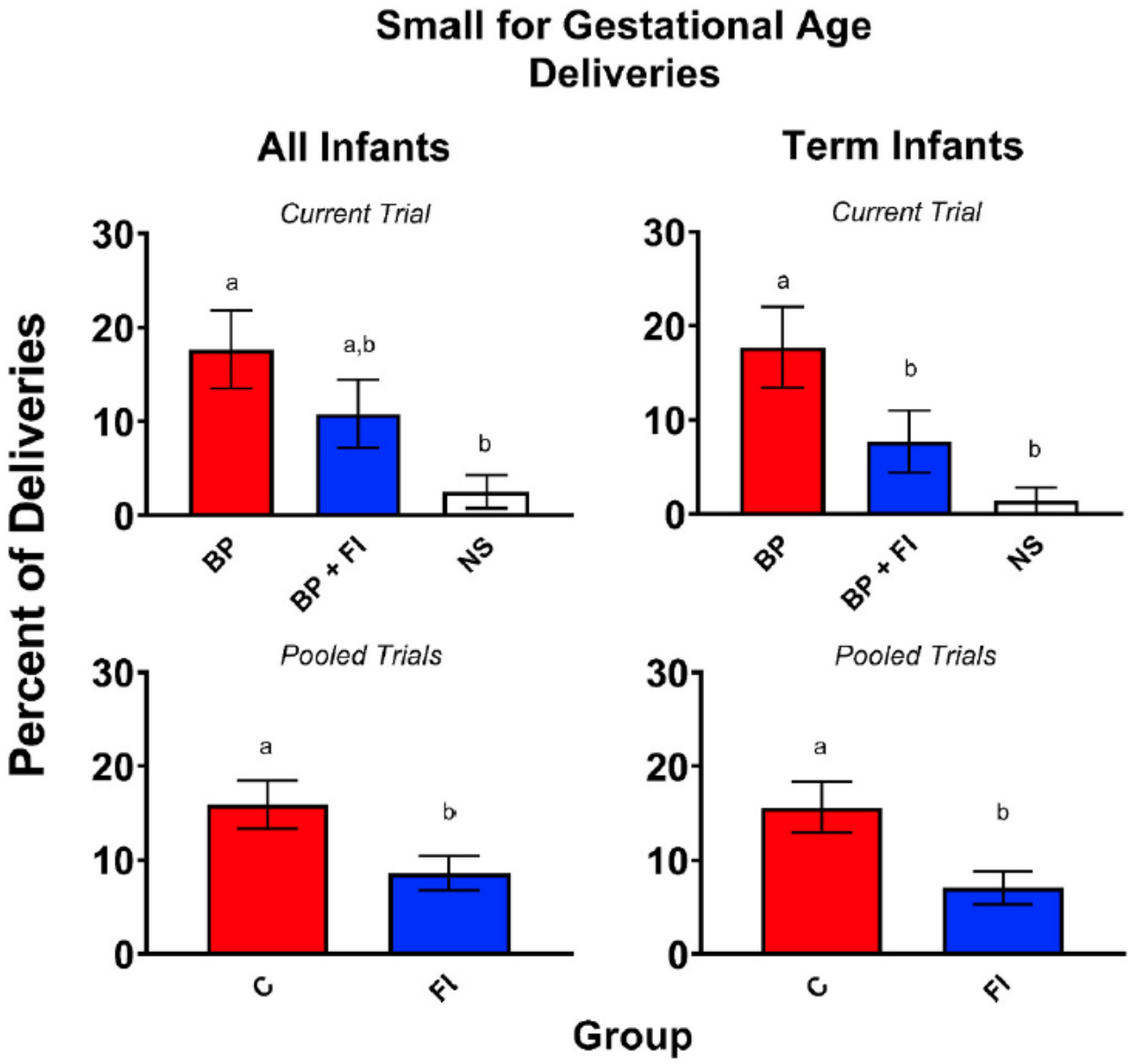
Incentives Model

- Vouchers exchangeable for retail items available antepartum through 12-weeks postpartum
- Vouchers are provided contingent on biochemical test results confirming abstinence.
- Periodic abstinence assessments conducted through 12-weeks postpartum.
- Voucher value starts relatively low ($6.25), escalates by $1.25 each consecutive negative test to max $45.00; positive results reset voucher value back to low level.
- Total mean earnings: $510.02±76.27.

7-Day Point Prevelence Abstinence






Small for Gestational Age
Deliveries
All Infants
Term Infants
Current Trial
Current Trial
Pooled Trials
Pooled Trials
Percent of Deliveries
30
20
10
0
a
a,b
b
a
b
b
a
b
a
b
BP
BP + FI
NS
C
FI
Group

JAMA Network Open™

Research Letter | Substance Use and Addiction

Effect of Smartphone-Based Financial Incentives on Peripartum Smoking Among Pregnant Individuals

A Randomized Clinical Trial

Allison N. Kurti, PhD; Tyler D. Nighbor, PhD; Katherine Tang, BA; Hypatia A. Bolívar, PhD; Carolyn G. Evemy, MA; Joan Skelly, MS; Stephen T. Higgins, PhD

mini med SCHOOL
UVM Academic Health Sciences

Methods

- **Participants:** Recruited nationally via social media and medical providers; assigned to best practices (BP) vs. BP + financial incentives (BP+FI) among 90 women still smoking at 1st AP visit.
- **Required to own or have access to smartphone**: They downloaded an App developed by DynamiCare Health.
- **Primary outcome**: antepartum abstinence
- **Abstinence bio-verification**: Breath carbon monoxide and salivary cotinine tests completed before smartphone camera that was time-stamped and forwarded to study staff.
- **Smoking status review**: Study staff reviewed test information and electronically added/withheld money to a debit card based on test results along with an email message.

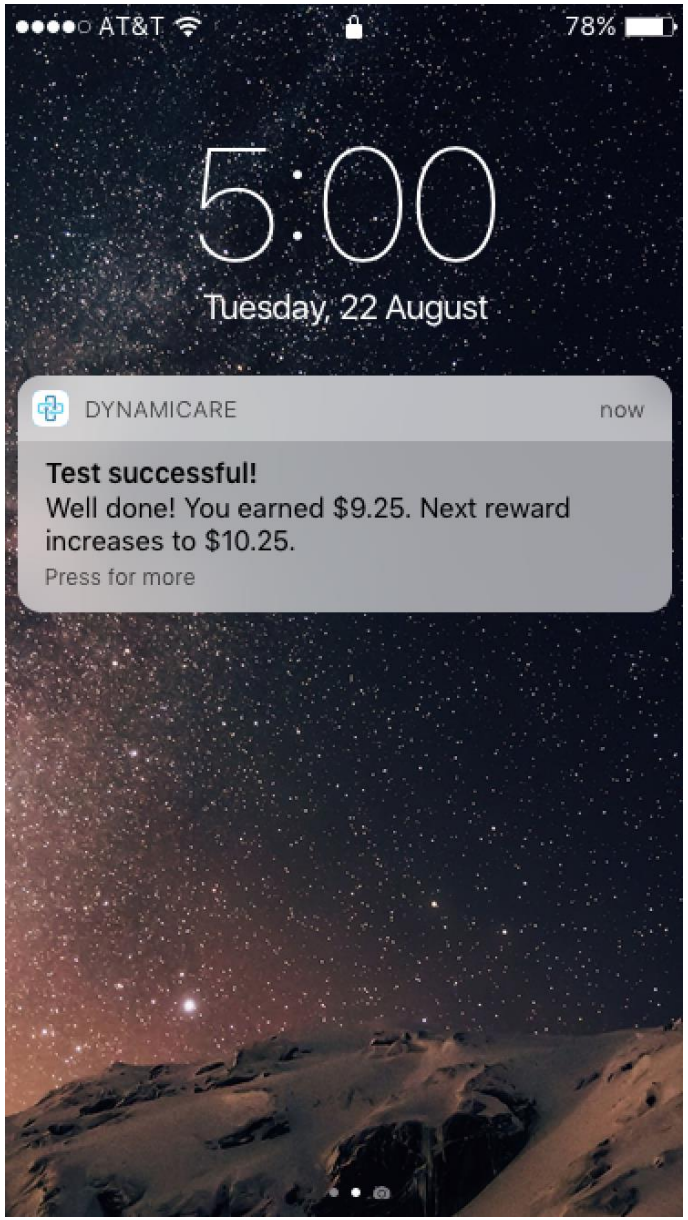
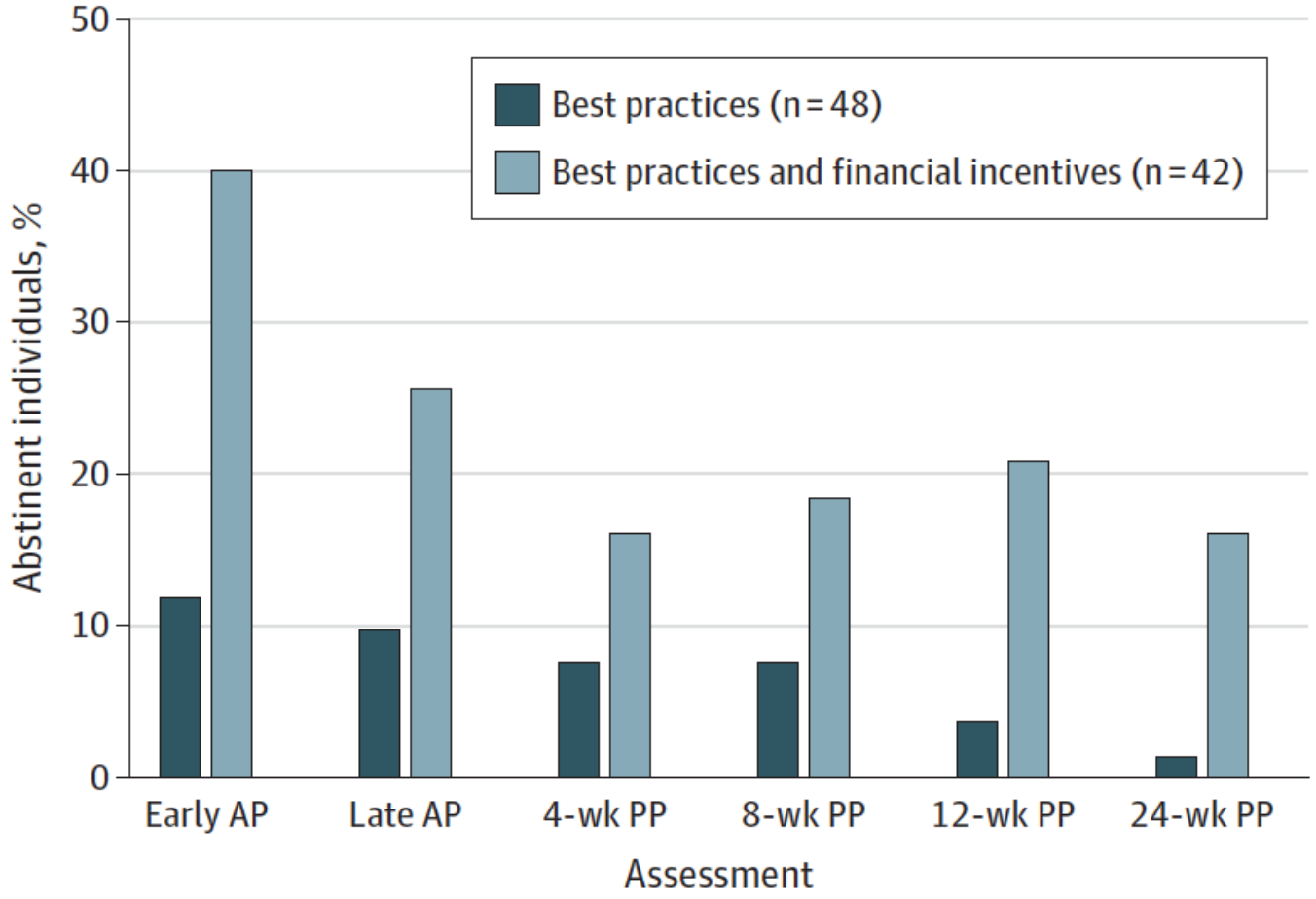

AT&T
78%
5:00
Tuesday, 22 August
DYNAMICARE
now
Test successful!
Well done! You earned $9.25. Next reward increases to $10.25.
Press for more

Figure. Seven-Day Point-Prevalence Abstinence Rates for Each Treatment Condition Across Antepartum (AP) and Postpartum (PP) Assessments



Summary and Conclusions

- Robust empirical evidence that financial incentives are efficacious and cost-effective for perinatal smoking cessation.
- United Kingdom recently implemented nationwide incentive-based perinatal smoking cessation.
- Financial incentives are efficacious for treating other substance use disorders. California has a state-wide implementation study underway; VT and other states have moved forward with contingency management implementation for stimulant use disorder.
- There is a sound scientific rationale underpinning financial incentives for smoking cessation and other SUDs.
- Lastly, if the U.S. is to improve population health, we must do better at advancing evidence-based interventions in a timely manner.