

A pilot randomized controlled trial of a universal computer-facilitated substance use screening and brief intervention system for adolescent primary care patients

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Disclosures / Funding

- **Conflict of interest statement:**
 - I have no commercial relationships to disclose
 - I will not be discussing any unapproved uses of pharmaceuticals or devices
 - My views do not necessarily reflect those of any of these bodies, or my academic institution

Background & Significance

- American Academy of Pediatrics (2016) guidelines: all adolescents should receive substance use screening and brief counseling annually¹
- Key implementation barriers: lack of time and training



¹ AAP Committee on Substance Use and Prevention. Pediatrics. 2016;138(1):e20161210

The utility of tablet computers...





Study Aim

- Developed a computer-facilitated Screening and Brief Intervention (cSBI) system
- Conduct an initial randomized controlled trial of cSBI compared to usual care (UC) among 12- to 18-year-old primary care patients, testing:
 - Feasibility/acceptability: receipt of, and satisfaction with, clinician counseling about alcohol and drug use
 - Efficacy: alcohol and drug use during 12 months

cSBI System for Primary Care

Computerized system includes:

- Self-administered screener (CRAFFT 2.0)
- Personalized feedback about score and risk-level
- Brief interactive psychoeducational pages illustrating health risks of substance use to **prime** patient
- Clinician Report Form (CRF) with screen results, 'talking points' to **prompt** 2-3 minute clinician/teen discussion; and recommended follow-up plan

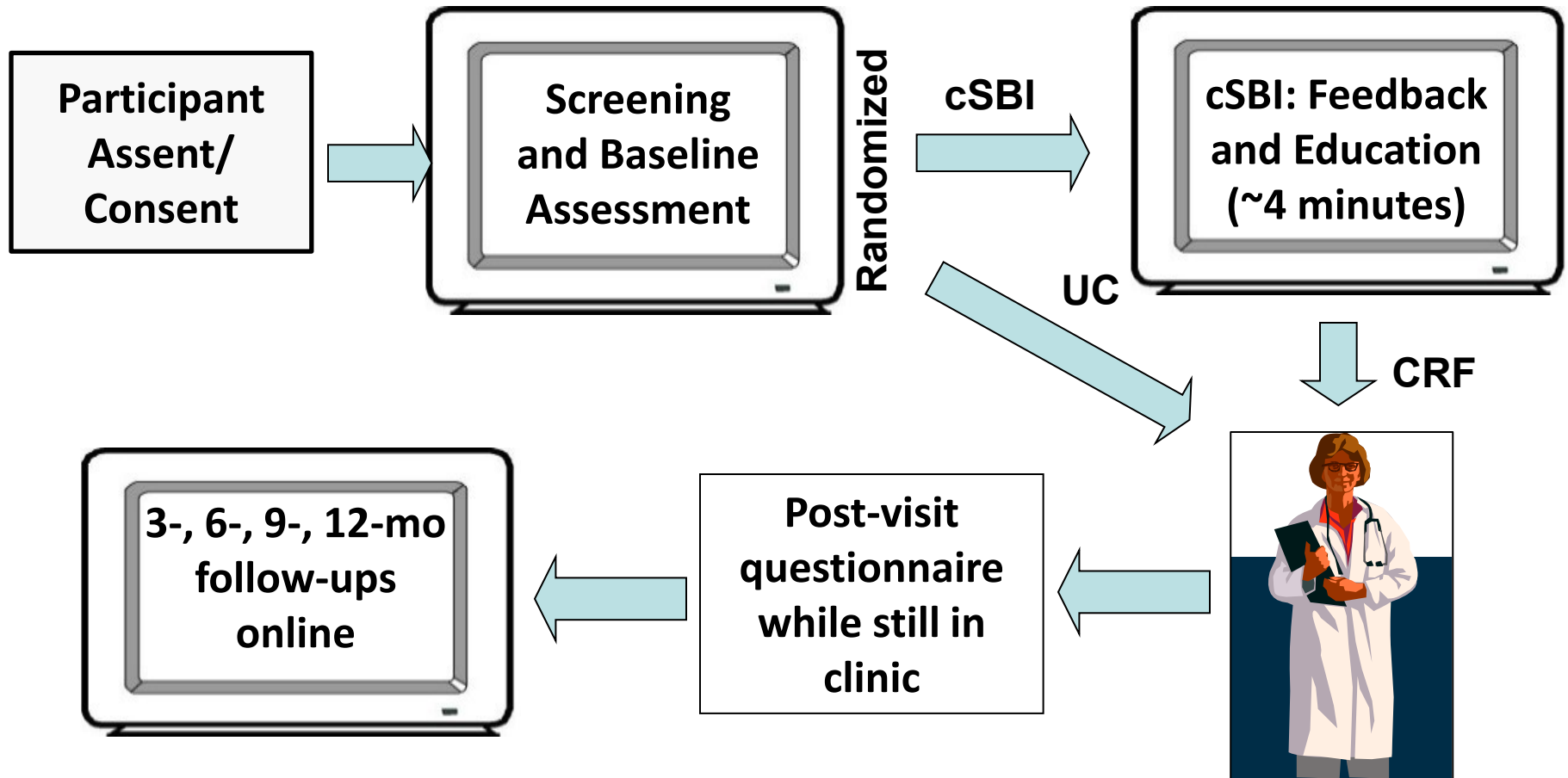
Study Design

- Multi-site *patient*-randomized controlled trial conducted 2015-2017
 - Patients within each practice randomized by computer to cSBI or UC (2:1 ratio)
- Setting: 5 large pediatricians' offices in the Boston area of Massachusetts, USA

Recruitment and Consent

- Recruited and trained 54 clinicians (MD, NP)
- Consecutively recruited English-speaking 12- to 18-year-olds presenting for annual check-up
- Institutional Review Board approval with waiver of parental consent; informed assent/consent from adolescents
- Up to \$70 in merchandise gift cards for study completion

Study Flow Diagram



Measures

Feasibility/Acceptability:

- Adolescent post-visit report of receipt of clinician counseling; ratings of counseling quality

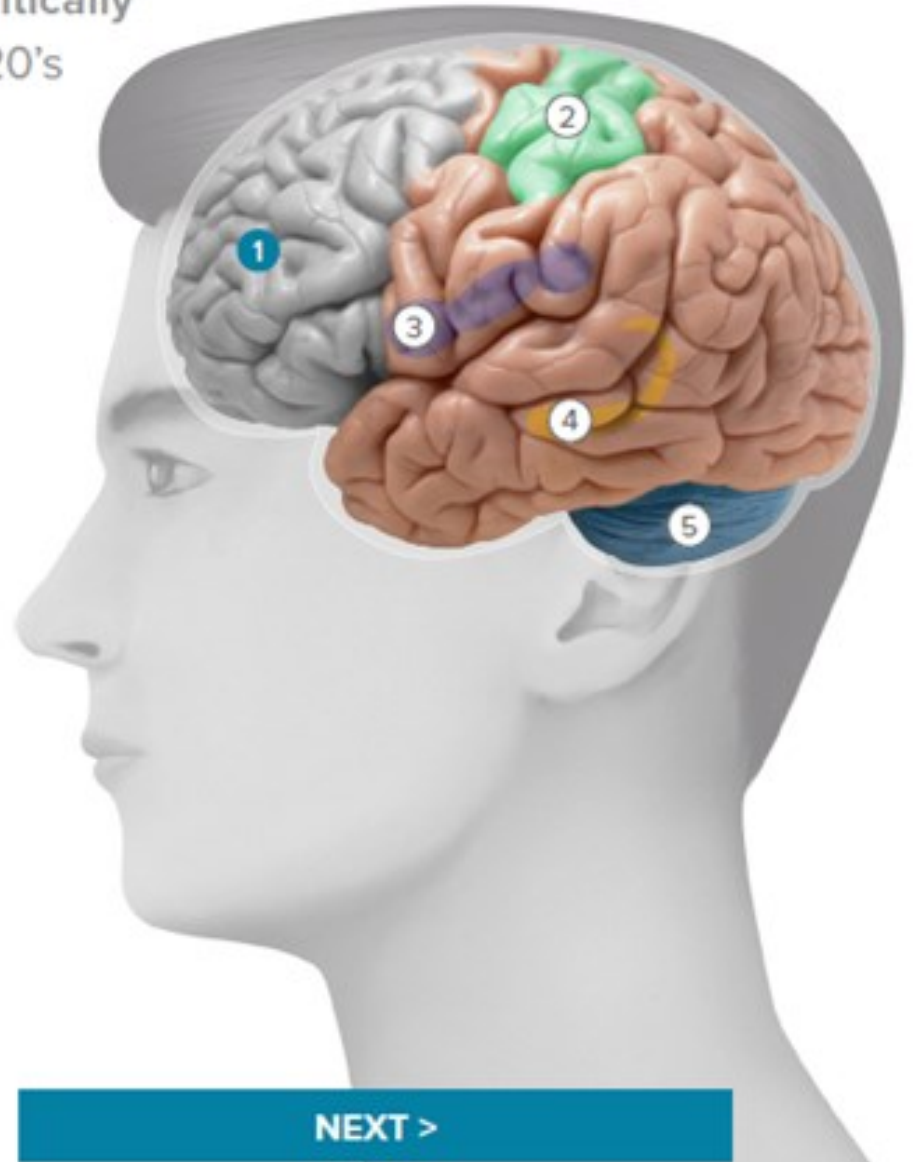
Alcohol and drug use:

- Baseline: Timeline Follow-Back (TLFB) calendar interview administered by trained RA
- Follow-ups: Computer self-administered TLFB through secure online questionnaire

Psychoeducation: Science Page Example

Your brain grows and develops in critically important new ways until your mid-20's

While your brain is developing, it is more sensitive to the harmful effects of using **ALCOHOL, MARIJUANA, TOBACCO,** and other drugs.



1

X

The **Prefrontal Cortex** is important for problem-solving, planning, self-control, attention.

Alcohol and drugs can cause poorer planning, self-control, and decision-making.

+ TAP FOR REFERENCES

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Clinician Report Form

Screen Date: 8/8/2015

NAME	GENDER	AGE	DOB	PHONE	EMAIL
High Risk, Joe	M	18	03/03/2000	617-123-4567	Riskyjoe15@gmail.com

CLINICIAN	SITE	CRAFFT	RAFFT	CAR	RISK	RETURN
Dr. Knight	BCH	2	1	RIDE	● HIGH	MyVYou

Substance Use






	Tobacco	Alcohol	Marijuana	Rx Drugs	Other Drugs
Patient Past Year:	None	4/365	10/365	None	None
Patient Past 90 days:			2/90		
Friend Past Year:	None	Monthly	Monthly	None	None

Positive CRAFFT Items

CAR: RIDE RFLY: ALONE RORFF: RORFFS RORRLE

Screen Brief Advice Given: 8/8/2015

Brief Advice

 1. Review: Screening results	1. "Thank you for your honest answers." Review their use and consider assessing further.
 2. Recommend: Not to use	"If it's okay with you, could I ask a few more questions about that?" "How much do you usually use?"; "When did you last use?"
 3. Riding/Driving: Risk counseling	Discuss CRAFFT items: RIDE: "I see that you've ridden in a car with someone who had been using alcohol or drugs. Can you tell me more about that? (How many times? When did this last occur, Who was driving?)" "Can you tell me more about how..." <ul style="list-style-type: none">"...you use alcohol or drugs by yourself, ALONE?"
 4. Response: Elicit self-motivational statements	
 5. Reinforce: Self-efficacy	

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- Consists of two parts:
1. Patient risk level, substance use, and positive CRAFFT Items
 2. Brief Counseling guide

Example: *Review Screening Results*

Screen Brief Advice

Given: 8/8/2015

Brief Advice



1. Review: Screening results



1. "Thank you for your honest answers."

Review their use and consider assessing further.



2. Recommend: Not to use

"If it's okay with you, could I ask a few more questions about that?" "How much do you usually use?"; "When did you last use?"



3. Riding/Driving: Risk counseling

Discuss CRAFFT items:

RIDE: "I see that you've ridden in a car with someone who had been using alcohol or drugs. Can you tell me more about that? (How many times? When did this last occur, Who was driving?)"



4. Response: Elicit self-motivational statements

"Can you tell me more about how..."

- "...you use alcohol or drugs by yourself, **ALONE**?"



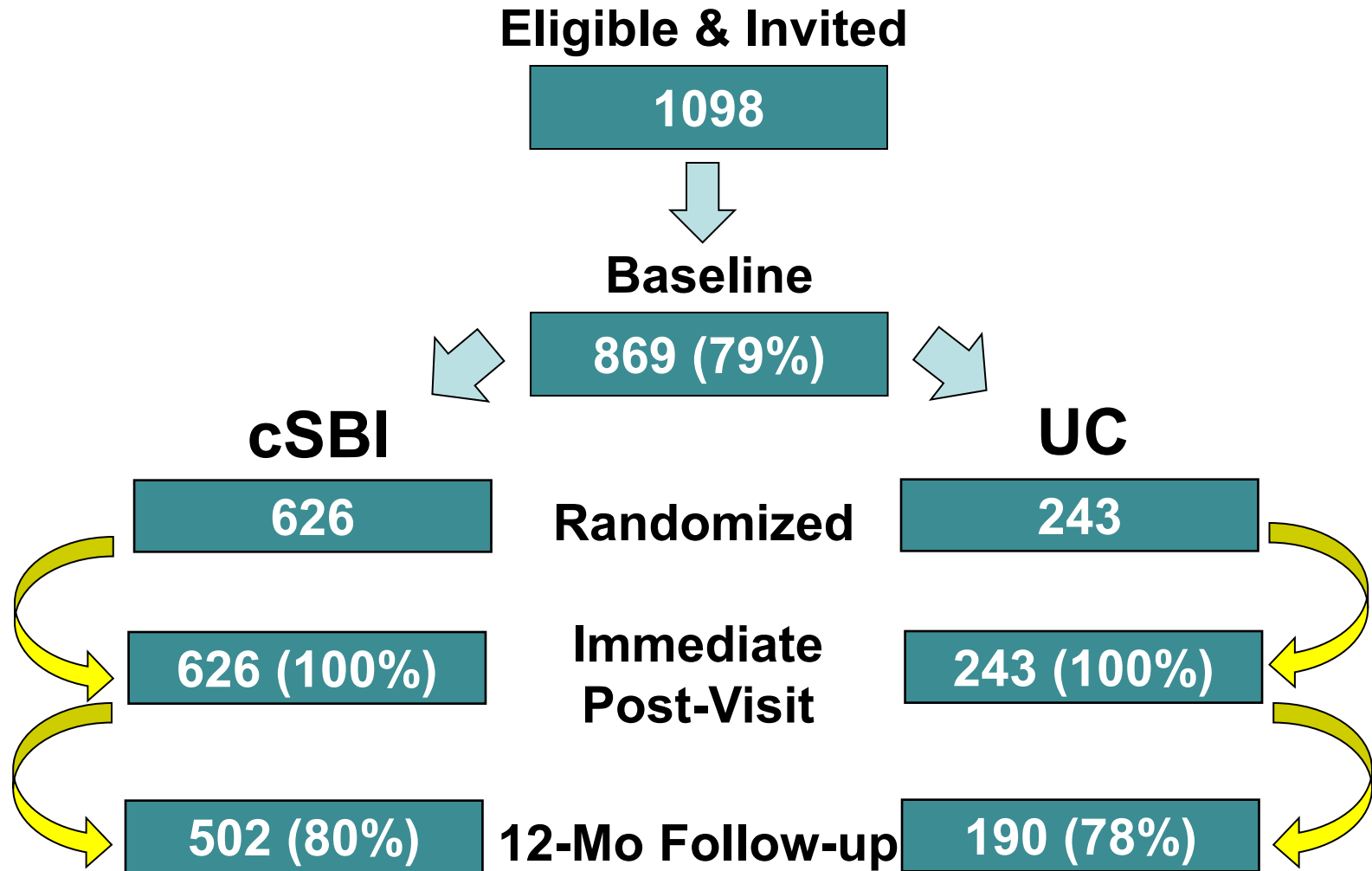
5. Reinforce: Self-efficacy

Data Analysis

Time to first post-visit alcohol or drug use:

- Cox Proportional Hazards modeling, adjusting for cluster sampling design (SUDAAN™ software)
- Stratified analysis by past-12-month use of substance (any/none) reported at baseline
- Models controlled for any baseline variables that differed between groups

Sample Flow Diagram

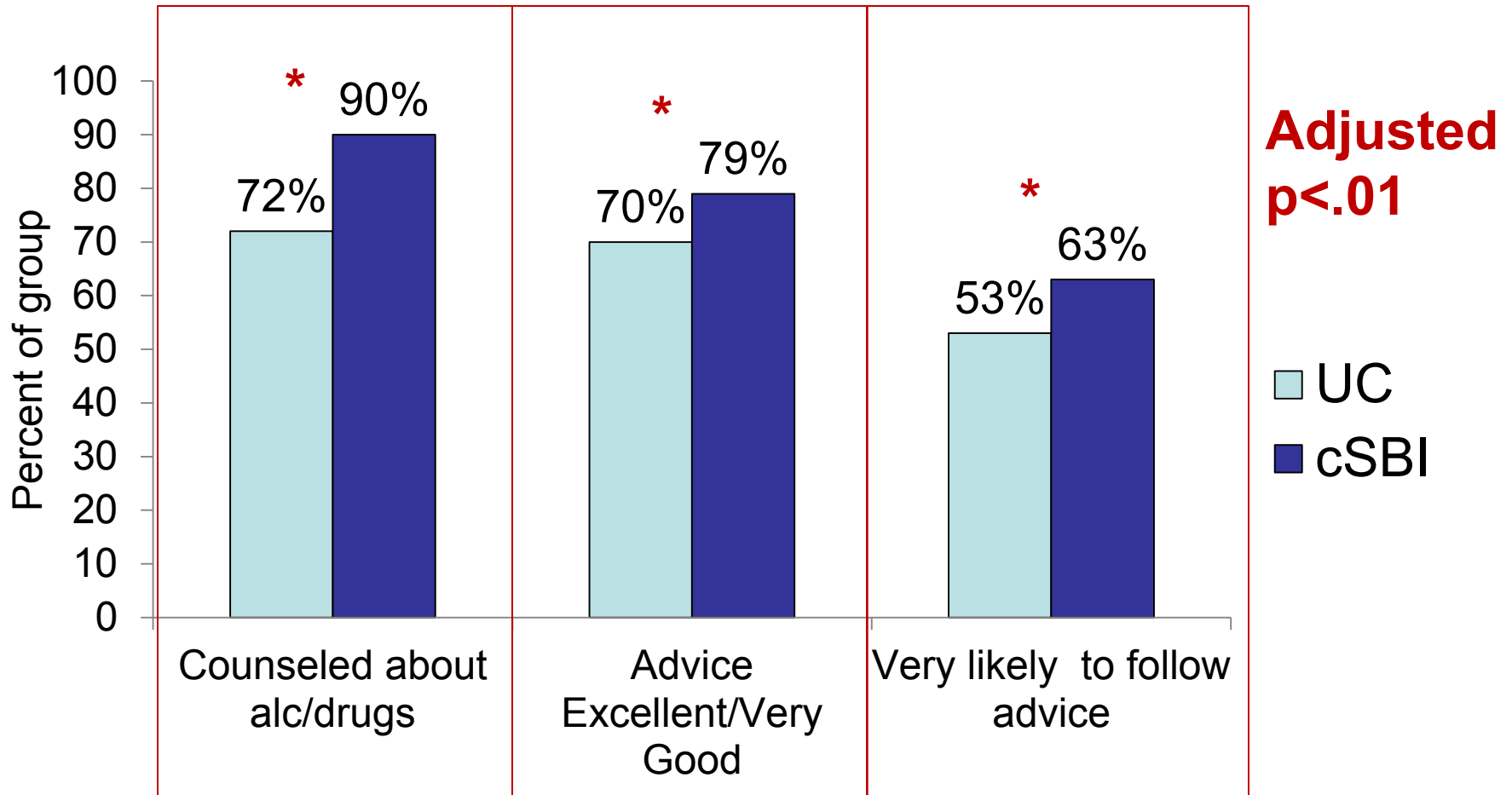


Group Comparison at Baseline

	Usual Care (n=243)	cSBI (n=626)
Age (mean \pm SD years)	15.1 \pm 1.8	14.7 \pm 1.9
Girls	51%	51%
White non-Hispanic	42%	44%
Parent college graduate	63%	65%
Past-12-month alcohol use	25%	21%
Past-12-month cannabis use	14%	12%
Past-12-month other drug use	1%	1%

p<0.05

Results: Feasibility/Acceptability



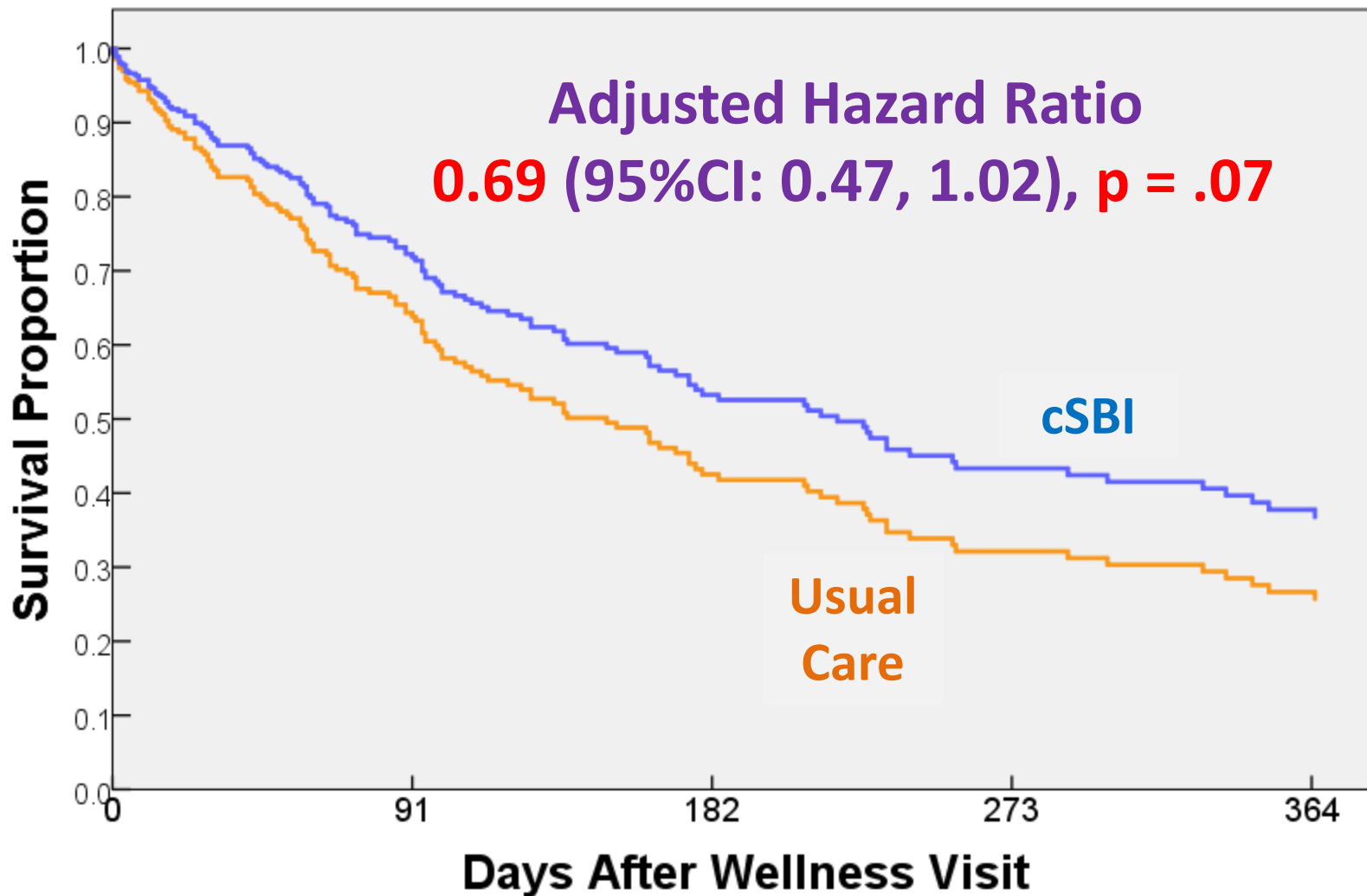
Intervention Effects among those *with past-12-month use* at baseline visit



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Time to First Alcohol Use After Visit (N=160)

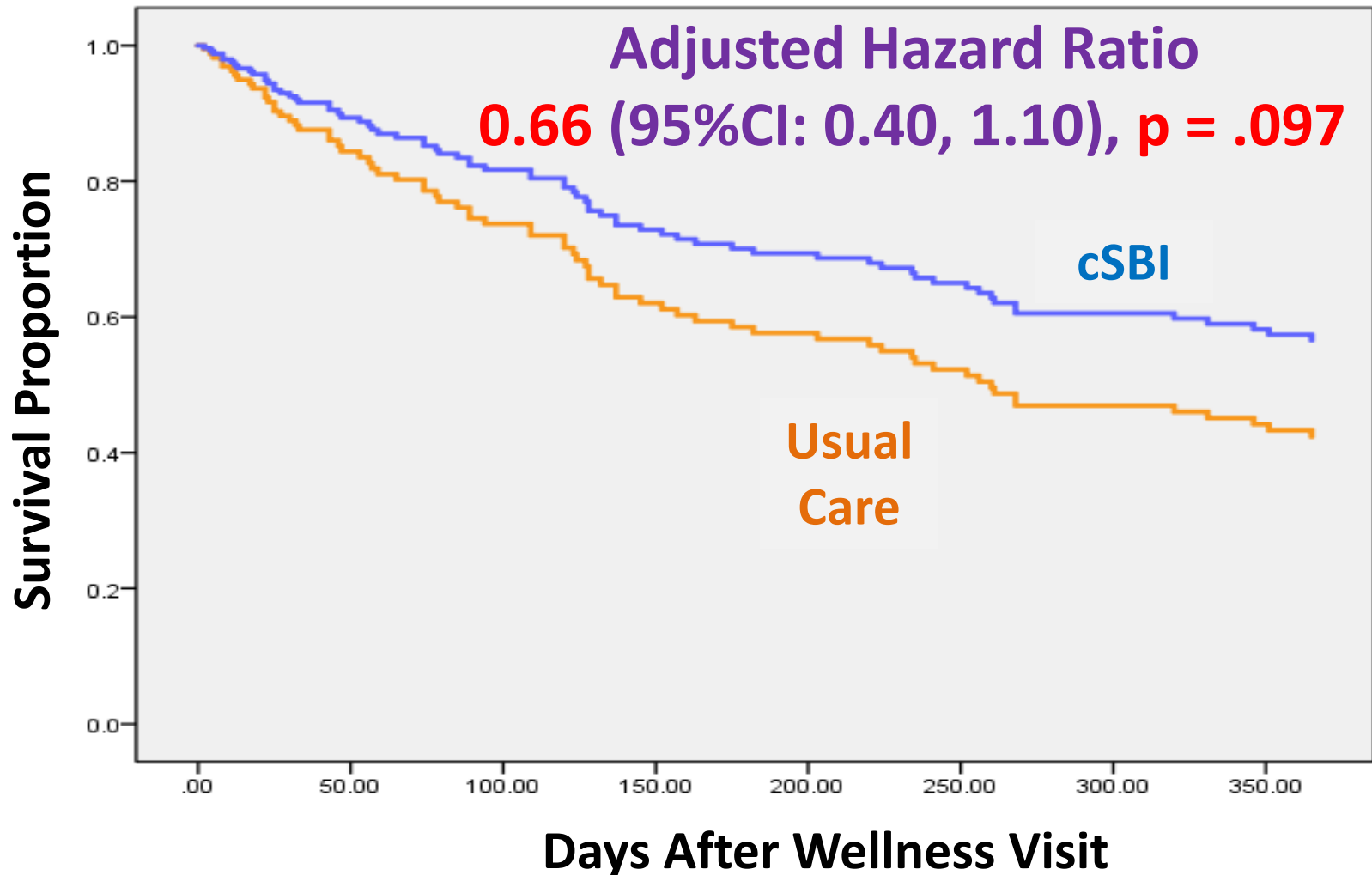
Group: Past-12-month Alcohol Use at Baseline



* Adjusted for past-12-month days of alcohol use reported at baseline

Time to First Binge Drinking After Visit (N=160)

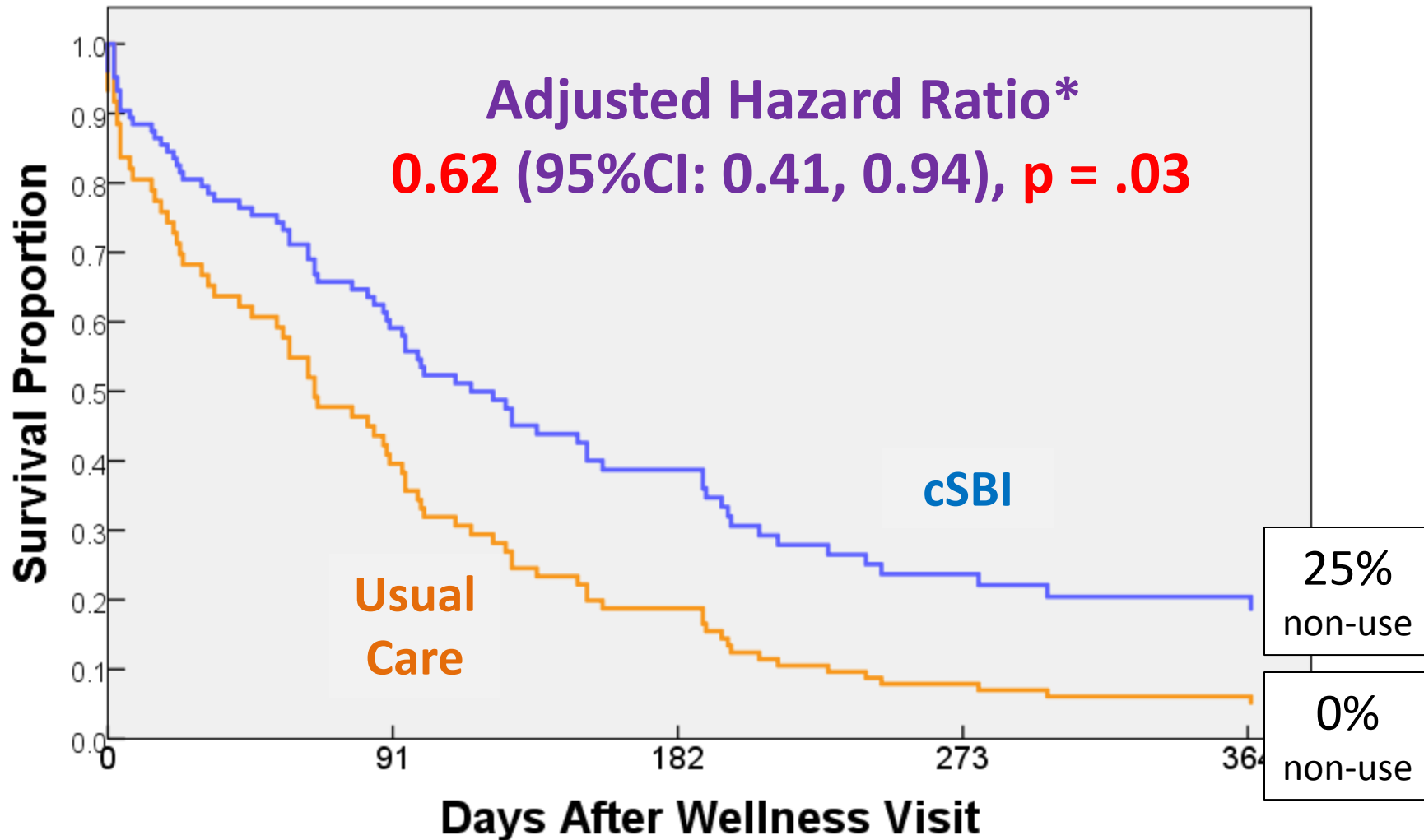
Group: Past-12-month Alcohol Use at Baseline



* Adjusted for past-12-month days of alcohol use reported at baseline

Time to First Cannabis Use After Visit (N=85)

Group: Past-12-month Cannabis Use at Baseline



* Adjusted for patient's age

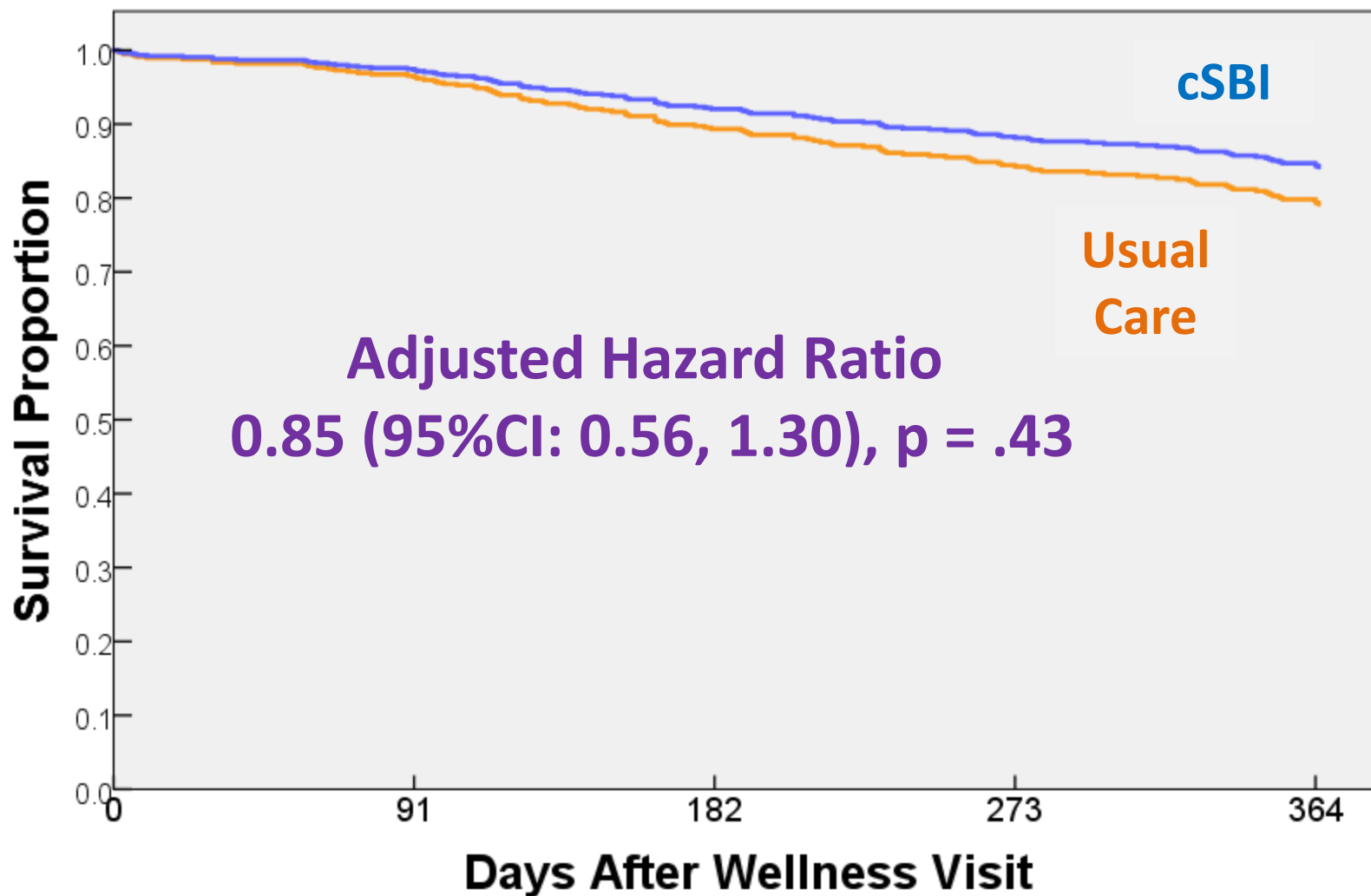
Prevention Effects among those with no past-12-month use at baseline visit



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Time to First Alcohol Use After Visit (N=676)

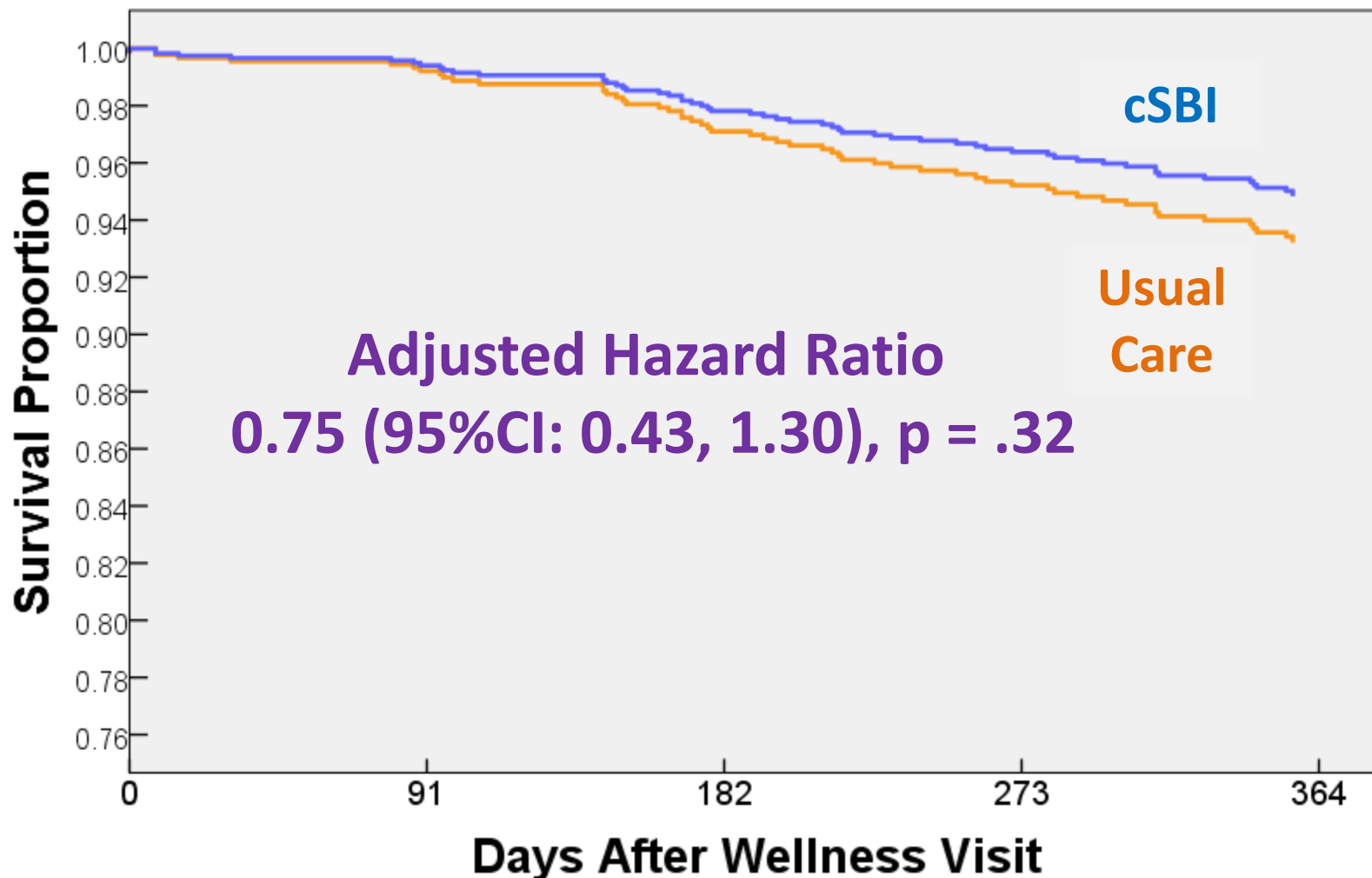
Group: No Past-12-month Alcohol Use at Baseline



* Adjusted for patient's age





Time to First Cannabis Use After Visit (N=763)

Group: No Past-12-month Cannabis Use at Baseline



* Adjusted for patient's age

Summary of Pilot RCT Key Findings

	Effect
Patient receipt of alc/drug counseling	
Patient ratings of counseling quality	
Time to first use post-visit among <i>baseline users</i>	
Time to first use post-visit among <i>baseline non-users</i>	

Clinician Feedback

- **93%** (50/54) completed debriefing questionnaire
- **88%** rated cSBI very/moderately useful for their practice
- **80%** reported increased confidence in discussing substance use with adolescents
- **62%** would recommend cSBI to other practices
 - *“The most useful aspects of the cSBI system were having the risk assessment ready for me with any ‘at risk’ findings highlighted.”*
 - *“A valuable talking point was to remind patients that their brains are still developing into their mid-20s and substance use can permanently affect neurological development.”*

Study Strengths/Limitations

- Strengths
 - RCT design
 - Five sites
- Limitations
 - All sites in Boston
 - Self-report
 - Unable to examine use of other drugs
 - Effect may be underestimated due to possible contamination of control condition

Implications and Future Research

- Our study demonstrates that the cSBI system was feasible and acceptable for implementation in busy pediatric practices
- cSBI shows promise for **delaying post-visit alcohol and cannabis use** among adolescent patients with prior use
- A larger multi-site trial outside of Boston is needed

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Site Principal Investigators

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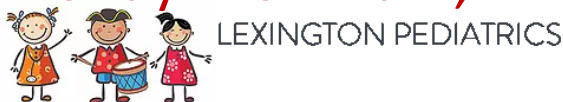
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