

ACT and MI to Facilitate Treatment Initiation and Reproductive Planning among NICU Mothers using Illicit Substances: Moms In ACTion

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Substance use among women

- Substance use among women of child-bearing years is prevalent and associated with unplanned or poorly timed pregnancies (Lundsberg et al., 2020)
- Almost **half of all U.S. pregnancies are unplanned** (Guttmacher Institute, 2019); among women who use substances this rate is even higher.

Substance use during pregnancy

- Substance use during pregnancy increases **poor birth outcomes** (Ko et al., 2018).
- Between 2006-2012, substance-related neonatal **hospital stays** increased by 71 percent, with a 135% increase in hospital **costs** (Fingar et al., 2015).
- Many women who use substances are **unaware of their pregnancy** or **delay prenatal care** for other reasons, precluding prenatal intervention (Lennox et al., 2021).
- **Postpartum, hospital intervention is critical to prevent future substance-exposed pregnancies.**

How do we reduce rates of substance-exposed pregnancies?

Quit using substances

AND/OR

Use effective contraception



Moms In ACTion (MIACT): Specific Aims

- Develop and pilot test a hospital-initiated, motivational interviewing and acceptance and commitment therapy intervention for mothers of NICU infants who used illicit/non-prescribed substances during pregnancy.
- Primary Outcomes:
 - Feasibility (enrollment, retention, session attendance)
 - Treatment initiation for substance use
 - Postpartum visit with a physician/Receipt of contraception
- Secondary Outcome:
 - Substance use

Participants

- N=64 mothers with an infant admitted to the NICU
- Inclusion criteria:
 - Mother had a positive urine drug screen at delivery/prenatally
 - OR infant had a positive urine or meconium drug screen
 - OR self-reported drug use
 - Access to a telephone
- Exclusion:
 - Currently attending substance use treatment
 - Inability to read, write, speak English
 - Distance from the Texas Medical Center (50 miles radius)

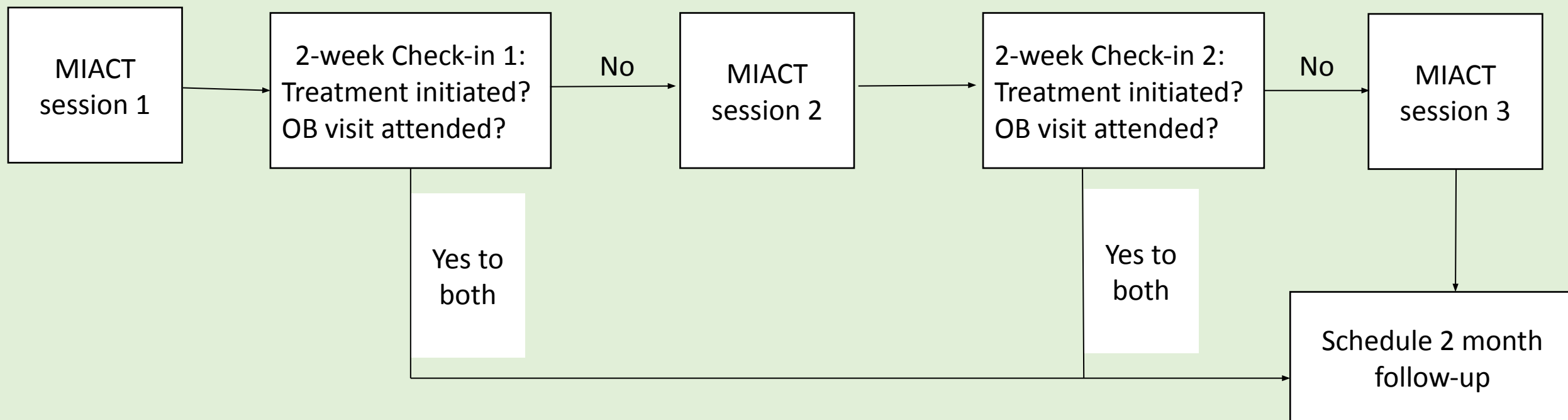
Procedures

- Research assistants screened EHR for suspicion of substance use.
- Approached in the hospital (maternity floors or in NICU).
- Conducted consent, baseline, intervention and follow-ups in the hospital or obstetrics clinic.

MIACT Intervention for medical settings

- Brief, novel combination of Motivational Interviewing (MI) and Mindfulness and Acceptance strategies
- Goal: To increase mothers' psychological flexibility and motivation to initiate treatment and to see a physician to discuss reliable methods of contraception.

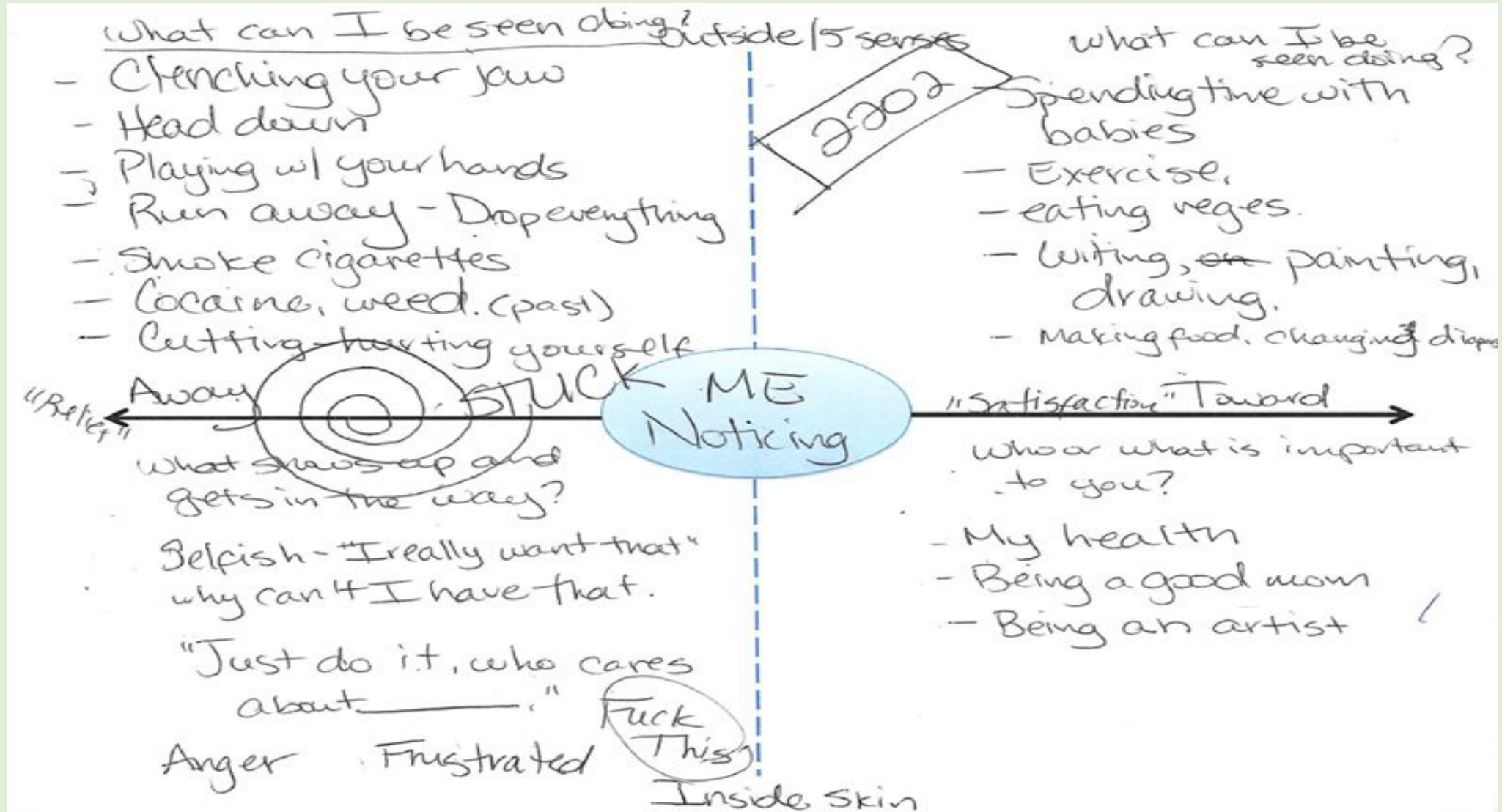
Adaptive MIACT Intervention



MIACT Session Content

Session 1	Session 2	Session 3
Introduction & rapport building	Review & rapport Building	Review & rapport building
Awareness raising & fusion/defusion	Practice turning attention/mindfulness exercise	Practice turning attention/mindfulness exercise
Developing discrepancy/SUD hx	Introduce The Matrix	Review of Matrix
Readiness rulers for	Identify values	Value-directed committed action
Substance use treatment	Identify distressing internal experiences	Bold move exercise
Reproductive care	Identify avoidant-driven behavior	
	Identify value-directed behavior	
	Willingness to have distress	
	Readiness rulers	

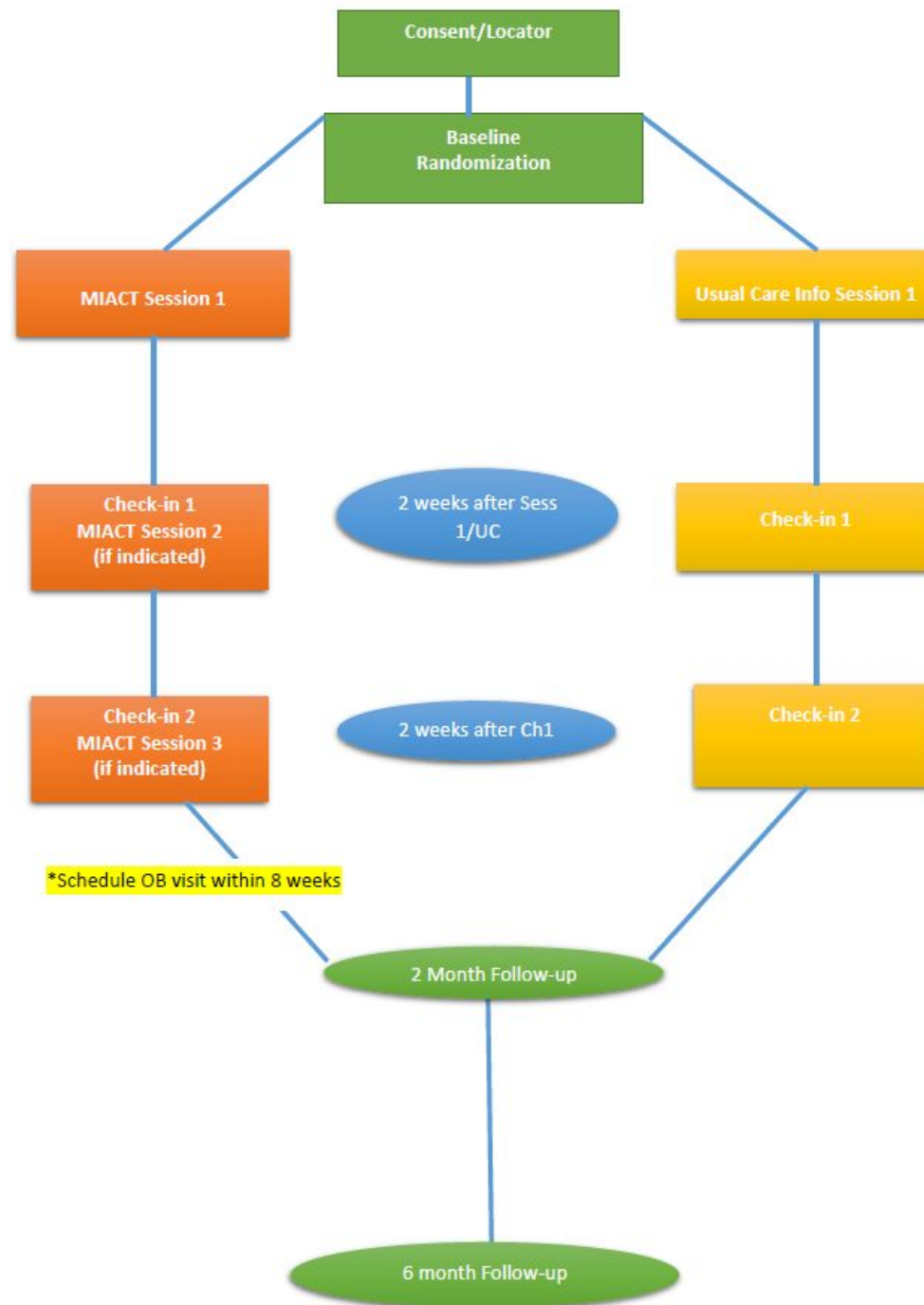
Matrix



Study Design

Participants randomized to MIACT or Usual Care

Stratified randomization:
Cannabis only vs. Other drugs/poly



Usual Care: Brief meeting with a research assistant to provide resources for treatment and reproductive care.

Participant Characteristics

Variable	M(SD)/(%)
Age (years)	27.6 (5.7)
Education (years)	12.0 (1.8)
Employed	28.1%
Household Income < \$30,000	82.3%
Income < \$10,000	58.1%
Medicaid Insurance	85.9%
Relationship Status	
Single	53.1%
Living Together	32.8%
Married	6.3%
Separated/Divorced	7.8%

Participant Characteristics

Variable	M(SD)/(%)
Race	
Black	65.6%
White	18.7%
More than 1 race	15.6%
Ethnicity	
Hispanic	15.6%
# people in household	4.5 (1.5)
Access to a car	53.1%
>2 previous births	59.3%
>= 1 unplanned pregnancy	70.3%

Substance Use During Pregnancy

Variable	Percent of sample
Pregnancy Substance Use	
Rx Stimulants/Amphetamine	5.0%
Methamphetamine	7.1%
Cocaine	16.9%
Rx Opiates	13.1%
Heroin	2.0%
Hallucinogen	24.0%
Marijuana	50.0%
Synthetic Marijuana	10.8%
Benzos	21.1%

Results: Feasibility

Intervention Exposure Rates

Visit	MIACT (n = 31)	Usual Care (n = 33)
Session 1/UC	100%	100%
Session 2	77% (+3% adapted out)	---
Session 3	52% (+13% adapted out)	---

Follow-up Rates

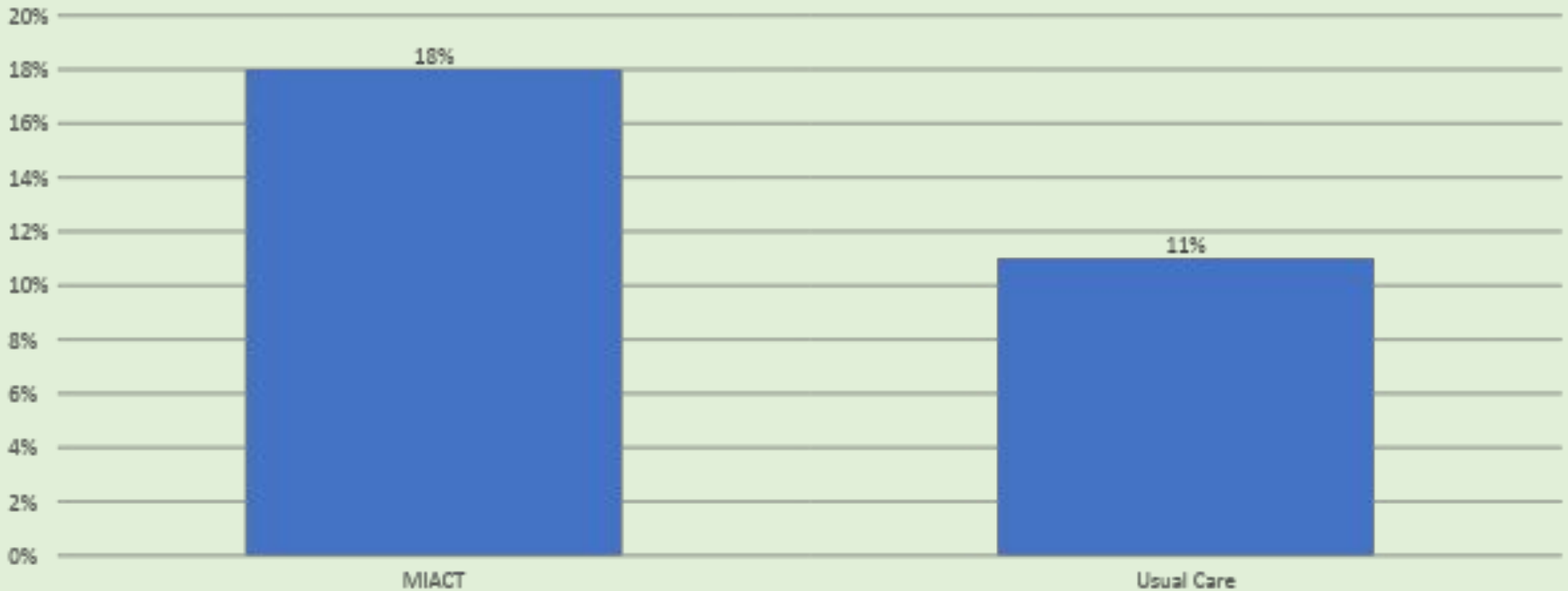
Visit	MIACT	Usual Care
Check-in 1	81%	88%
Check-in 2	59%	85%
2-month Follow-up	77%	81%
6-month Follow-up	90%	88%

Results: Primary Outcomes

Bayesian Analytical Plan

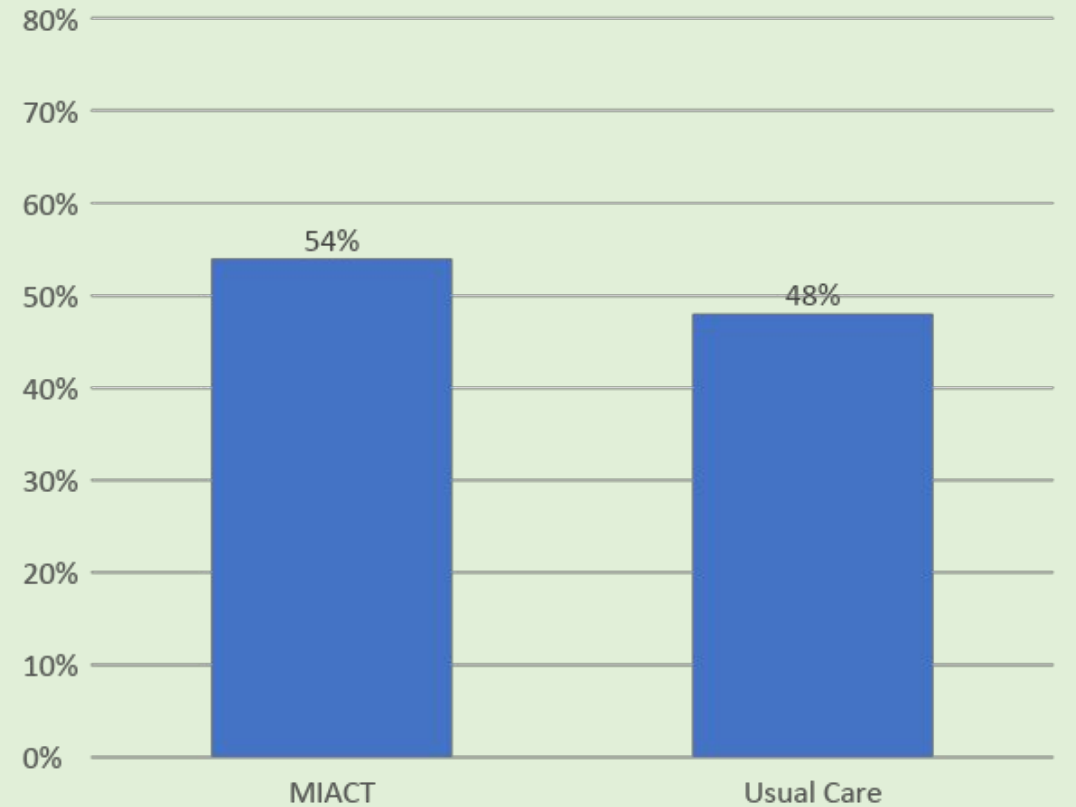
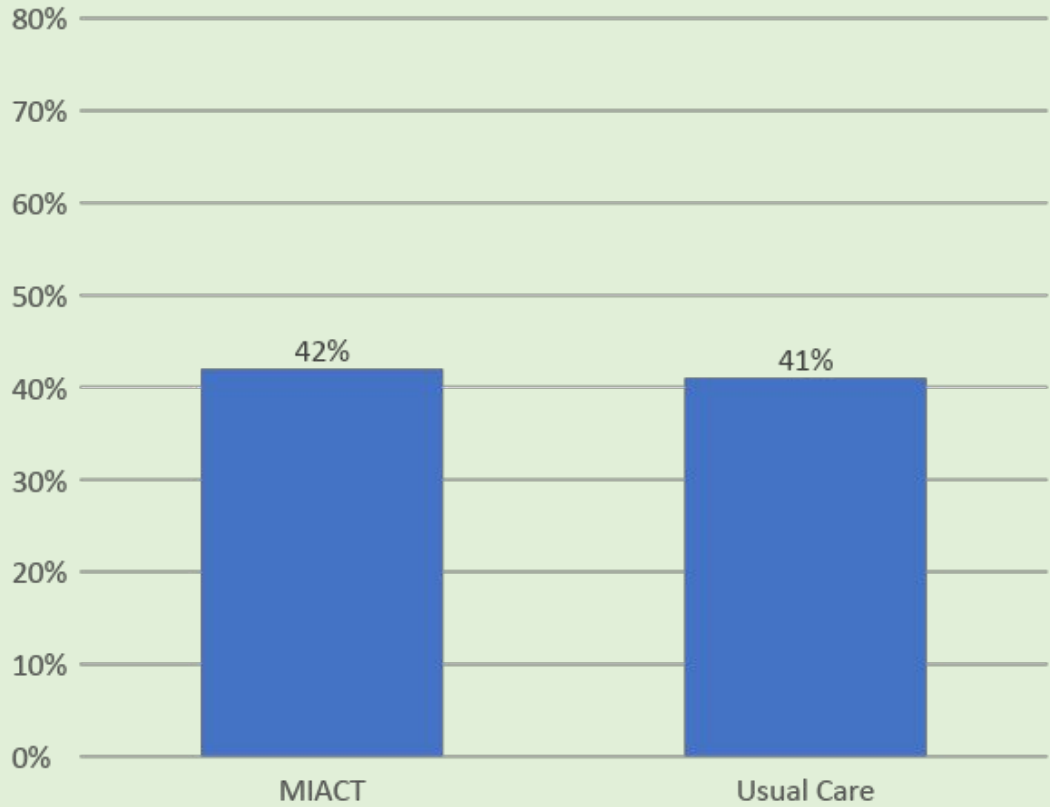
- FDA □ Bayesian statistics offers improved methodological efficiency.
- Bayesian statistics provides the probability that the treatment confers benefit given the observed data: The probability that the alternative hypothesis is true.
- Developing new treatments requires investigators to bet on an alternative hypothesis.
- Decision-making in an initial treatment trial is assisted by the probability of an effect of some specified magnitude.
 - Posterior probability cut off for a meaningful effect was .75, i.e., a 75% chance that the RR > 1
- Bayesian not affected by sample size like frequentist statistics.

Aim: Link with substance use treatment during treatment period (Check in 1 & 2)



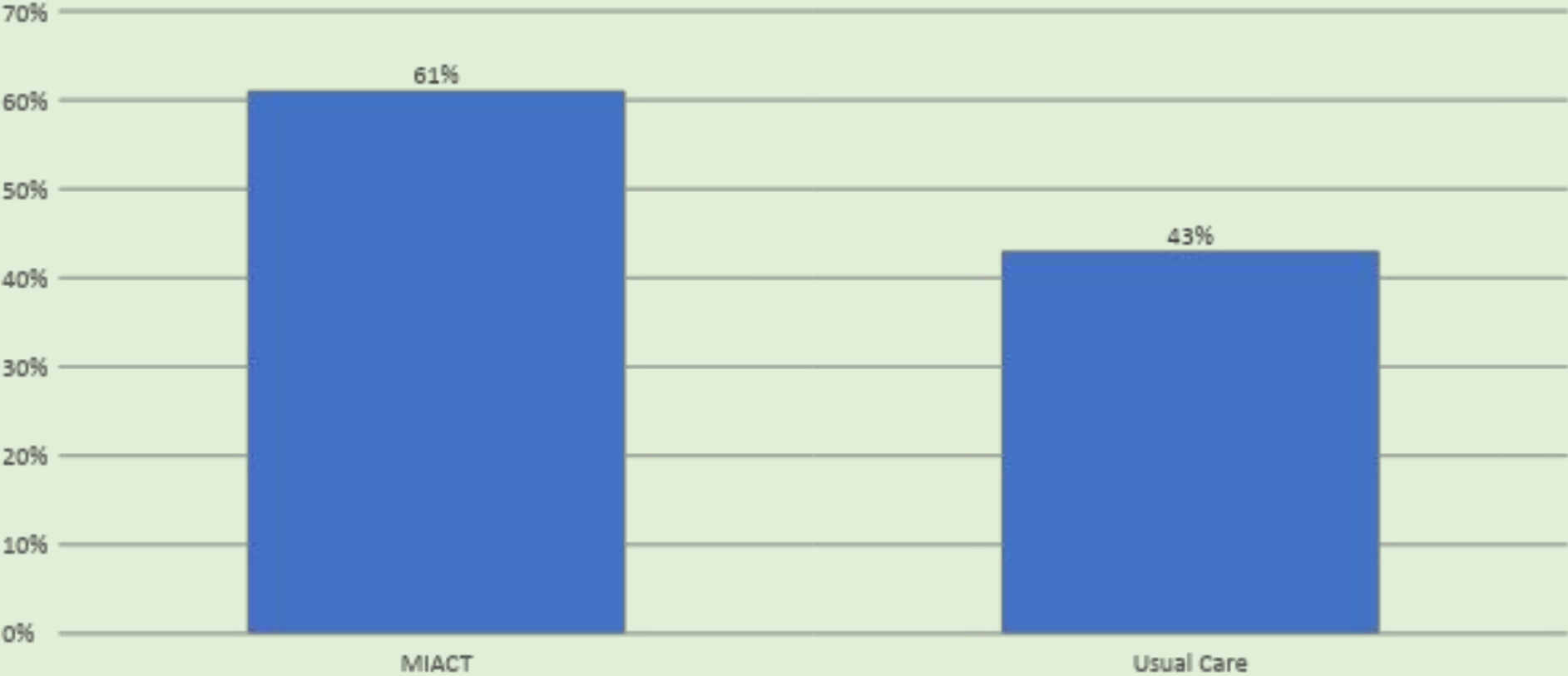
RR = 1.67, 95% CI [.61,5.1], Posterior Probability = .84

Aim: Link with treatment at Follow-ups



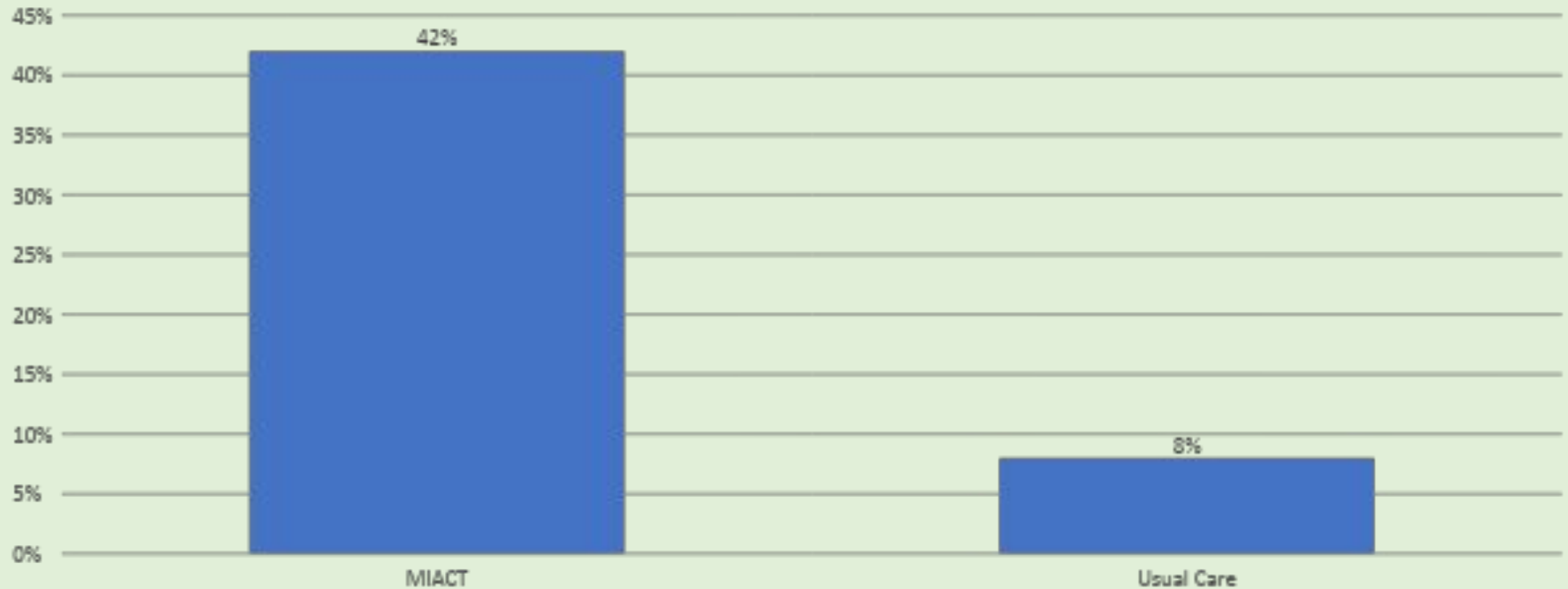
Note: CPS involvement

Aim: Completion of a postpartum OB/GYN visit (During treatment)



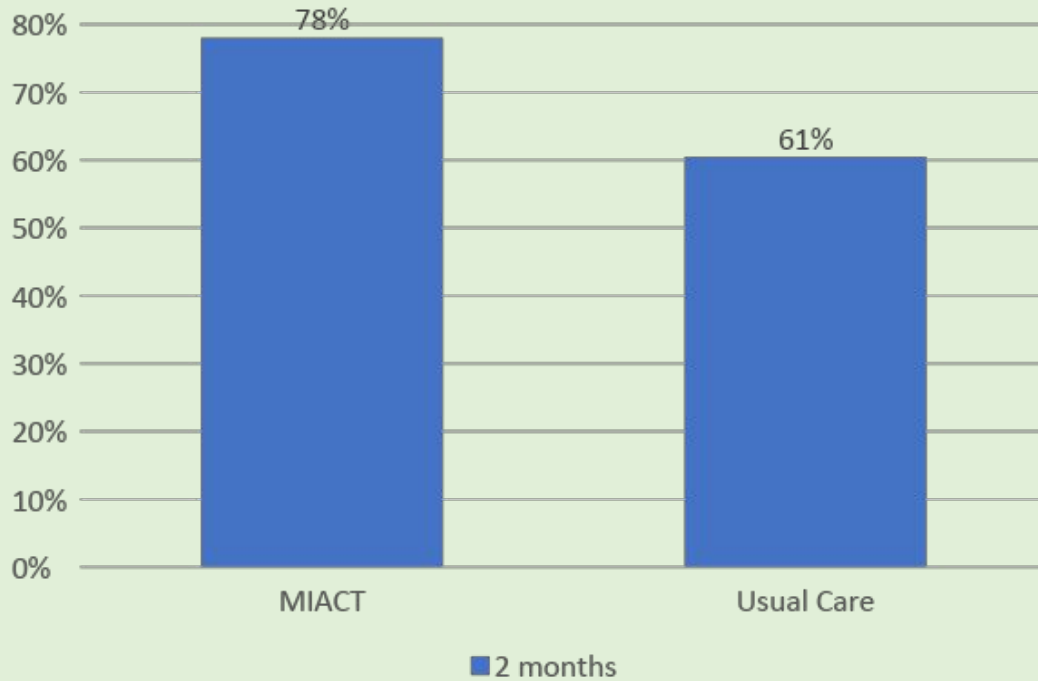
RR = 1.41, 95% CI [.92,2.29], Posterior Probability = .95

Received contraception at OB/GYN visit (During treatment)

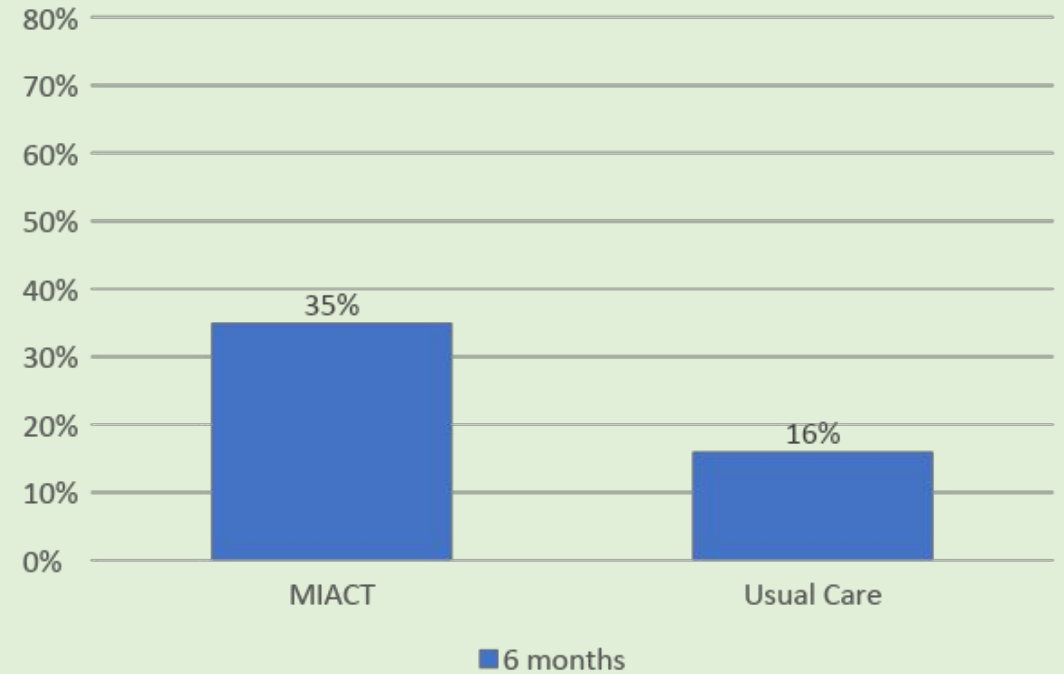


RR = 5.1, 95% CI [1.82,21.6],Posterior Probability = 1

Effective contraception use at follow-up via TimeLine FollowBack (last 30 days)



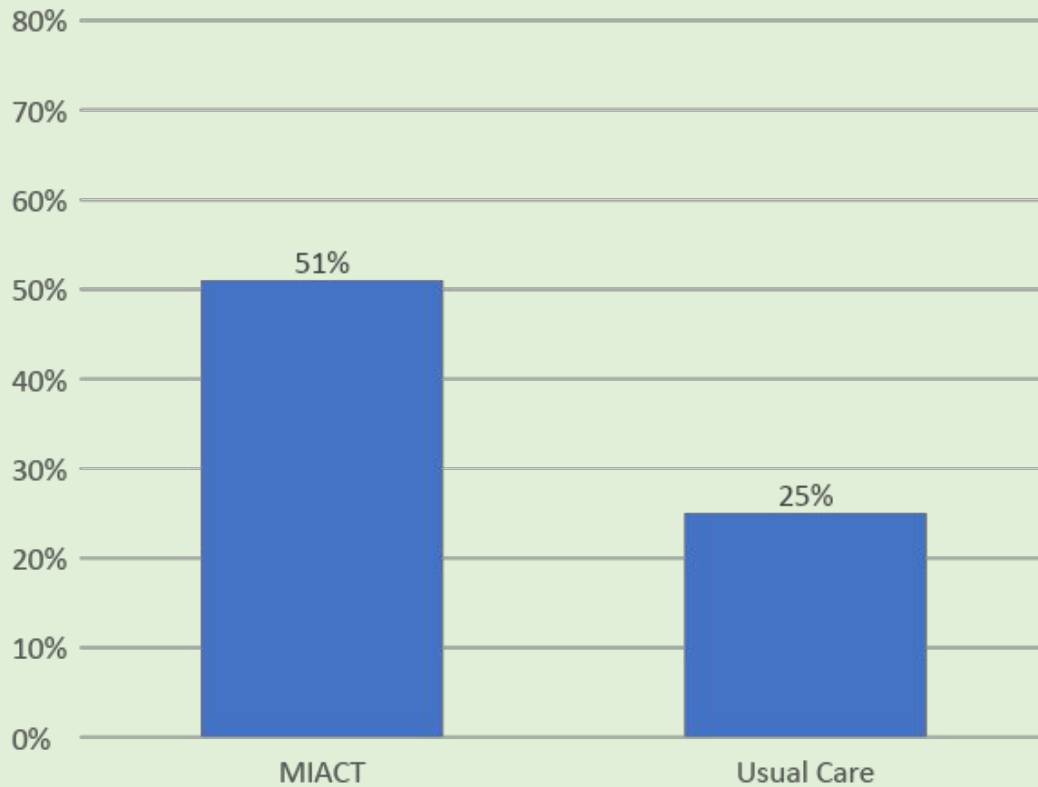
RR = 1.27; Posterior Prob = .94



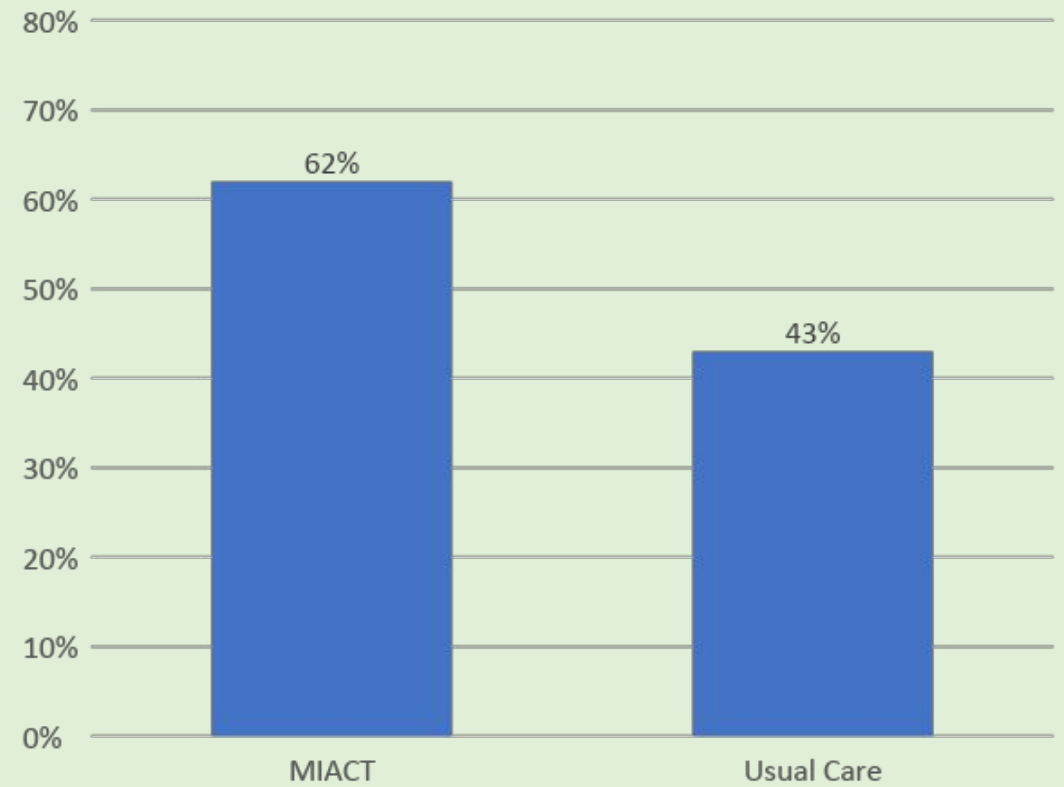
RR = 1.3; Posterior Prob = .88

Results: Substance Use

Drug Use: Urine Drug Screen positive (Follow-up)



RR = 2.06; Posterior Prob = .97



RR = 1.43; Posterior Prob = .92

Potential Mediators: Case Study

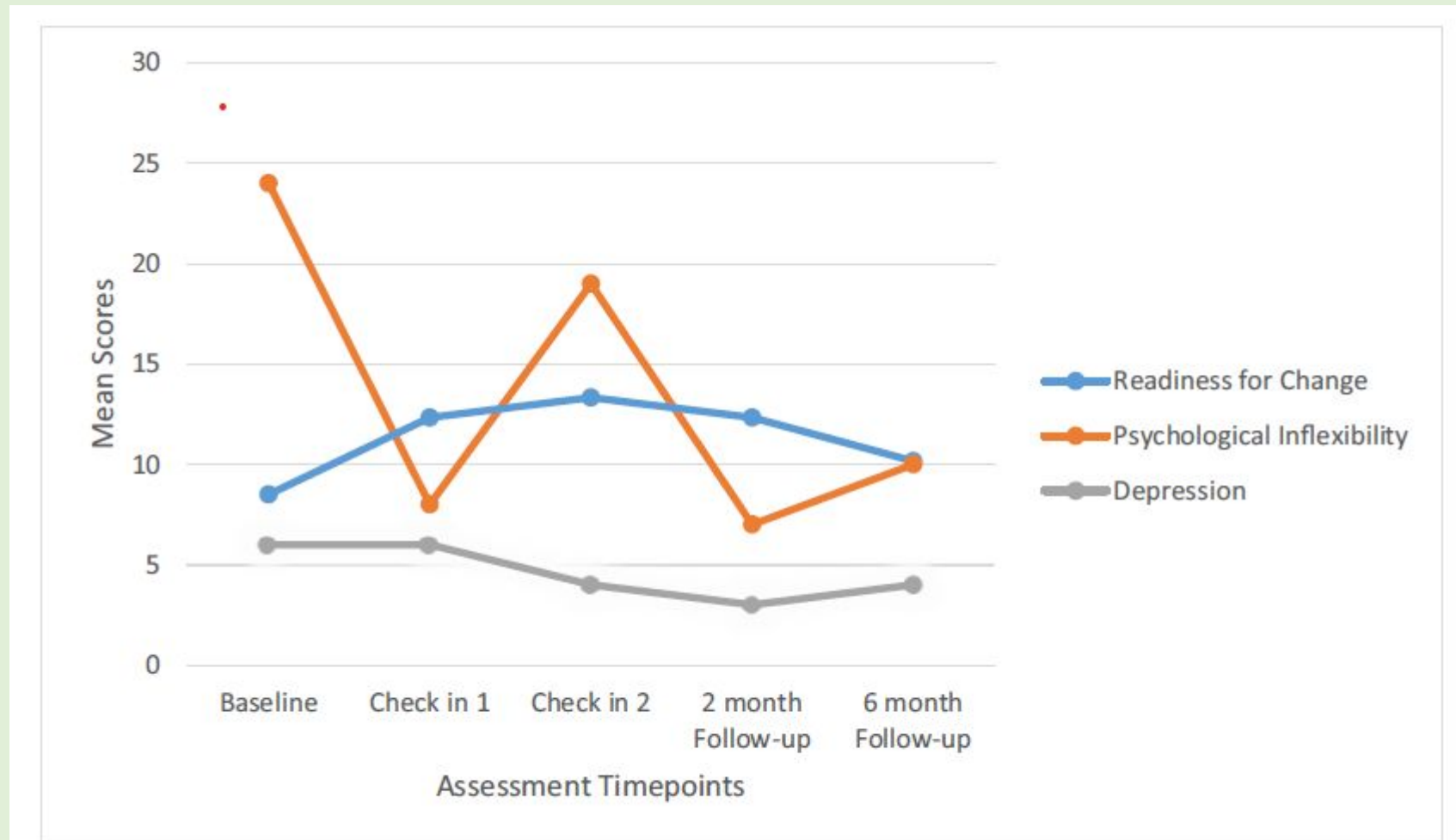


Figure 2. Client outcomes through MI+ ACT intervention and follow-up visits.

Summary of Results

- Overall, the MIACT intervention was **feasible**.
- The intervention was associated with **earlier treatment initiation** but by follow-up groups were equal – likely a CPS effect.
- Biggest effect on women's reproductive care (**postpartum obstetrics visit** and **contraception**).
- MIACT was associated with **higher substance use rates** at follow-up.

Conclusions

- Substance-exposed pregnancies are:
 - Common
 - Costly
 - And carry long-term negative effects for infants and families
- Postpartum, hospital-based interventions, such as MIACT, can prevent substance-exposed pregnancies by improving receipt of contraception.
- More intensive interventions are likely necessary to positively impact substance use postpartum.



My Body My Choice

I WISH MY UTERUS SHOT BULLETS SO THE GOVT WOULDN'T REINVENT

BANS OFF OUR BODIES

KEEP YOUR LAWS OFF MY BODY

BANS OFF MY BODY

I am an OBJECT.

A MOTHER BY CHOICE FOR CHOICE

BANS OFF OUR BODIES

BANS OFF MY BODY

PRE-SERVE ROE VS WADE

SPERM CAUSES PREGNANCY

PUBLIC CERVIX

OUR FUTURE OUR FIGHT OUR BODIES

KEEP YOUR LAWS OFF OUR BODIES

BANS OFF OUR BODIES

OUR BODIES ARE OUR CHOICE

TRUST

MY BODY MY CHOICE

YOUR BODIES ARE YOUR CHOICE

ALL I WANT FOR MY BIRTHDAY

BANS OFF OUR BODIES

THRU

SIGN

AWAY FROM

IMPEACH KVANNAUGH

OUR BODIES ARE OUR CHOICE

NO

MY BODY MY CHOICE

YOUR BODIES ARE YOUR CHOICE

ALL I WANT FOR MY BIRTHDAY

BANS OFF OUR BODIES

OUR BODIES ARE OUR CHOICE