

Using Cost-Effectiveness Analysis to Foster Dissemination of Effective Preventive Interventions

An Example From the POST Study



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Preventing Opioid Use
Disorder in Older Adolescents
and Young Adults

Today's Objectives

- 1) Cost-effectiveness analysis (CEA)
- 2) Example CEA using the POST Study (Preventing Opioids through Successful Transitions)
- 3) Wrap-up: Pragmatic, useful information to support dissemination

Cost-Effectiveness Analysis

- **Goal**: Help decision makers use limited resources efficiently to achieve a policy or program objective
 - Considers costs and outcomes → **Which options are good economic investments?**
 - Best practices: Second Panel on Cost-Effectiveness in Health and Medicine (*Neumann et al., 2016, Sanders et al., 2016*)
- **CEA**: What is the **intervention cost per unit gain** in desired outcome?
 - Evaluated by **incremental cost-effectiveness ratio (ICER)**:
$$\text{ICER} = \Delta \text{ Cost} / \Delta \text{ Effects} = (C_2 - C_1) / (E_2 - E_1)$$
 - Lower ICERs → greater efficiency, generally more desirable
 - ICER < decision maker willingness to pay → **cost-effective**
- Non-economic factors – equity, values – also influence policy choices!



Preventing OUD in Incarcerated Young People

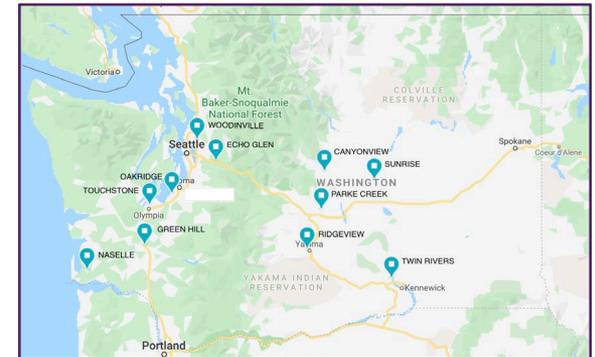
The Need

- 20% of incarcerated youth and young adults have OUD
- Skills coaching and social connections may prevent opioid use initiation or escalation and recidivism
- How intensive do supports need to be to be effective?

POST Study

Using SMART Design to Identify an Effective & Cost-Beneficial Approach to Preventing OUD in Justice-Involved Youth *(MPIs Ahrens, Haggerty)*

- **Aim 1:** Test preventive interventions of different intensities using a SMART* design
 - 430 justice-involved youth ages 16–25
 - Youth with & without prior substance use disorder
- **Aim 2:** Conduct Cost and Cost-Effectiveness Analyses





ADOLESCENT COMMUNITY REINFORCEMENT

- Adolescent Community Reinforcement Approach (ACRA)
 - Evidence-based
 - Intensive coaching, case management — before & after release from confinement
 - **Skills & relationships → non-use more rewarding than use**
- POST Study: Different ACRA intensities
 - **Enhanced ACRA (E-ACRA, 24 weeks) → ACRA + trauma-focused intervention**
 - **Low-intensity ACRA (ACRA Lite, 12 weeks) → 4 weeks ACRA + 8 weeks case management**
- Tailor to youth with and without a prior SUD
 - **Youth with a prior SUD → E-ACRA vs. ACRA Lite**
 - **Youth without a prior SUD → ACRA Lite vs. usual care**



POST Economic Evaluation

Key CEA Question

Are investments in more intensive interventions “worth it,” in economic terms?

CEA for Youth With a Prior SUD: E-ACRA v. ACRA Lite

- $ICER = (Cost_{E-ACRA} - Cost_{ACRA\ Lite}) / (Effect_{E-ACRA} - Effect_{ACRA\ Lite})$
- Three outcomes: Opioid use initiation, opioid use escalation, recidivism
- $ICER < \text{decision maker willingness to pay} \rightarrow \text{Cost-effective}$
- Sensitivity analysis \rightarrow capture uncertainty in cost and effect estimates



SMART Design: Opportunities for CEA – 1

Youth With Prior SUD

Stage 1 Interventions

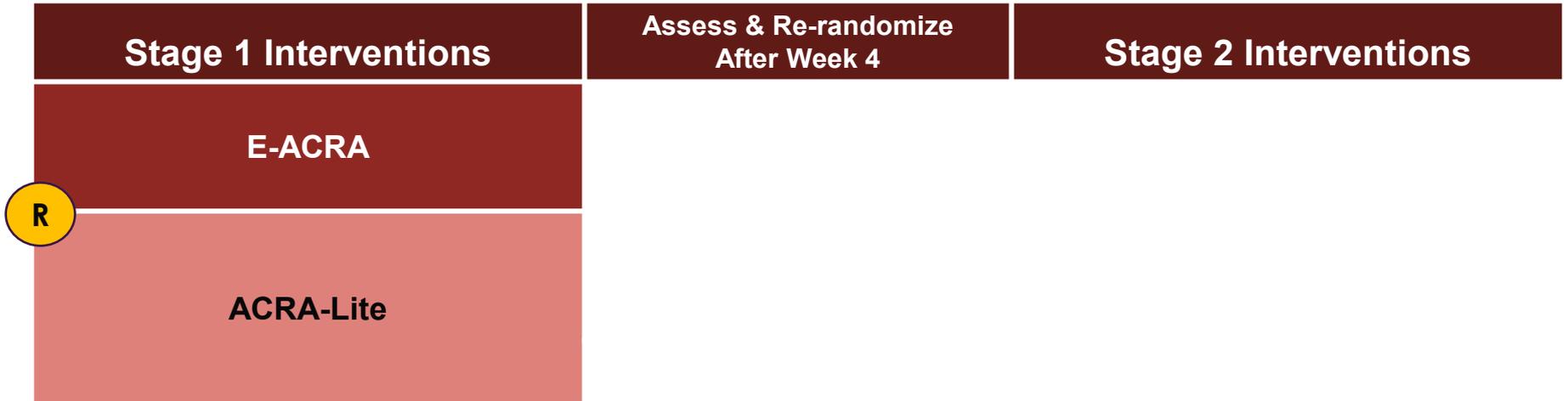
Assess & Re-randomize
After Week 4

Stage 2 Interventions



SMART Design: Opportunities for CEA – 2

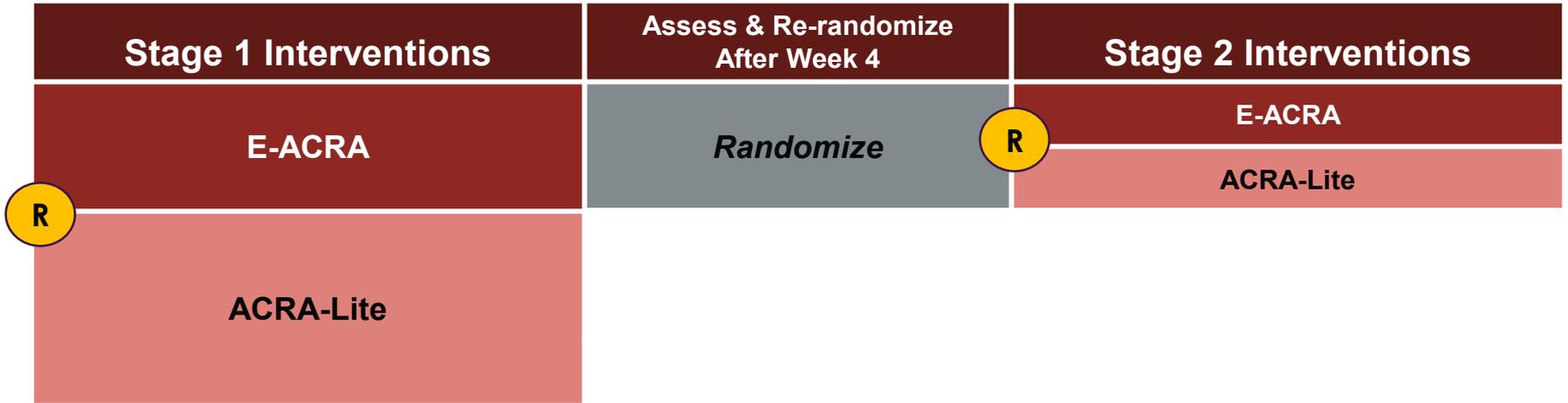
Youth With Prior SUD





SMART Design: Opportunities for CEA – 3

Youth With Prior SUD



E-ACRA

- Does longer intensive intervention lead to greater impact?
- Is longer intensive intervention cost-effective?



SMART Design: Opportunities for CEA – 4

Youth With Prior SUD

Stage 1 Interventions	Assess & Re-randomize After Week 4	Stage 2 Interventions
R E-ACRA	Randomize R	E-ACRA
		ACRA-Lite
R ACRA-Lite	Illegal or problem use R	E-ACRA
		ACRA-Lite
	No illegal or problem use	ACRA-Lite

E-ACRA

- Does longer intensive intervention lead to greater impact?
- Is longer intensive intervention cost-effective?

ACRA-Lite

- When ineffective, does increasing intensity strengthen impact?
- Is shift to greater intensity cost-effective?



Actionable Information for Policy and Practice

- 1) How much do ACRA & ACRA-Lite cost?
 - What does it cost to start up?
 - What does it cost to deliver once capacity built?
 - 2) Are more intensive ACRA interventions worth it in relation to outcomes achieved?
 - Does the answer depend on whether youth have prior SUD?
 - SMART design increases information gained
- ***Answers support future high-quality dissemination and implementation — essential to impact***

Thank you!

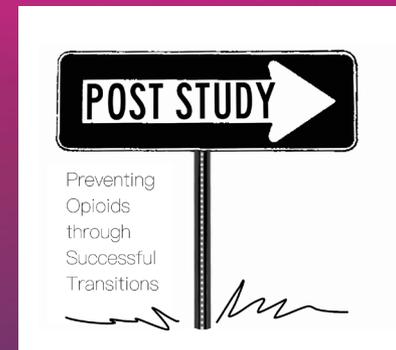
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