Adolescent SBIRT: Practical Skills to Screen and Manage Adolescent Substance Use in the Office Practice

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SBIRT to Reduce Adolescent Substance Use: Rationale and Research Overview

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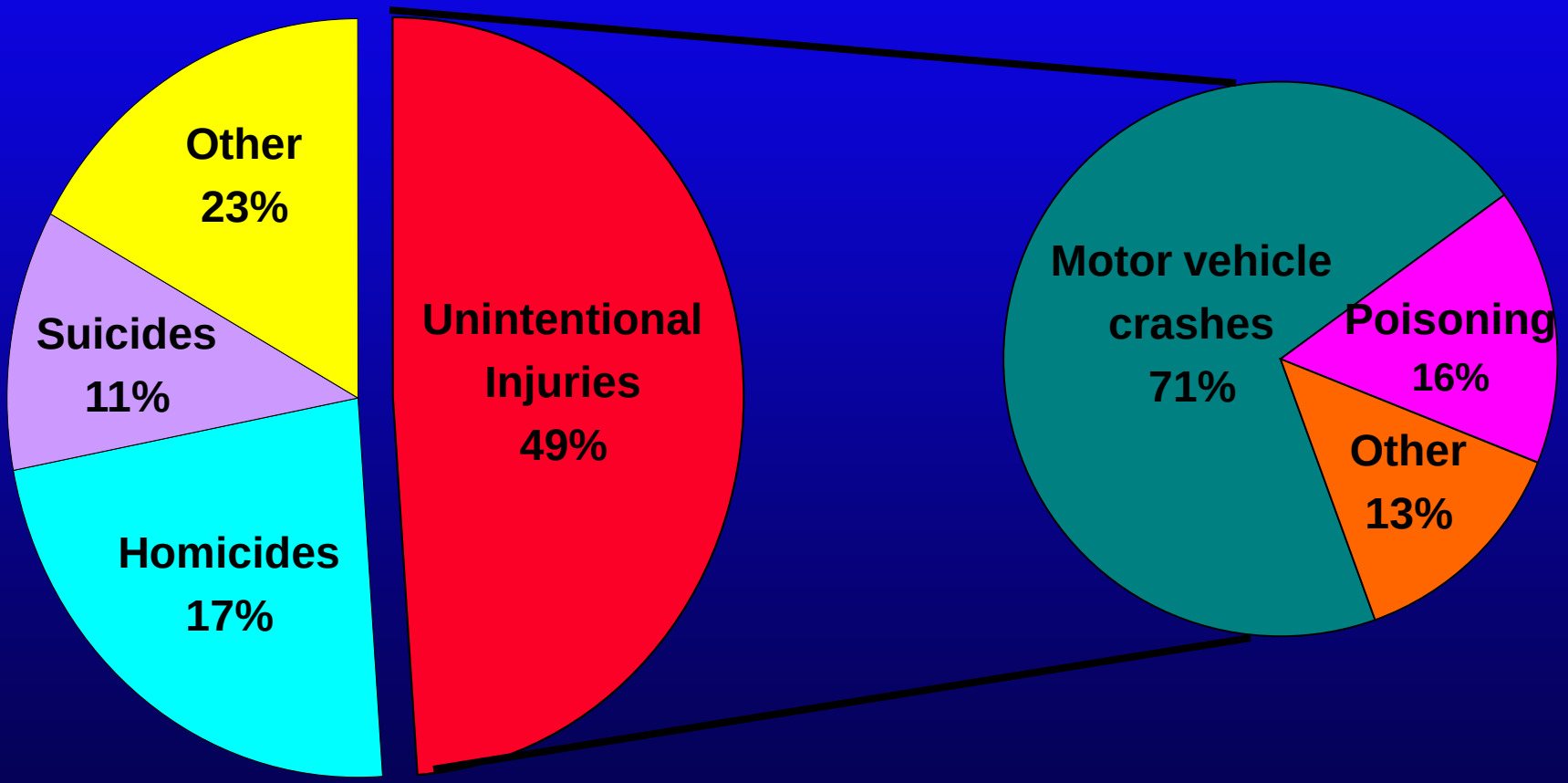
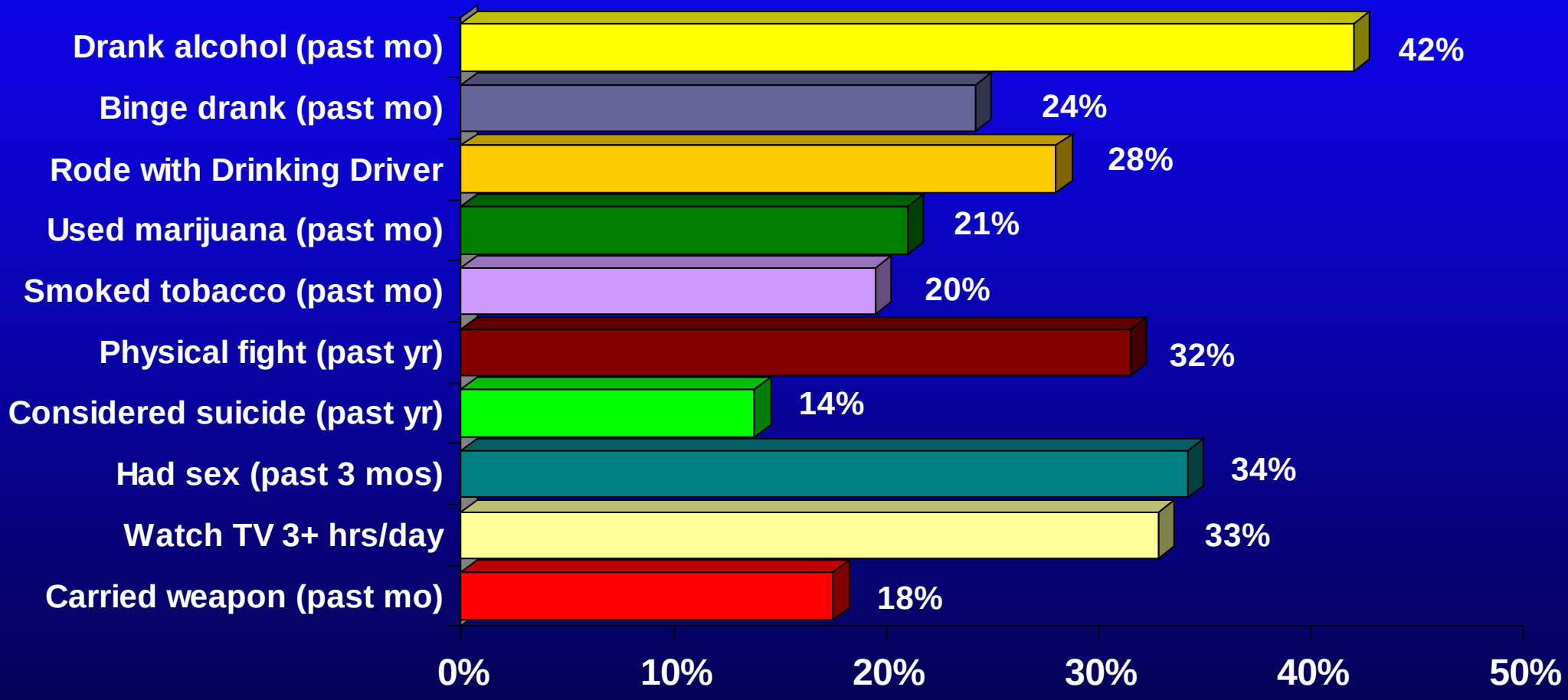
Dr. Harris acknowledges Drs. John R Knight , Celeste Wilson, and Ken Winters for assistance in developing slides.

Leading Causes of Death, U.S. Ages 15-19



Source: US DHHS, Health Resources and Services Administration, Maternal and Child Health Bureau. *Child Health USA 2010.* Rockville, Maryland: U.S. Department of Health and Human Services, 2010.

Health-Risk Behaviors
9th to 12th-Grade Students, USA, 2009



Source: Centers for Disease Control and Prevention, 2009 National Youth Risk Behavior Survey Overview, Available at: http://www.cdc.gov/HealthyYouth/yrbs/pdf/us_overview_yrbs.pdf

Substance-Related Health Effects

- **Immediate:** injuries, overdose, hospitalization, physical/sexual assaults, teen pregnancy, sexually transmitted infections, HIV/AIDS
- **Lifetime:** brain damage, learning problems, psychiatric disorders, addiction (5x greater risk with early onset of use)

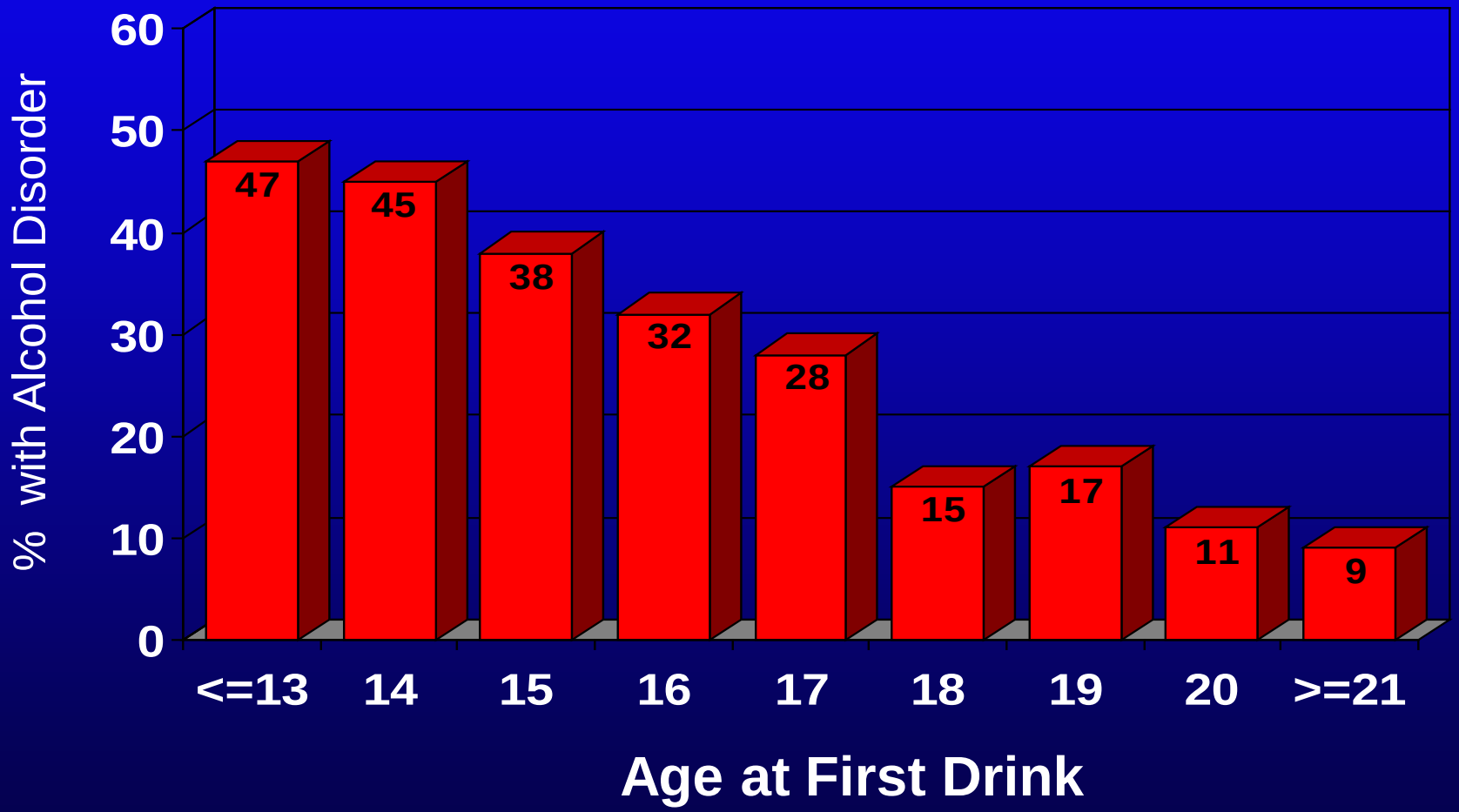
Sources: DuRant, R. H., J. A. Smith, et al. (1999). The relationship between early age of onset of initial substance use and engaging in multiple health risk behaviors among young adolescents. Arch Pediatr Adolesc Med 153(3): 286-91; Ellickson, P. L., J. S. Tucker, et al. (2003). Ten-year prospective study of public health problems associated with early drinking. Pediatrics 111(5): 949-955; Hingson, R., T. Heeren, et al. (2002). Age of drinking onset, driving after drinking, and involvement in alcohol related motor-vehicle crashes. Accid Anal Prev 34(1): 85-92; Hingson, R., T. Heeren, et al. (2001). Age of drinking onset and involvement in physical fights after drinking. Pediatrics 108(4): 872-7; Hingson, R. W., T. Heeren, et al. (2000). Age of drinking onset and unintentional injury involvement after drinking. Jama 284(12): 1527-33; Hingson, R. W., T. Heeren, et al. (2006). Age at drinking onset and alcohol dependence: age at onset, duration, and severity. Arch Pediatr Adolesc Med 160(7): 739-46; Slap, G. B., S. Chaudhuri, et al. (1991). Risk factors for injury during adolescence. J Adolesc Health 12(3): 263-8.; Tapert, S. F., G. A. Aarons, et al. (2001). Adolescent substance use and sexual risk-taking behavior. J Adolesc Health 28(3): 181-9.

Alcohol Involvement in Fatal Motor Vehicle Crashes – U.S.

Age	Number of Fatalities	Blood Alcohol Concentration		
		0	.01- .09	≥ .10
15-20	6,375	64.9%	**10.6%**	**24.5%**

National Highway Traffic Safety Administration. *Traffic Safety Facts: 2005 Data (Available on-line at: http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2005/AlcoholTSF05.pdf: accessed 10/18/2004).* Washington DC: National Center for Statistics and Analysis; 2006.

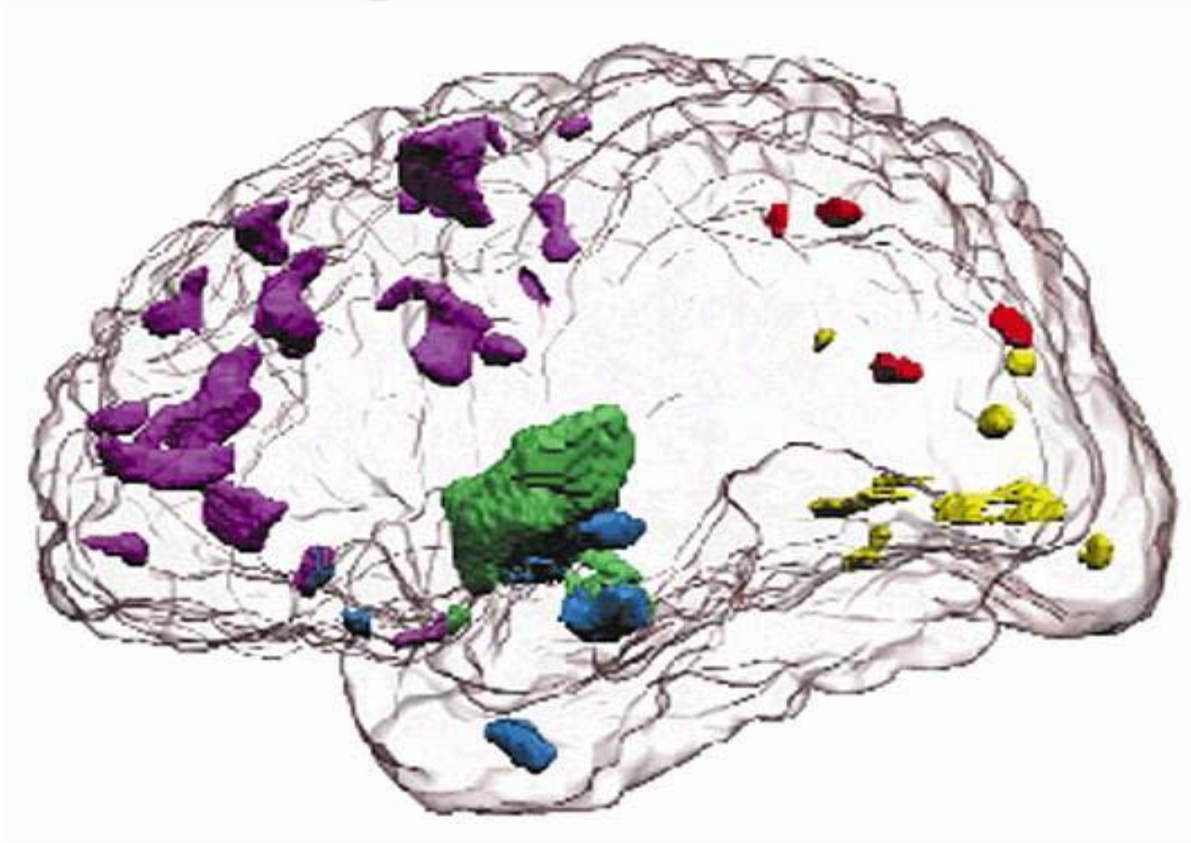
Age at First Drink and Later Risk of Alcoholism



Source: Hingson RW, Heeren T, Winter MR. Age at drinking onset and alcohol dependence. *Arch Pediatr Adolesc Med.* 2006;160:739-746.

Brain areas with greatest changes during adolescence

Front



Back

Source: Sowell ER, Thompson PM, Holmes CJ, Jernigan TL, Toga AW. *In vivo* evidence for post-adolescent brain maturation in frontal and striatal regions. *Nature Neuroscience*. 1999;2:859 – 861. Used with permission.

Research evidence is accumulating showing that..

- Repeated exposure to drugs during adolescence may permanently change development of brain structure, chemistry, and function

Slide courtesy of Ken Winters, PhD.

Why Adolescent SBIRT in primary care?

- Adolescence is a critical period for screening, prevention, and early intervention
- Primary care providers (PCPs) play important role in adolescent screening and brief intervention, and need practical, evidence-based strategies

SBIRT studies to date

- Many studies show effectiveness for ADULTS in primary care (review Babor et al., Subst Abus, 2007)*
  - Reductions in alcohol use days, binge drinking episodes, hospital days, ED visits
  - Cost-benefit: for every $1 invested in SBIRT, estimated savings $4-$6 in future health care costs (Fleming et al. 2000; 2002)

*Sources: Babor T, et al. Screening, Brief Intervention, and Referral to Treatment (SBIRT): toward a public health approach to the management of substance abuse. Subst Abus. 2007;28(3):7-30. Fleming M, et al. Benefit-cost analysis of brief physician advice with problem drinkers in primary care settings. Med Care 2000; 38(1):7-18; Fleming M, et al. Brief physician advice for problem drinkers: long-term efficacy and benefit-cost analysis. Alcohol Clin Exp Res. 2002 Jan;26(1):36-43.

SBIRT effectiveness in Pediatrics

- Few adolescent studies, usually in ED setting or with college students*
- Compared to ED, pediatric primary care has potential to screen and intervene with many more adolescents at earlier stages of use, before severe accident or injury

*Sources: Monti PM, Colby SM, Barnett NP, et al. Brief intervention for harm reduction with alcohol-positive older adolescents in a hospital emergency department. *J Consult Clin Psychol.* 1999;67(6):989-994.; Saitz R, Naimi TS. Adolescent Alcohol Use and Violence: Are Brief Interventions the Answer? *JAMA.* August 4, 2010;304(5):575-577.; Spirito A, Monti PM, Barnett NP, et al. A randomized clinical trial of a brief motivational intervention for alcohol-positive adolescents treated in an emergency department. *J Pediatr.* Sep 2004;145(3):396-402. De Micheli D, Fisberg M, Formigoni ML. Study on the effectiveness of brief intervention for alcohol and other drug use directed to adolescents in a primary health care unit. *Rev Assoc Med Bras.* 2004;50(3):305-313.

Do health care providers need a structured tool for substance use screening?

Detecting Adolescent Substance Use Problems: Comparison of Provider Impressions with Diagnostic Interview

	Medical Provider Impressions	
	Sensitivity	Specificity
Any use	.63 (.58, .69 CI)	.81 (.76, .85 CI)
Any problem	.14 (.10, .20 CI)	1.0 (.99, 1.0 CI)
Any disorder	.10 (.04, .17 CI)	1.0 (.99, 1.0 CI)
Dependence	0.0	1.0

Source: Wilson CR, Sherritt L, Gates E, Knight JR. Are clinical impressions of adolescent substance use accurate? Pediatrics, 2004;114:536-540

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Is there a brief, valid, reliable, developmentally appropriate substance use screening tool?

CRAFFT Questions

C = CAR

R = RELAX

A = ALONE

F = FORGET

F = FAMILY/FRIENDS

T = TROUBLE

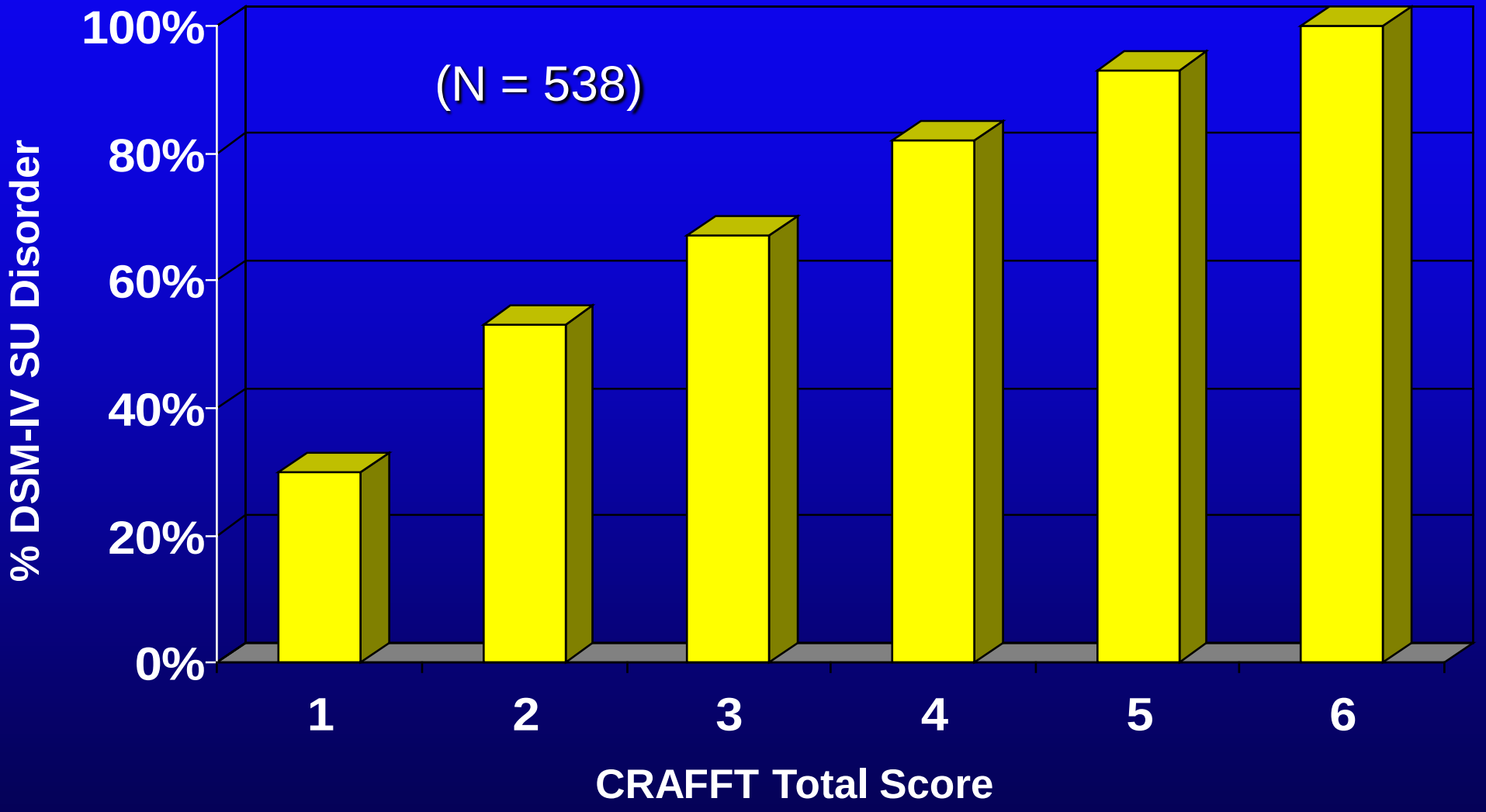
Source: Knight, J., L. Shrier, et al. (1999). A new brief screen for adolescent substance abuse. Arch Pediatr Adolesc Med 153: 591-596.

Study 1: Validity of CRAFFT Score ≥ 2

	Sensitivity	Specificity	PPV	NPV
Problem Use, Abuse or Dependence	.76	.94	.83	.91
Abuse or Dependence	**.80**	**.86**	**.53**	**.96**
Dependence	.92	.80	.25	1.0

Source: Knight, J. R., L. Sherritt, et al. (2002). Validity of the CRAFFT substance abuse screening test among adolescent clinic patients. Arch Pediatr Adolesc Med 156(6): 607-14.

CRAFFT Score: Positive Predictive Value

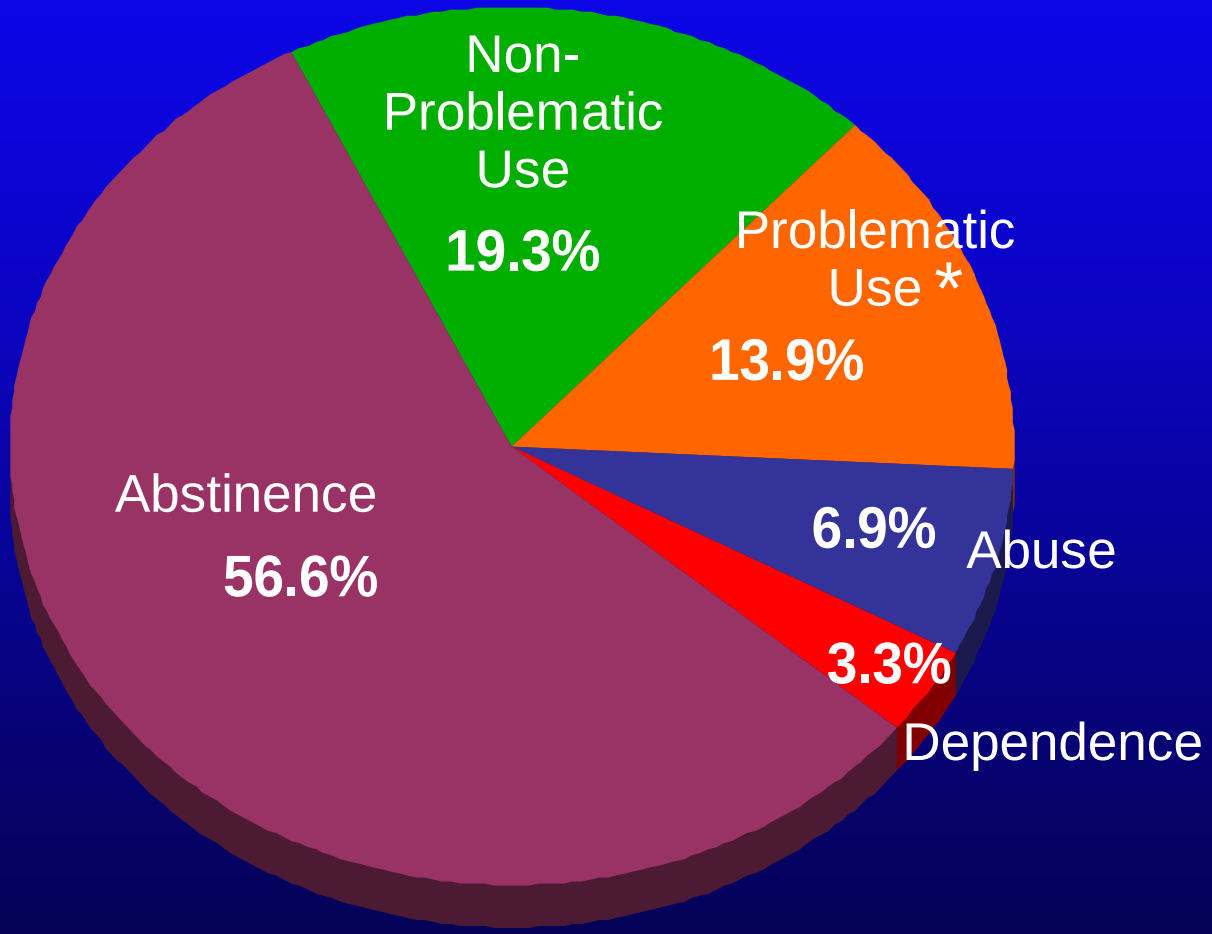


Source: Knight, J. R., L. Sherritt, et al. (2002). Validity of the CRAFFT substance abuse screening test among adolescent clinic patients. Arch Pediatr Adolesc Med 156(6): 607-14.

Source: Knight JR et al., 2002

Study 2: Use Severity & Interventions

Among 12- to 18-year-old Patients (N=2133)



Praise and encouragement

Brief Advice (to Stop)

Brief Advice/Counseling

Brief Negotiated Interview (MI)

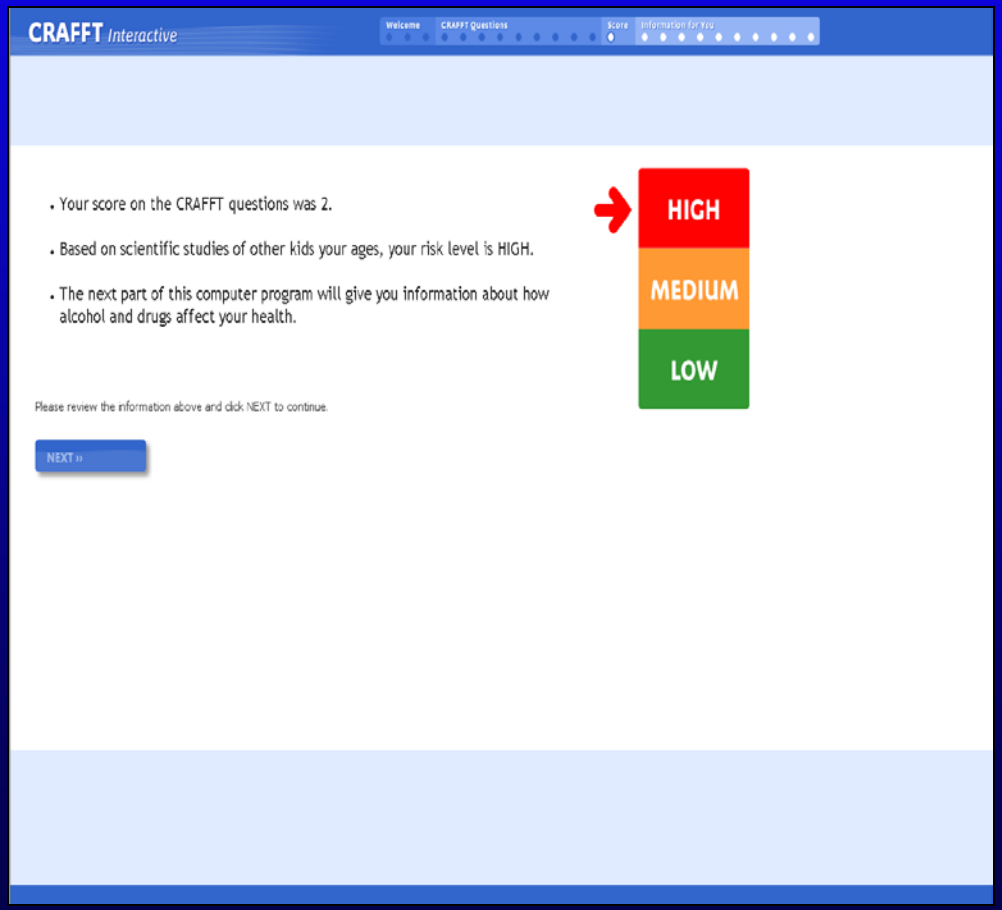
Referral to Treatment

*Problematic Use = two or more serious alcohol- or drug-related problems within the past year and no diagnosis of abuse or dependence as defined by DSM-IV diagnostic criteria

Source: Knight, J. R., S. K. Harris, et al. (2007). Prevalence of positive substance abuse screens among adolescent primary care patients. Arch Pediatr Adolesc Med 161(11): 1035-1041.

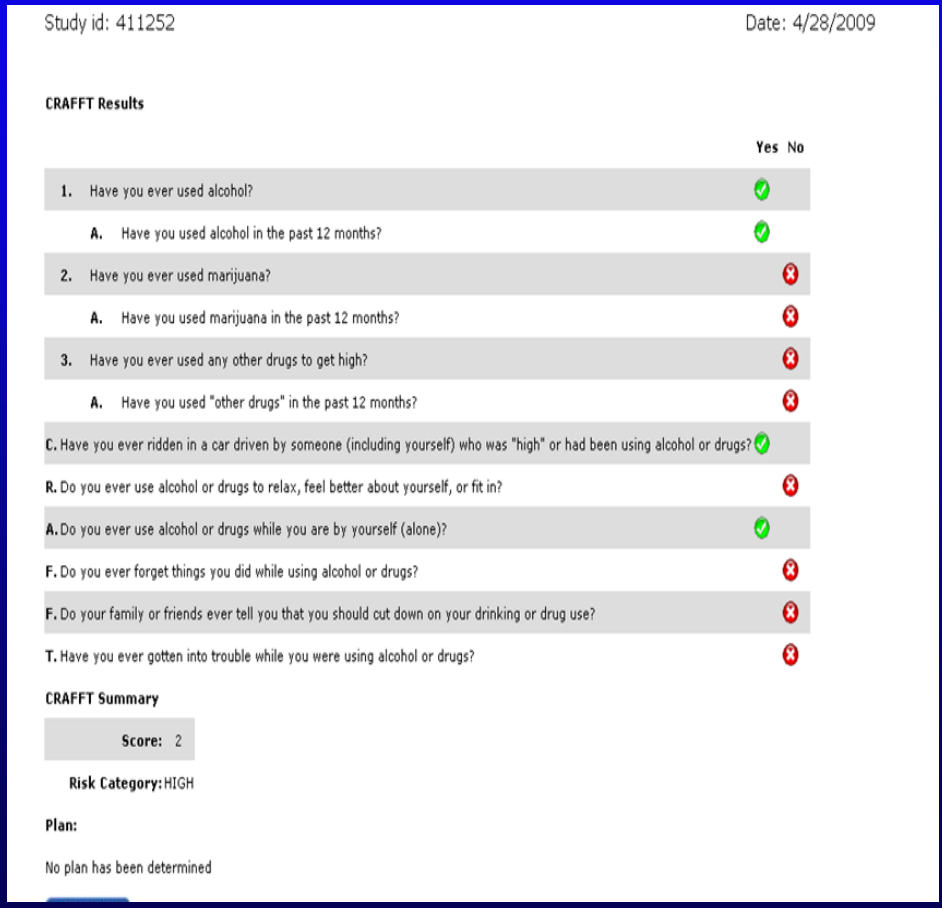
Study 3: Computer-facilitated Screening and Provider Brief Advice (cSBA)

- Computerized CRAFFT screen
- Immediately displays patient's score and risk level
- Then, 10 pages of science and true stories illustrating harmful effects of substance use



cSBA System (cont'd)

- System produces PCP Report with screen results and 'talking points' for 2-3 minute PCP/teen discussion
- Report Form placed in clinic chart before visit



Study id: 411252 Date: 4/28/2009

CRAFFT Results

	Yes	No
1. Have you ever used alcohol?	✓	
A. Have you used alcohol in the past 12 months?	✓	
2. Have you ever used marijuana?		✗
A. Have you used marijuana in the past 12 months?		✗
3. Have you ever used any other drugs to get high?		✗
A. Have you used "other drugs" in the past 12 months?		✗
C. Have you ever ridden in a car driven by someone (including yourself) who was "high" or had been using alcohol or drugs?	✓	
R. Do you ever use alcohol or drugs to relax, feel better about yourself, or fit in?		✗
A. Do you ever use alcohol or drugs while you are by yourself (alone)?	✓	
F. Do you ever forget things you did while using alcohol or drugs?		✗
F. Do your family or friends ever tell you that you should cut down on your drinking or drug use?		✗
T. Have you ever gotten into trouble while you were using alcohol or drugs?		✗

CRAFFT Summary

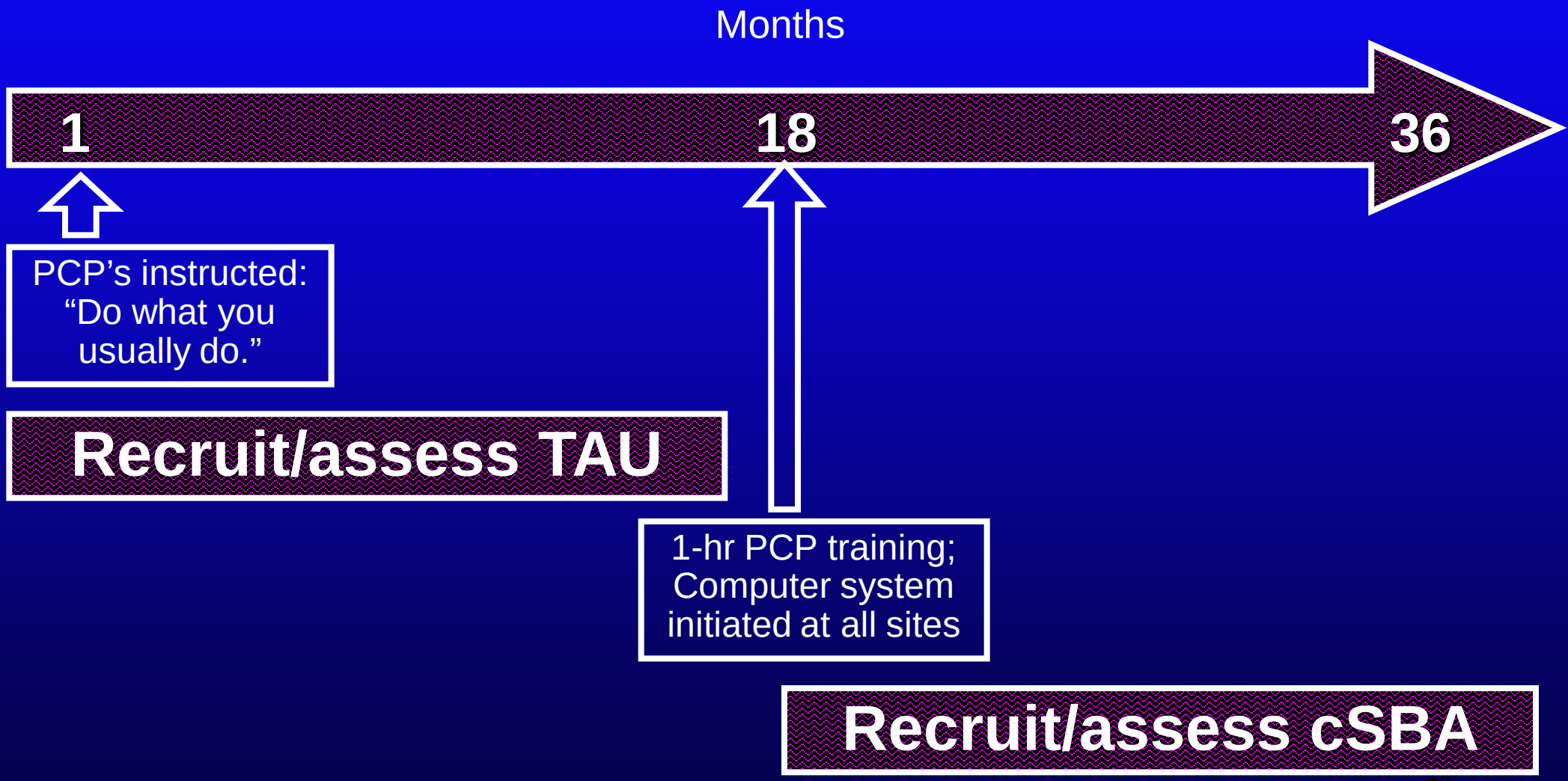
Score: 2

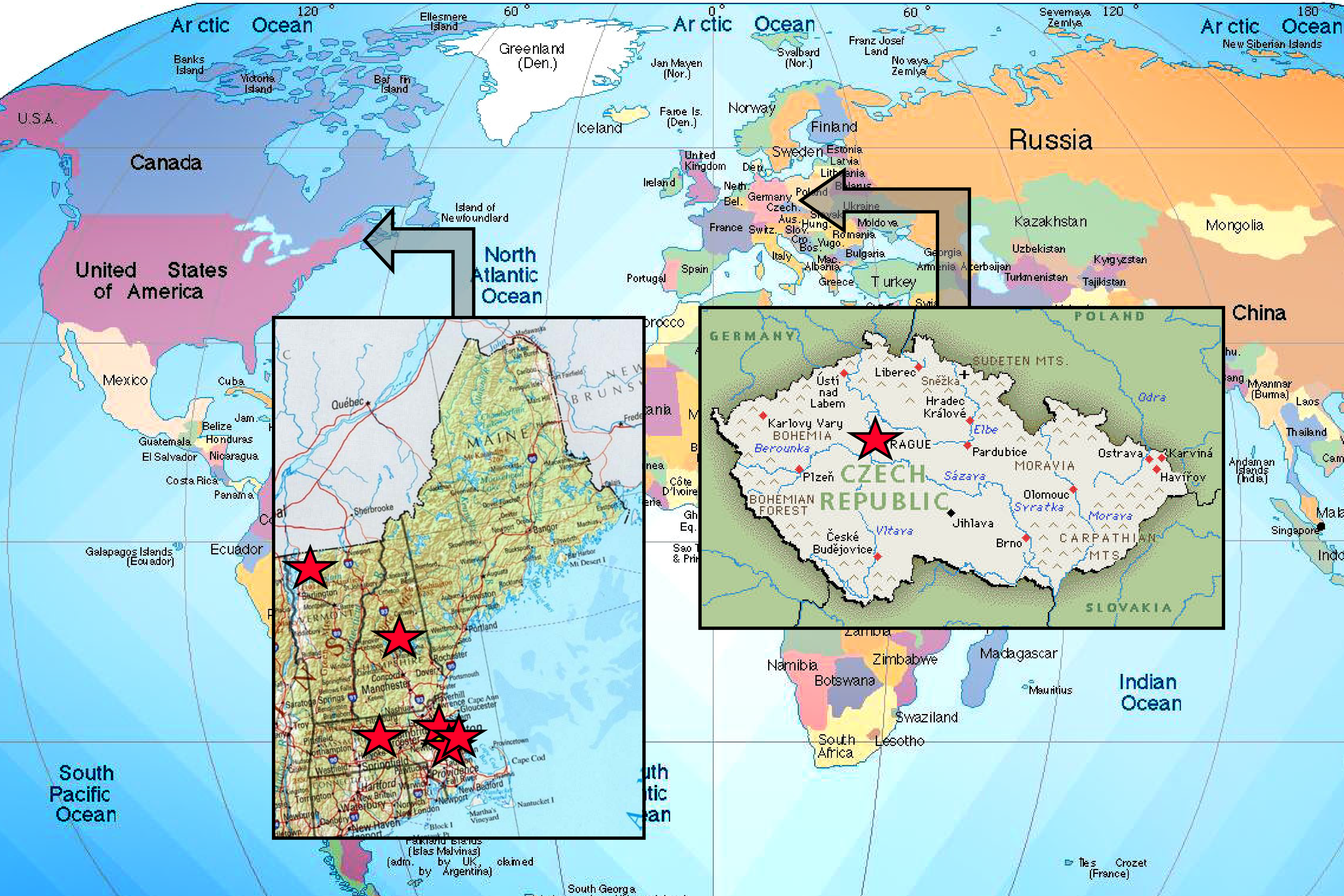
Risk Category: HIGH

Plan:

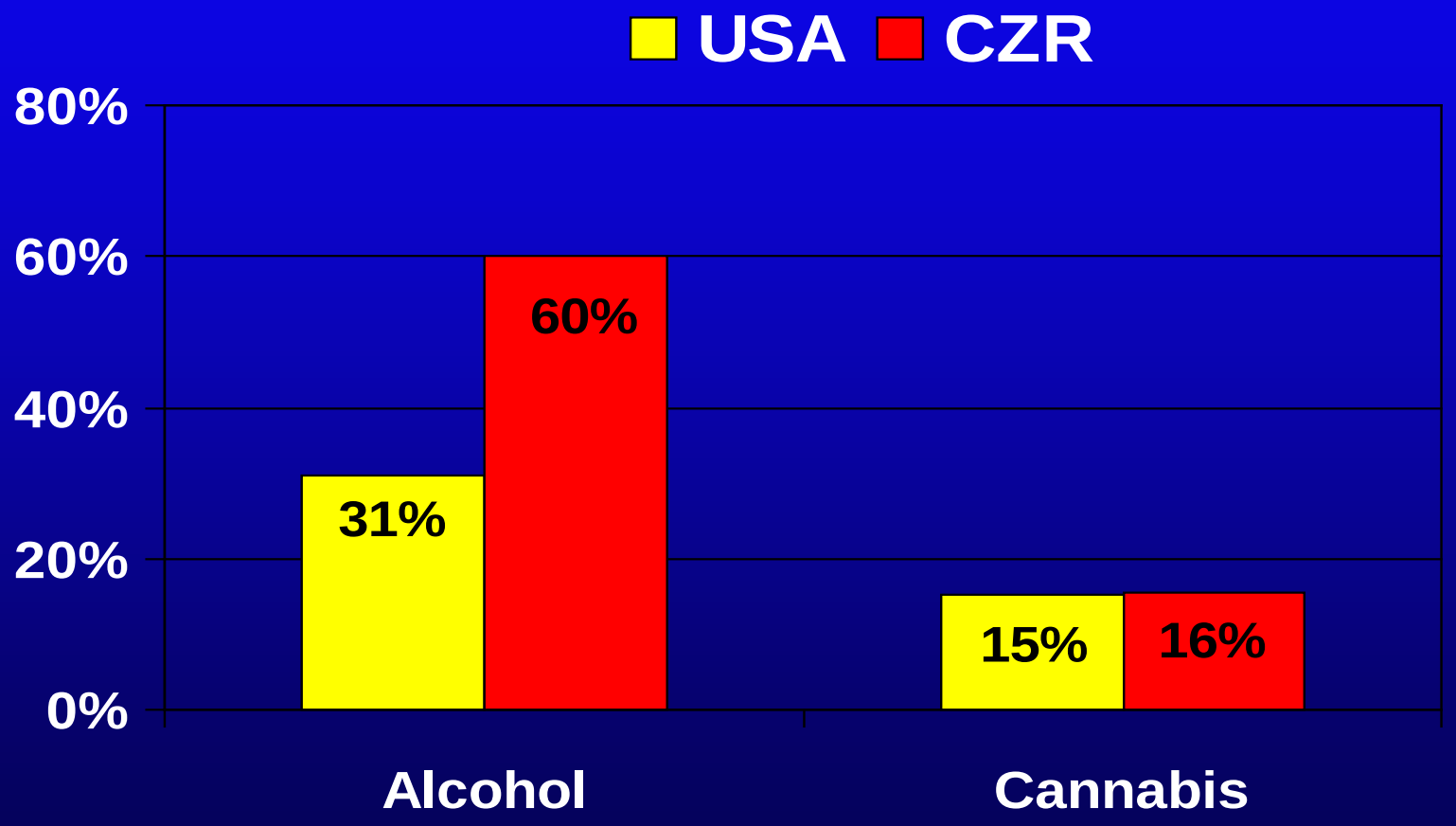
No plan has been determined

Study Design: Quasi-experimental, Asynchronous Comparative Effectiveness Trial (2005-2009)



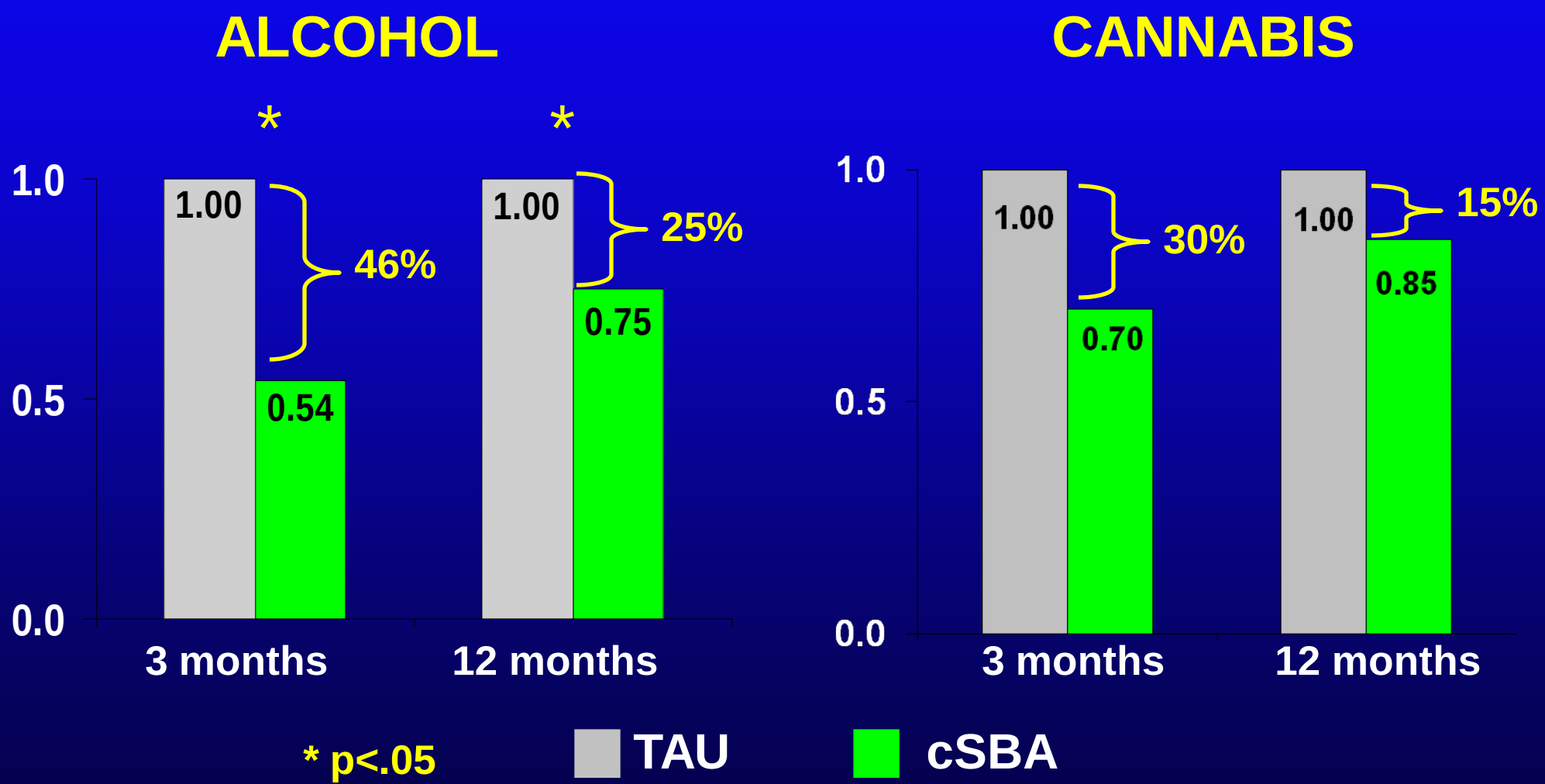

Arctic Ocean
Greenland (Den.)
Iceland
Canada
U.S.A.
United States of America
North Atlantic Ocean
Mexico
Cuba
Ecuador
South Pacific Ocean
Russia
China
Mongolia
Kazakhstan
Norway
Sweden
Finland
United Kingdom
Ireland
France
Spain
Portugal
Germany
Italy
Turkey
Ukraine
Indian Ocean
Madagascar
Namibia
Botswana
Zimbabwe
South Africa
Québec
MAINE
VERMONT
Portland
Bangor
Manchester
Concord
Springfield
Hartford
Providence
Cape Cod
GERMANY
POLAND
SLOVAKIA
SUDETEN MTS.
CZECH REPUBLIC
BOHEMIA
MORAVIA
BOHEMIAN FOREST
CARPATHIAN MTS
Ústí nad Labem
Liberec
Sněžka
Hradec Králové
Karlovy Vary
PRAGUE
Pardubice
Plzeň
Ostrava
Karviná
Havířov
Olomouc
Jihlava
Brno
České Budějovice
Elbe
Vltava
Sázava
Svratka
Morava
Odra
Berounka

Baseline Any Past-12-months Substance Use
Ages 12-18 years
USA vs. CZR



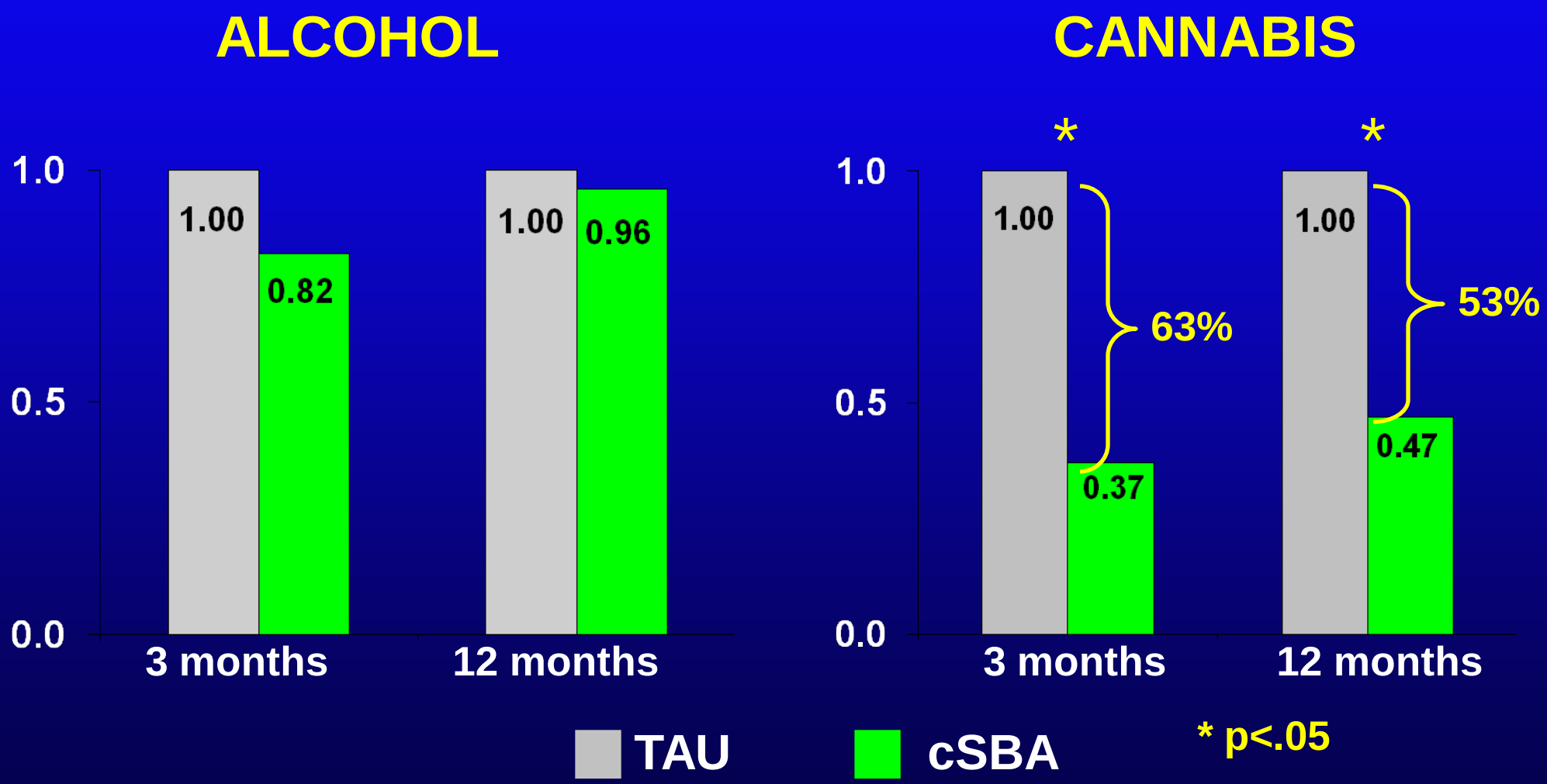
cSBA Effects: USA (N=2096)

Adjusted Relative Risk Ratios



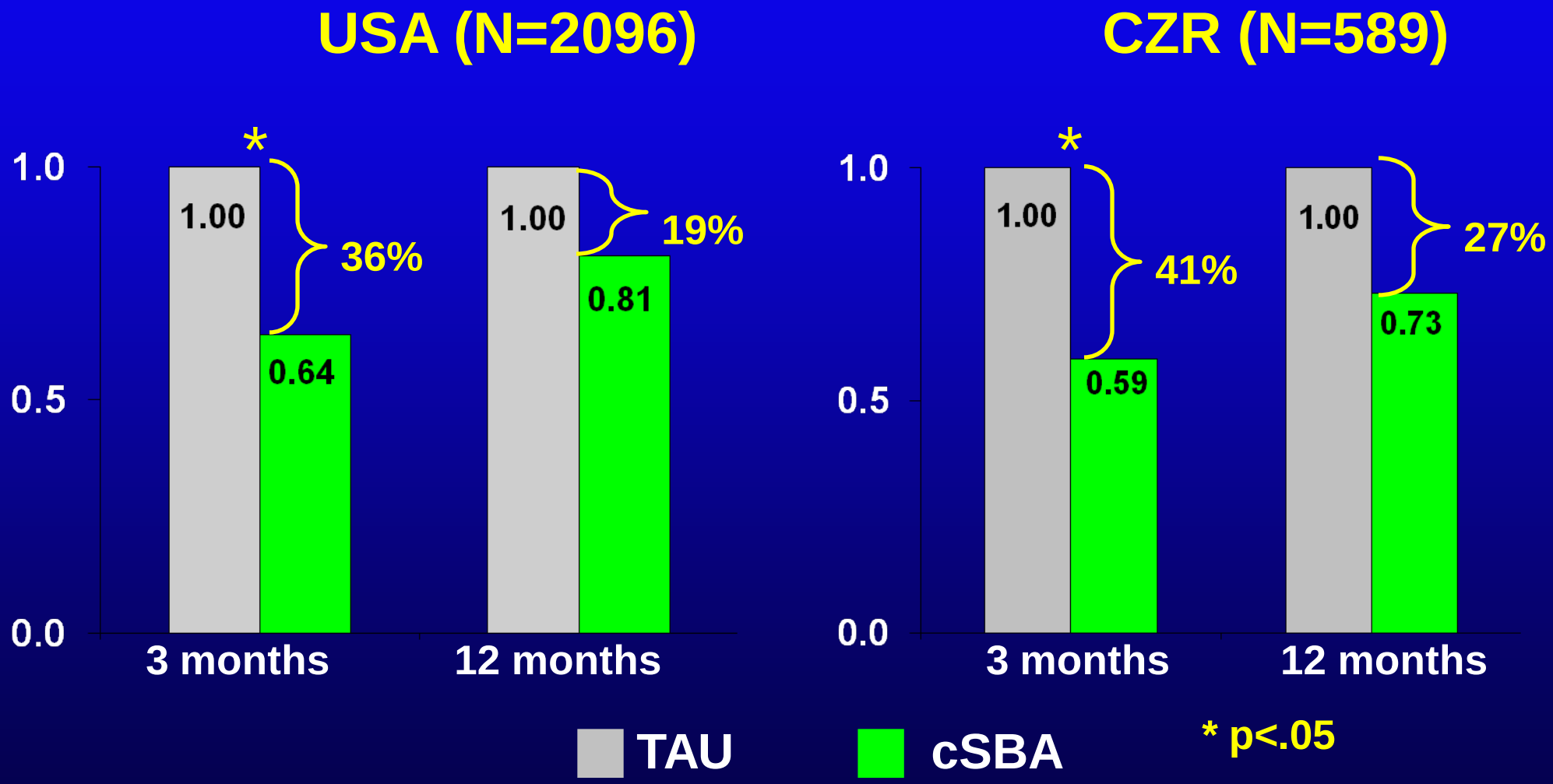
cSBA Effects: CZR (N=589)

Adjusted Relative Risk Ratios



cSBA Effects: Driving/Riding Risk

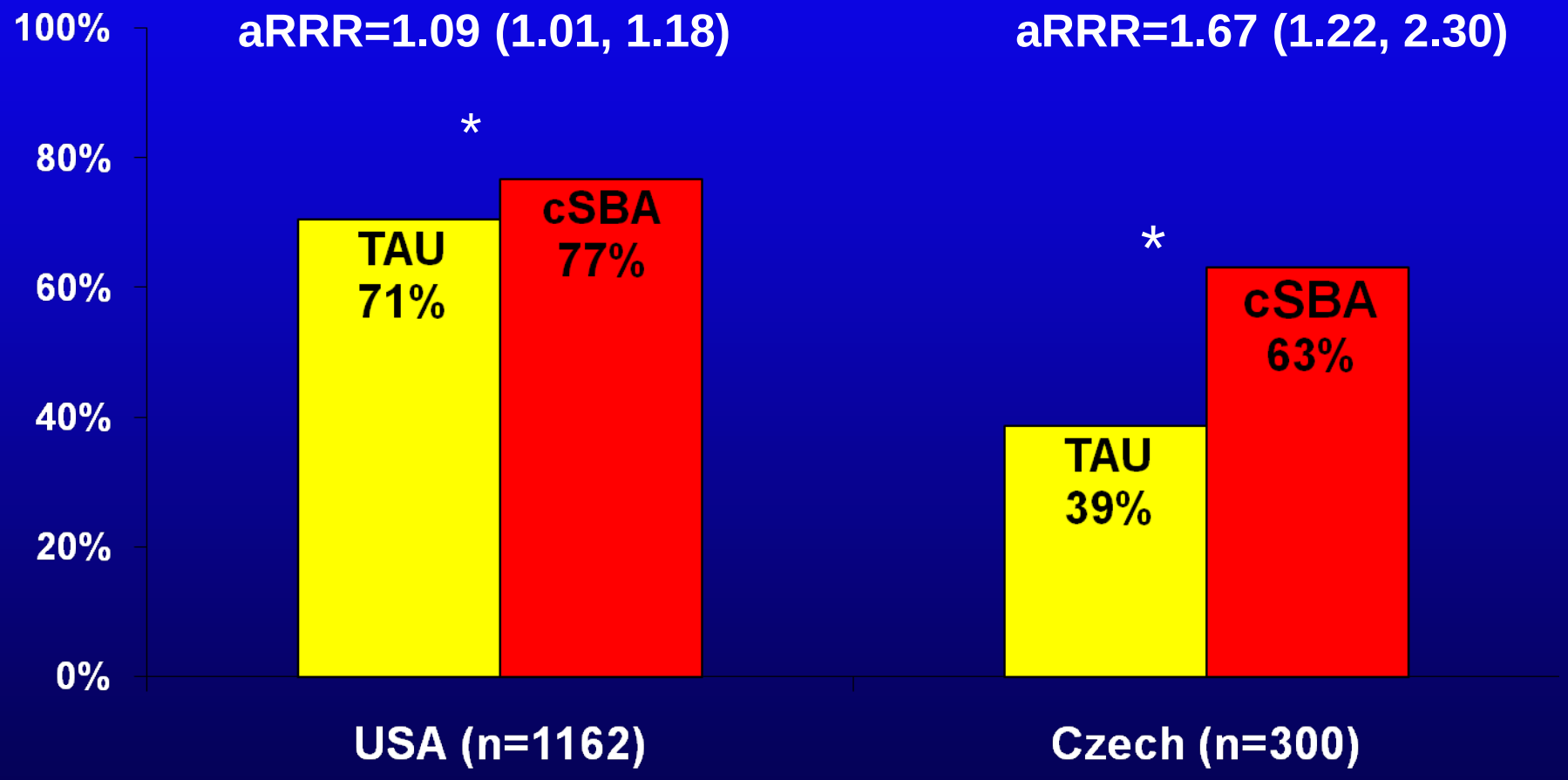
Adjusted Relative Risk Ratios



cSBA also improved patient ratings of the visit

Provider Advice was "Excellent/Very Good" (Advised)

Computerized Screening, Brief Advice (cSBA) vs. Treatment as Usual (TAU)

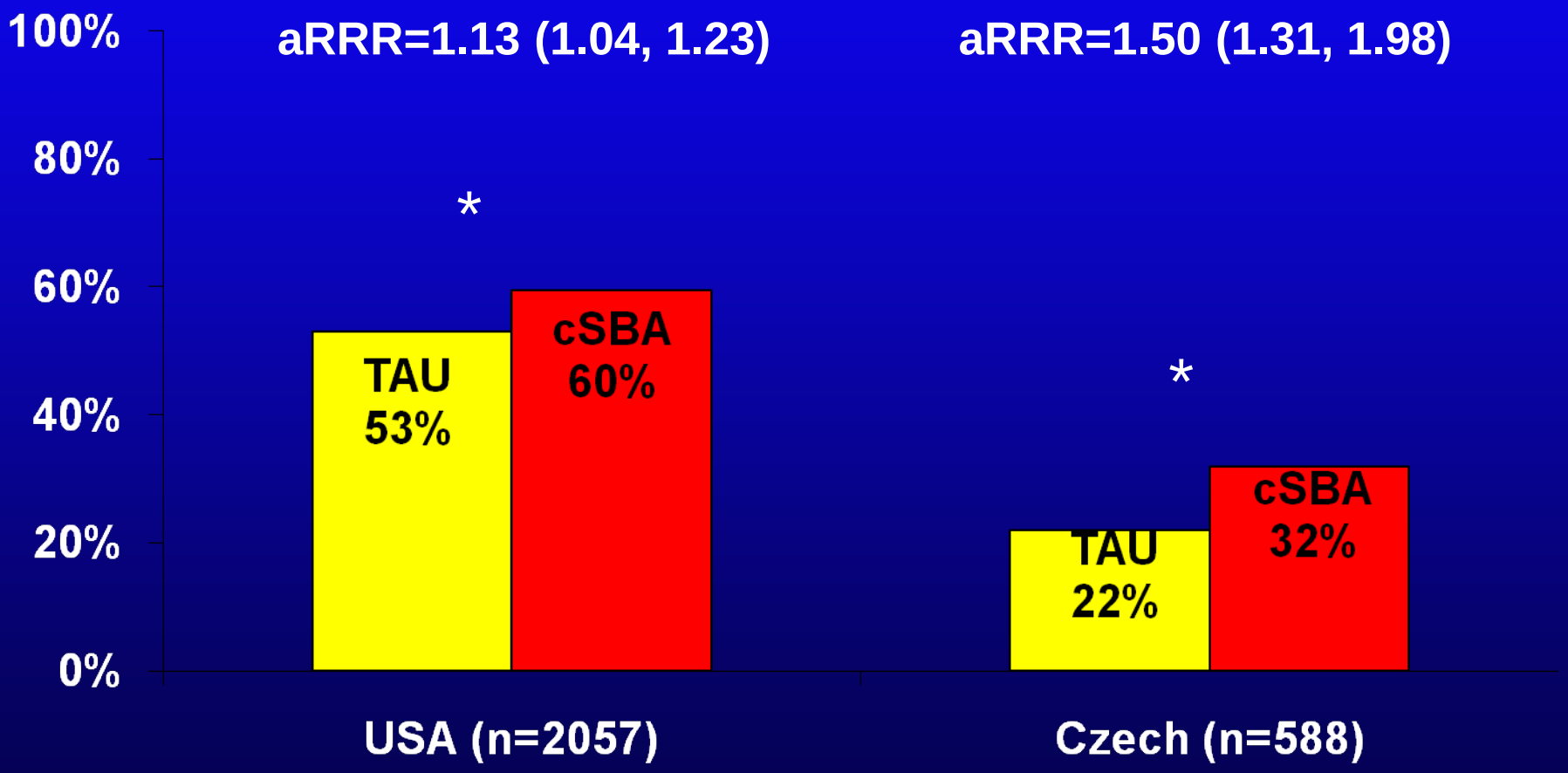


aRRR=adjusted Relative Risk Ratio (95% Confidence Interval); *p<0.05

Adjusted for age, gender, race/ethnicity, visit type and SES in USA and age, gender, and SES in Czech Republic.

% Very Likely to Follow Provider Advice

Computerized Screening, Brief Advice (cSBA) vs. Treatment as Usual (TAU)



aRRR=adjusted Relative Risk Ratio (95% Confidence Interval); *p<=.05

Adjusted for age, gender, race/ethnicity, visit type and SES in USA and age, gender, and SES in Czech Republic.

Implications

Screen for more health-risks

See more patients quickly

A structured SBIRT protocol can increase quality and efficiency

Next Steps

- Add tobacco screening/brief advice
- Add 2-session, Web-based Motivational Enhancement Therapy module for those at highest risk
- Test in primary care medical and dental sites
- Examine costs and cost-benefit