

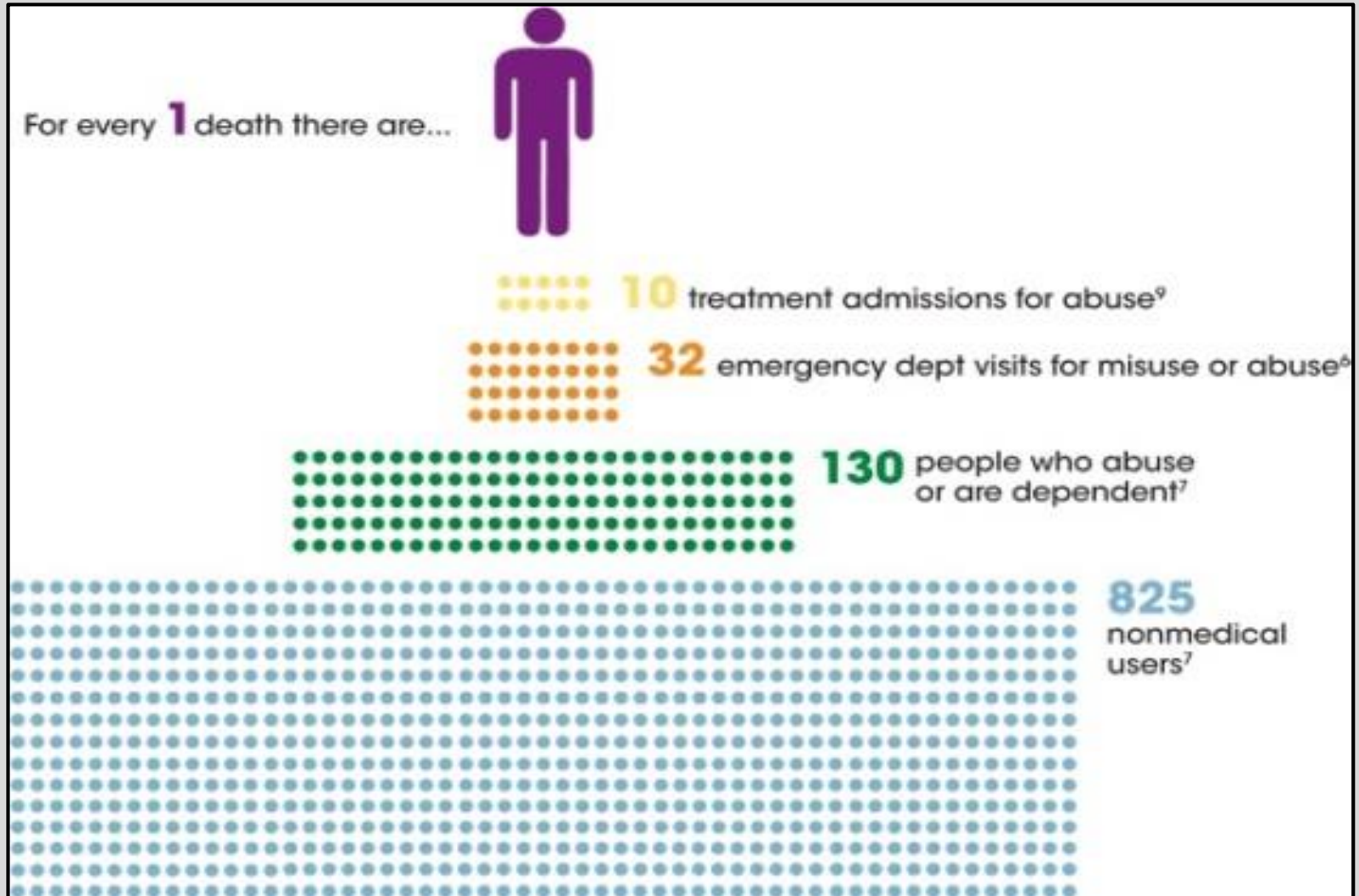


MEDICAL SCHOOL
UNIVERSITY OF MICHIGAN

Brief Behavioral Interventions for Drug Use in the Emergency Department

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Overdose deaths are only the “tip of the iceberg”....



Outline

1. Rationale
2. SBIRT in the emergency department
3. SPOS Study – overdose risk behaviors
4. Next directions

Disclosures

- Affiliations:
 - University of Michigan
 - VA Center for Clinical Management Research
- Funding
 - CDC (R49 CE002099 Injury Research Center)
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 - VA (HSR&D, QUERI)
- Conflicts of Interest
 - None to report

What are your experiences with the emergency department as a clinical setting?

Why would we try to do anything about drug use there?

Rationale

Why the Emergency Department?

- 1/3 of patients in the ED get an opioid
- Substance use is common
- Setting of acute treatment for overdoses
- Not engaged in other care
- “Teachable Moment”



What are the barriers to addressing drug use in the emergency department?

What would be the benefit of a behavioral approach in the ED?

What would be the benefit for opioid and overdose interventions specifically?

Rationale

Why a Behavioral Intervention?

- Potentially low cost
- Upstream prevention

Why use this for opioid overdose?

- Not all overdose risk well-suited to naloxone as a prevention approach
- Prevent repeat overdoses after a treated overdose
- Complementary to naloxone distribution

SBIRT in the Emergency Department: Conflicting Evidence

Your Thoughts -

What is your experience with SBIRT?

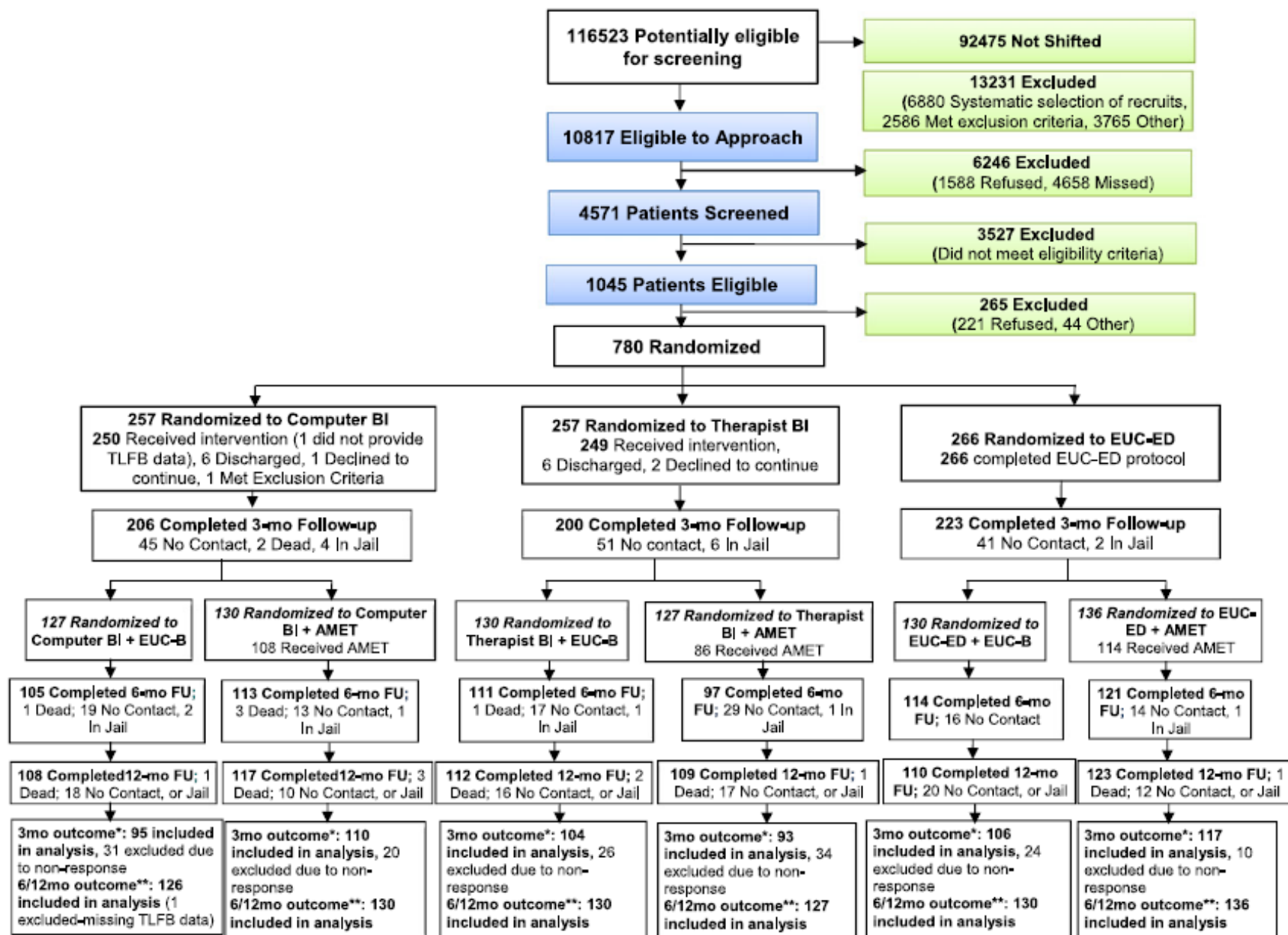
Blow et al., 2017 *Addiction* (HealthiER U)

Design: Computer Brief Intervention (BI)/Therapist BI/Control x Booster/Control (6 arm)

Location: Flint, MI emergency department

Sample: n=780, 18-60 years old (mean=31), 44% male, 88% marijuana use problem

Outcomes: 3-, 6-, and 12- month days drug use in the last 90 days, days marijuana use, weighted days drug use from Timeline Follow-Back (TLFB)



Blow et al., 2017 (HealthiER U) Main Results

Table 3 Negative binomial models with generalized estimating equations (GEE) among patients with baseline use: 6- and 12-month outcomes.

Variable	Primary outcome Drug days		Secondary outcome: weighted drug days		Secondary outcome Marijuana days	
	Effect size	95% CI	Effect size	95% CI	Effect size	95% CI
Group						
Therapist BI	<u>-0.24</u>	<u>(-0.41, -0.07)*</u>	<u>-0.24</u>	<u>(-0.41, -0.08)*</u>	<u>-0.24</u>	<u>(-0.42, -0.06)*</u>
Computer BI	-0.13	(-0.28, 0.03)	-0.12	(-0.27, 0.03)	<u>-0.17</u>	<u>(-0.34, -0.01)*</u>
EUC-ED	Ref	–	Ref	–	Ref	–
AMET	0.03	(-0.10, 0.17)	0.02	(-0.11, 0.16)	0.03	(-0.12, 0.17)
Male	-0.04	(-0.17, 0.10)	-0.05	(-0.18, 0.09)	-0.11	(-0.25, 0.03)
Any drug dependence	0.21	(0.06, 0.37)	0.21	(0.04, 0.37)	0.29	(0.12, 0.47)
Baseline level ^a	0.01	(0.01, 0.02)	0.01	(0.01, 0.01)	0.02	(0.01, 0.02)
Time/follow-up	0.02	(-0.06, 0.09)	0.02	(-0.06, 0.10)	0.07	(-0.01, 0.15)

AMET = Adapted Motivational Enhancement Therapy; EUC-ED = Enhanced Usual Care-Emergency Department; CI = confidence interval; Ref = reference group.

^aBaseline level of the outcome variable examined. * $P < 0.05$.

Note – no benefit of booster session(AMET)

Design: Brief intervention with booster vs. Screen and referral to treatment vs. control (3 arm)

Location: 6 U.S. Academic Hospitals

Sample: n=1,285, mean age=36 , 70% male, 17% heroin, 5% Rx opioid, 27% cocaine, 44% marijuana

Outcomes: Days drug use in past 30 of primary drug at 3-, 6-, and 12-months

Findings: No effect, also no effect for days any drug use, heavy drinking, hair testing, no effects for sub-group by drug type or moderation by sex, race, and ethnicity

Replicated in Merchant et al. 2015 Acad Emerg Med, Guan et al., 2015 Drug Alcohol Depend

Saitz et al., *JAMA* 2014 (ASPIRE trial)

Design: Brief negotiated interview vs. motivational interview + booster vs. control (3 arm)

Location: Boston, MA primary care

Sample: n=528, mean age 41, 70% male, 17% opioid, 19% cocaine, 63% marijuana, 12% injection drug use

Outcomes: 30 day drug use overall and by drug at 6 months

Findings: No intervention effects

Replicated in Roy-Byrne et al., 2014 JAMA

What are reasons that might explain the different findings?

Potential Explanations of Different Findings

Sample characteristics

Drug type, severity of problems

Intervention content

Outcome measurement

Location

SPOS: A brief behavioral intervention to reduce opioid overdose risk

Bohnert ASB, Bonar EE, Cunningham R, Greenwald MK, Thomas L, Chermack S, Blow FC, Walton M. A pilot randomized clinical trial of an intervention to reduce overdose risk behaviors among emergency department patients at risk for prescription opioid overdose. *Drug Alcohol Depend*, 163: 40-7, 2016.

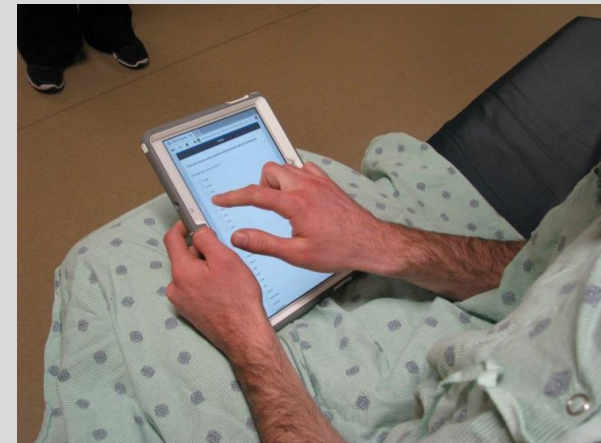
Setting

Location: University of Michigan Emergency Department (ED)



Protocol

- Research staff approached patients while waiting for care once in private rooms
- Consent and screen via computer tablet (Part 1)
- Those eligible recruited and consented for a baseline survey via computer tablet (Part 2)
- Computer randomized to intervention or enhanced usual care



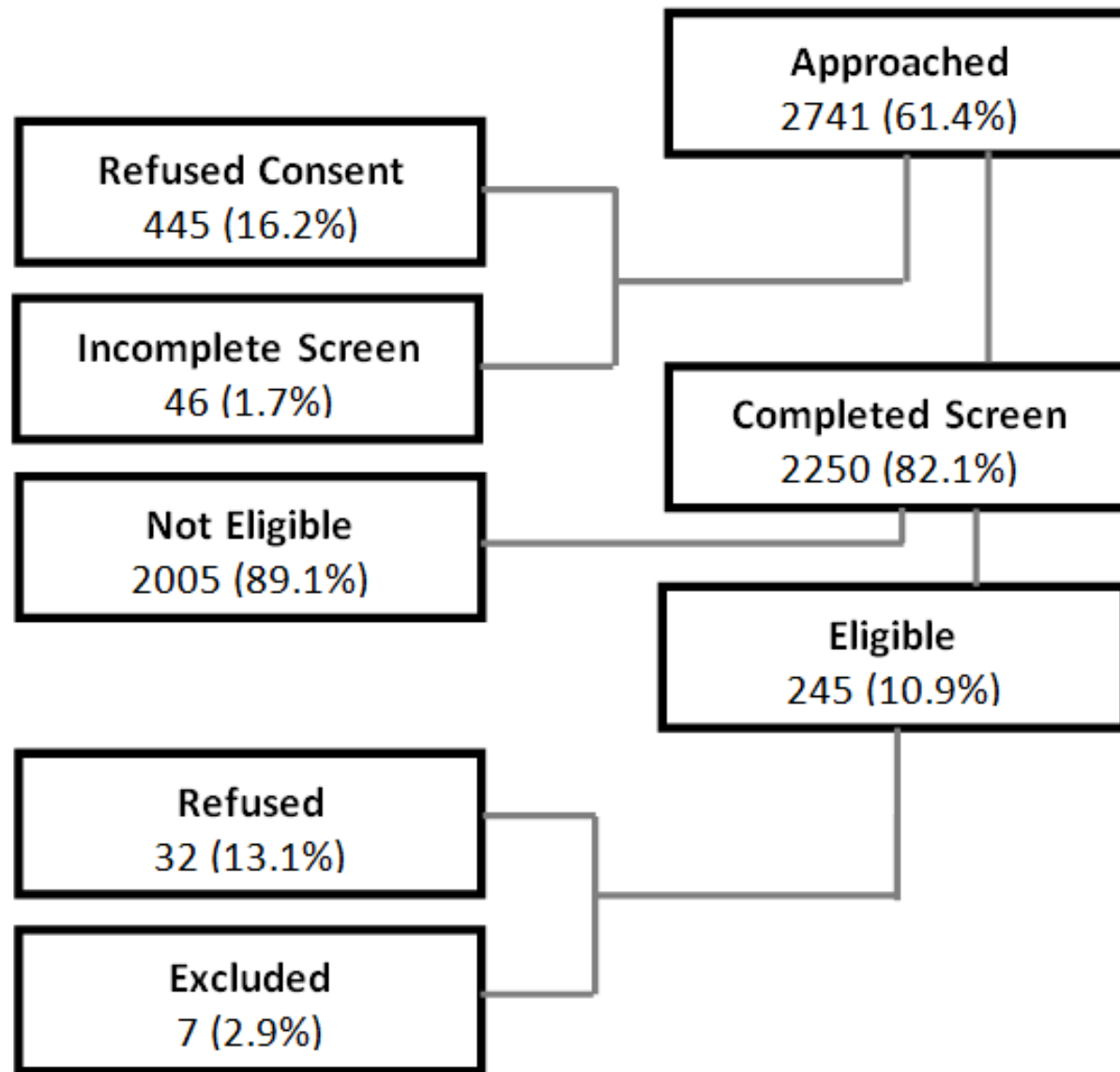
How do you think that pen-and-paper
vs. computer tablet administration
compares for assessing opioid use?

Eligibility Criteria

- Past 3 month prescription opioid misuse
 - Positive screen on 8 items of Current Opioid Misuse Measure (COMM)
- Age 18-60
- Able to provide informed consent



Figure 1. Study Participation Flowchart.



Sample Demographics

- N=204 final sample
 - 177 (87%) followed at 6 months
- 64% female
- Age: mean 37 (SD=11)
- Race: 20% Black, 75% White, 5% Other

Chronic pain and problem opioid use both common

- 75% had an overdose/serious drug event history
- 56% had a chronic pain diagnosis
- 69% had been prescribed opioids in the prior 6 months
- 48% had moderate or high risk prescription opioid involvement, per ASSIST

Intervention

- Brief Motivational Enhancement (ME) Interventions
 - Non-judgmental, empathetic
 - Focused on increasing self-efficacy, setting goals, overcoming barriers to change

Intervention Content Outline

■ EXPLORE

- Introduction and Agenda Setting
- Personal Strengths and Values
- Goals
- Review Behavioral History
- Review Overdose History
- Review Witnessed Overdoses

■ GUIDE

- Benefits to Changing

■ CHOOSE

- Strategies to Handle Risky Situations
- Selecting Change Goals
- Tools
- Strategic Summary

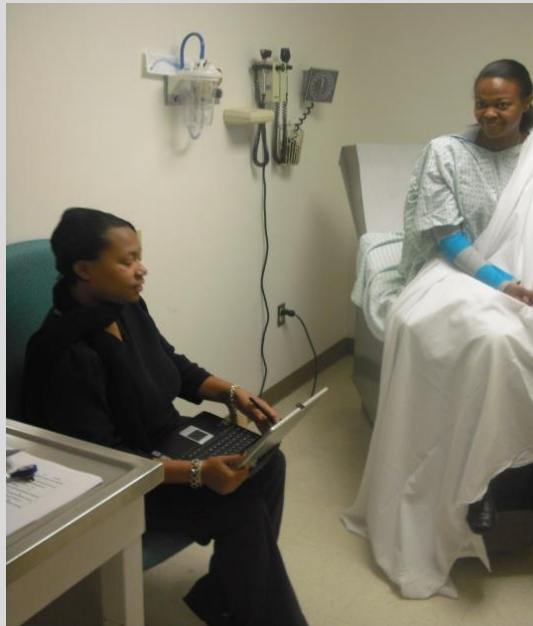


Behavioral targets of the intervention

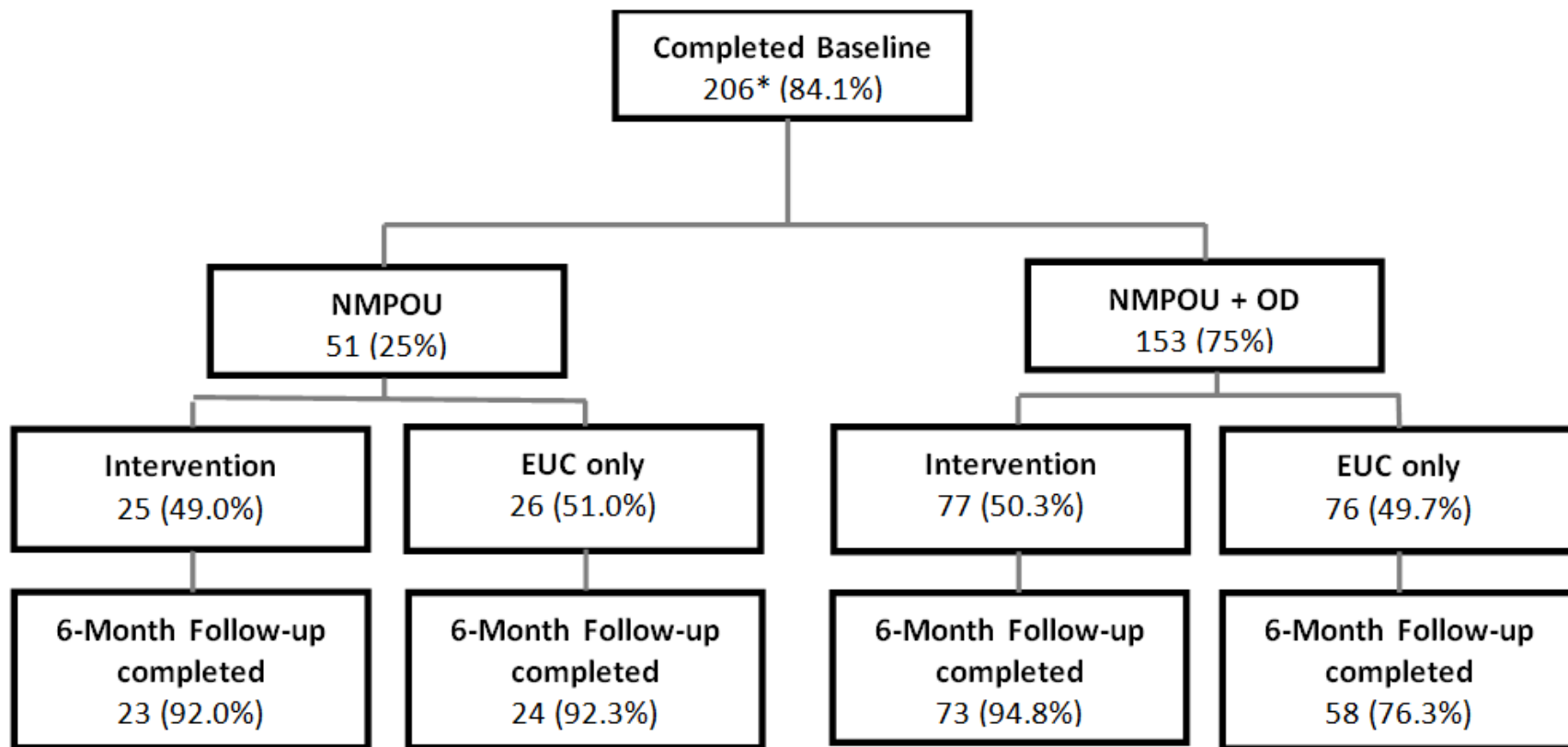
1. Reducing risky overdose-related behaviors and opioid misuse
2. Improve response when witnessing an overdose
3. Outreach to at-risk friends

Intervention Delivery

- Master's level trained therapists
- Computer aid to enhance fidelity and provide prompts as needed
- Enhanced Usual Care: pamphlets



Follow-up and Outcomes

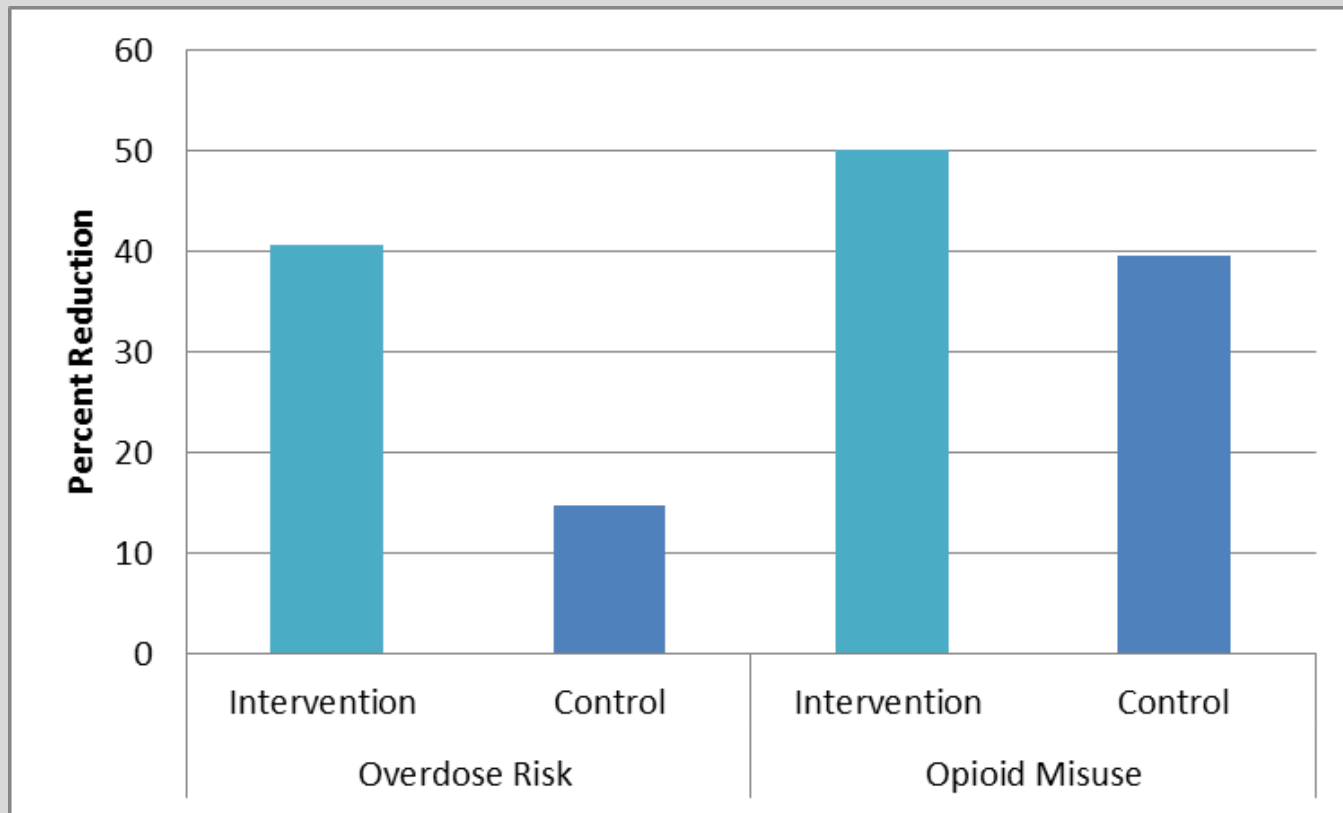


* One participant declined further participation after completing the baseline survey and was not randomized. One participant died of causes unrelated to the study prior to becoming due for the follow-up assessment. Thus, final trial n=204.

NMPOU: Non-medical prescription opioid use, OD: a history of overdose (see section 2.6.3 for definition), EUC: enhanced usual care.

Primary Outcomes

Greater decreases in main outcomes between baseline and 6 months for the intervention compared to control.



Regression results

Poisson regression

Model 1: Overdose Risk Behaviors, n=172

	IRR	SE	95% CI
Intervention Group vs. usual care	0.72	0.07	0.59, 0.87
Baseline Level of Overdose Risk Behaviors	1.07	0.01	1.06, 1.08

Model 5: Non-Medical Opioid Use, n=163

	IRR	SE	95% CI
Intervention Group vs. usual care	0.81	0.06	0.70, 0.92
Baseline Level of Non-Medical Opioid Use	1.04	0.003	1.03, 1.05

No effect on other outcomes

No consistent impact on hypothesized mediators/mechanisms of:

- Behavioral Intention: Use as Prescribed
- Overdose Symptom Knowledge

Intervention participants reported greater intentions to reduce or avoid using substances at 6 mo. follow-up compared to EUC.

Conclusions

- BI is feasible and highly acceptable to patients who are at risk for overdose.
- Positive findings for behavioral outcomes.



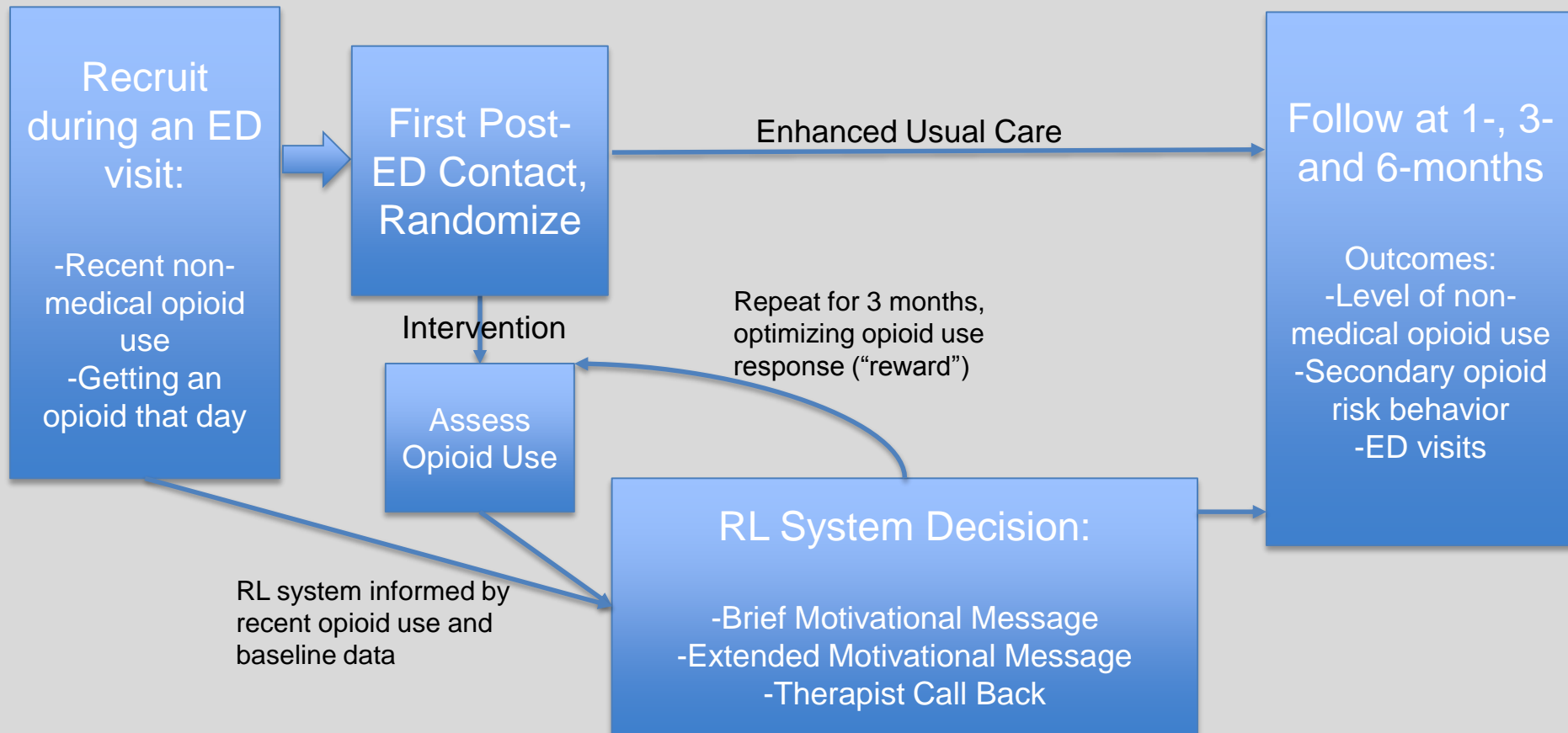
Next Directions: Addressing barriers to delivering behavioral interventions

R01 DA039159

Barriers and Solutions

Barrier/Problem	Solution
Unable to address opioids given that day in the ED	Deliver the intervention after the visit
Limited staff time and relevant training	Deliver motivational messages as much by automation/mHealth as possible
Automated/mHealth can feel “robotic” and impersonal, limited ability to adapt over time	Artificial intelligence (reinforcement learning [RL]) features of mHealth
Variation between patients in how much contact needed to be effective	RL system learns best intensity of contact for each patient

PowerED study



Solving the opioid crisis requires:

