Yale University School of Medicine

Alcohol Screening and Brief Intervention in HealthCare Settings

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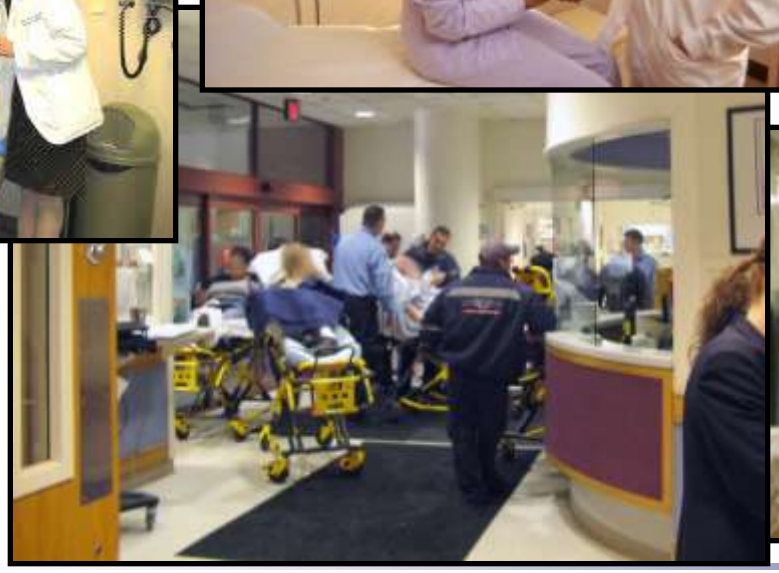
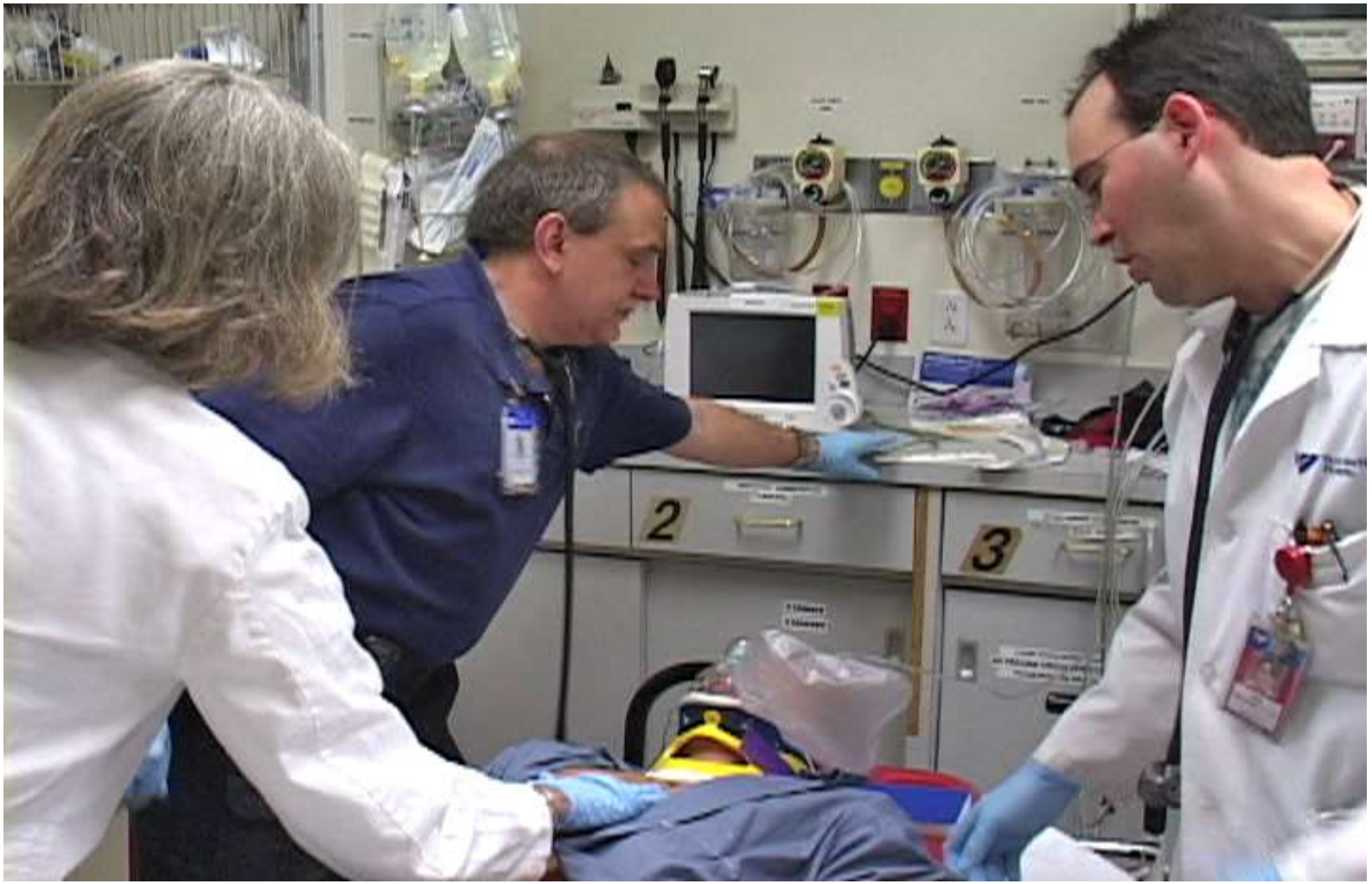


Several Truths

- The Primary Care/Emergency Department visit is an opportunity for screening and intervention
- Timely screening, treatment and referral is effective
- Treatment does work
- The environment is often challenging
- Practitioners will screen and intervene with knowledge, skills practice and processes in place

Why Focus on HealthCare Settings?

Given the high rates of medical comorbidities, individuals with substance use disorders are more likely to present to healthcare systems than any other service system.

Mertens JR. *Arch Intern Med*. 2003;163:2511-2517

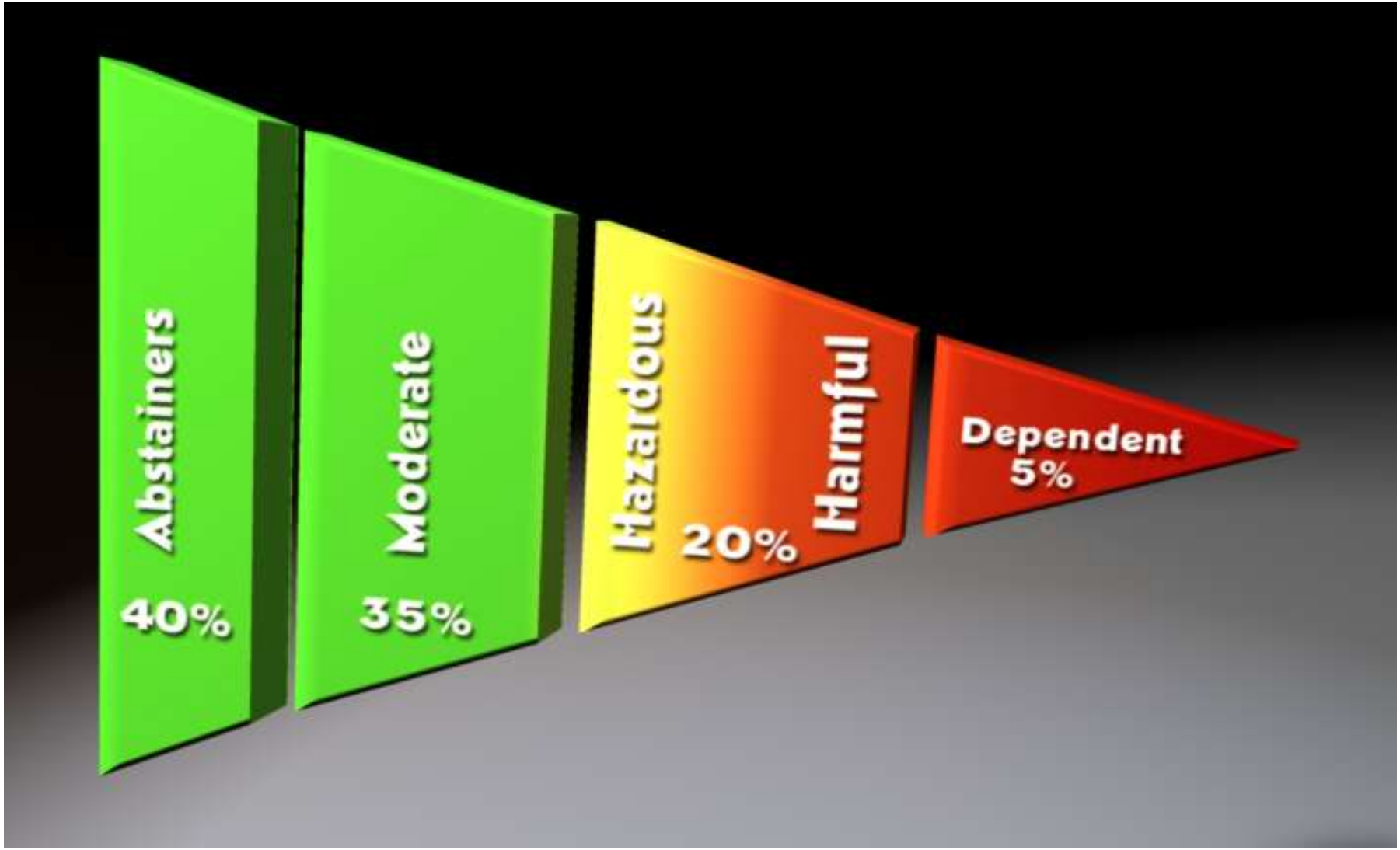
Emergency Visits

- ED patients are 1.5-3.0 times more likely to report heavy drinking or consequences than those in Primary Care
- The ED is often the only contact young adults have with the health care system
- Most common cause of injuries in the U.S. are alcohol-related

Cherpitel CJ. *Substance Abuse* 1999;20:85-95

Gentilello et al JAMA 1995;1043-48.

Universal Screening Widens The Net



Overall Goal

- Fill the gap between primary prevention efforts and more intensive treatment

- Improve the health of a community by reducing the prevalence of adverse consequences of substance misuse

Role of the Practitioner

- Screen
- Assess
- Brief intervention
- Refer

Opportunities to Talk About Alcohol: Medical Conditions

Cancers

- Esophageal, gastric , lip, oral cavity, pharynx, larynx, hepatic, breast

Acute/chronic pancreatitis

Cirrhosis and chronic hepatitis

Pulmonary

- tuberculosis, pneumonia

Gastrointestinal

- Bleeding, hepatitis, malabsorption, diarrhea

Cardiovascular disease

- Atrial fibrillation (holiday heart)
- Cardiomyopathy, Hypertension

Cerebrovascular

- stroke, concentration, memory deficits, balance abnormalities

Psychiatric

- depression, anxiety

Trauma, minor or major

Nutritional

- Malnutrition
- Thiamine and folate deficiency

Endocrine/Metabolic/Renal

- Osteoporosis
- Magnesium, calcium, potassium, phosphorus
- Hypo- and hyperglycemia
- Acidosis (primary and secondary, due to ingestions)
- Impaired fertility (men and women) and sexual function
- Anemia (folate, toxic, iron, chronic disease, hemolysis)
- Pancytopenia
- Coagulopathy

Pregnancy

Opportunities to Talk About Alcohol: Signs & Symptoms

- Infertility
- Tremor
- Ecchymosis/purpura
- Palmar erythema
- Scars from trauma
- Gynecomastia
- Hepatomegaly
- Spiders
- Heartburn
- Gastrointestinal upset
- AM cough or Headache
- Anxiety, stress
- Insomnia
- Concentration/memory problems
- Unsteady gait
- Abnormal lab values
  - Uric acid, glucose
  - MCV, AST, HDL, GGT

Opportunities to Talk About Alcohol: Other Issues

- Social Problems
- Medication Interactions
- Medical Conditions Worsening

Screening Tests

Standard Questionnaires:

NIAAA Quantity and Frequency
Single-item (episodic limit)
CAGE + consumption
AUDIT or AUDIT C
ASSIST
CAGE
CRAFFT (adolescents)
POSIT (adolescents)
TWEAK (pregnancy)
T-ACE (pregnancy)
MAST

- B-MAST, S-MAST, G-MAST

Laboratory tests:

- Hair, saliva, urine, serum, and BAC
- Liver function tests, and macrolytic anemia

Consumption & CAGE

- All patients
  - Do you drink alcohol, including beer, wine or distilled spirits?
- Current drinkers
  - On average, how many ***days per week*** do you drink alcohol?
  - On a ***typical day*** when you drink how many drinks do you have?
  - What is the maximum number of drinks you had on any given ***occasion*** during the last month?
- Patients > low risk limits

  - CAGE

NIAAA. Physicians Guide to Helping Patients With Alcohol Problems, 1995.

Screen Positive

	Drinks per week	Drinks per occasion
Men	> 14	> 4
Women	> 7	> 3
All Age >65	> 7	> 3

A Standard Drink

What is a Standard Drink?

1 Standard Drink Equals…

1 shot of liquor (whiskey, vodka, gin, etc.) 1.5 oz.	1 regular beer 12 oz.	1 glass wine 5 oz.

Each of these drinks has about 14 grams (½ oz) of pure alcohol

Brief Assessment

CAGE

C → Cut Down

A → Annoyed

G → Guilty

E → Eye Opener

A positive response to 2 or more items generally considered cutoff value, indicating potential alcohol problems. (Ewing1984)

CAGE

For current...	Sensitivity	Specificity
Unhealthy/hazardous alcohol use (≥2)	53-69	81-95
Alcohol abuse or dependence (≥2)	77	79
***For lifetime...**	**Sensitivity**	**Specificity**
Alcohol abuse or dependence (≥1)	89	81

Maisto & Saitz *Am J Addict* 2003;12:S12-25.

* Friedman PD. Validation of the Screening Strategy in NIAAA Guide J Stud Alc 2001 62: 234-38.

AUDIT Scores

- Hazardous use (≥ 8)
  - Sensitivity 57-95%
  - Specificity 78-96%

Saunders, et al. WHO Collaborative Project *Addiction*; 1993; 88-791-804.

- Abuse or dependence
  - Sensitivity 61-96%
  - Specificity 85-96%
- Dependence > 19

Babor et al. AUDIT: Guidelines for Use in Primary Care. WHO Dept of Mental Health and Substance Dependence, 2001.

Brief Intervention

- Short counseling sessions (5-45 minutes)
- Single or repeated sessions
- Performed by non-addiction specialists
- Contain advice and/or motivational enhancement

Brief Intervention

- **At risk/problem drinkers**
  - Advise to cut down
  - Set goals
  - Provide Primary Care follow-up
- **Dependence**
  - Advise to abstain
  - Refer to treatment

Brief Negotiation Interview

Raise The Subject

- Establish rapport
- Raise the subject and ask permission to discuss alcohol use

Provide Feedback

- Review patient's alcohol use and patterns
- Make connection between alcohol use and negative consequences; (e.g. impaired judgment leading to injury such as motor vehicle crashes; unprotected sex
- Make a connection between alcohol use and illness such as hypertension

BNI (continued)

Enhance Motivation

Assess readiness to change: One a scale 1 to 10 how ready are you to reduce any aspect of drinking or enroll in program???

(Why didn't you pick a lower number?)

1	2	3	4	5	6	7	8	9	10

Not ready at all **Completely ready**

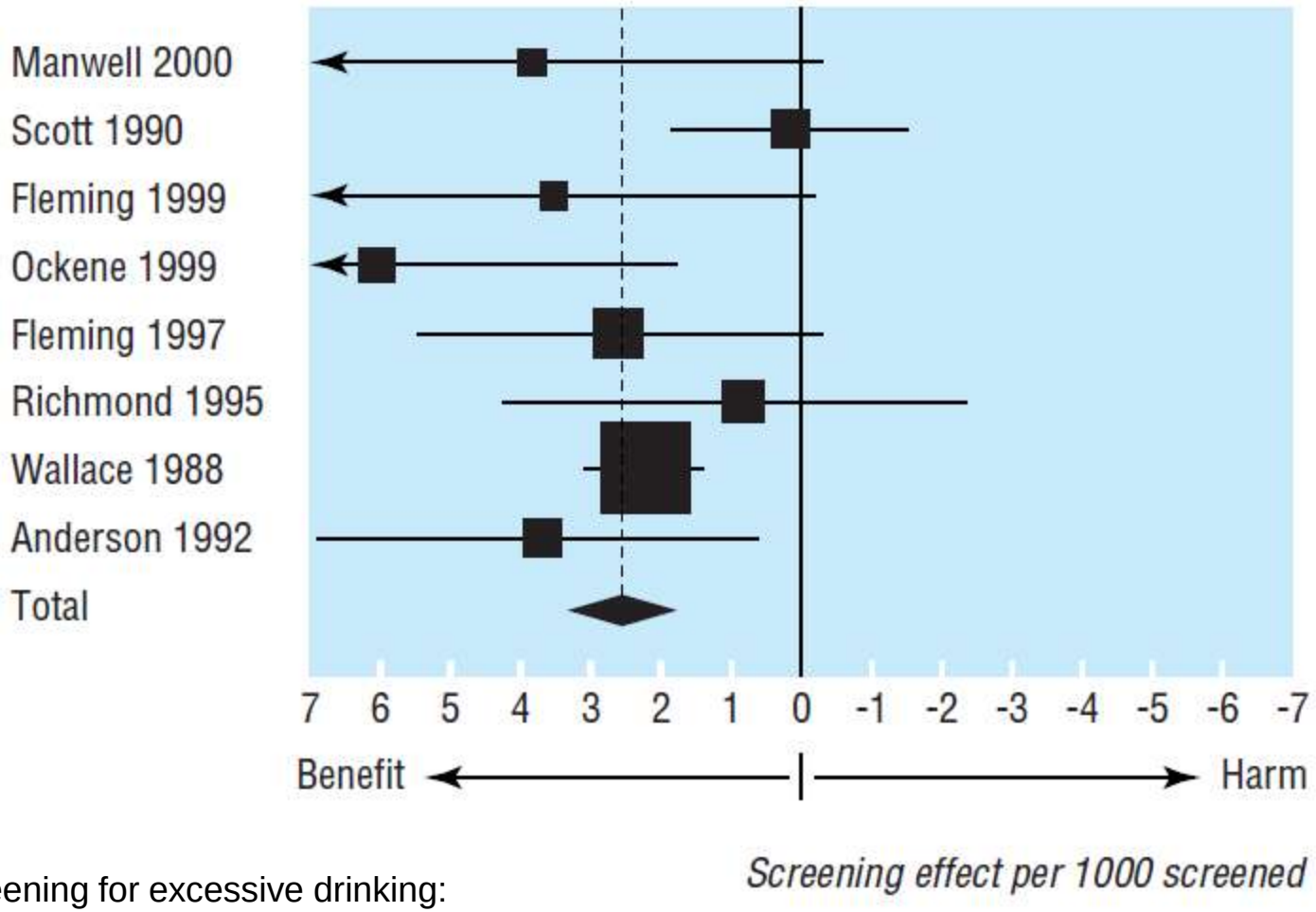
Negotiate And Advise

- Negotiate goal
- Give advice
- Summarize and complete referral/prescription form
- Thank patient for their time

What is the Evidence?

- Bien et al. (Addiction 1993)
  - 32 trials of BI in 14 nations
  - BI is more effective than no counseling, and often as effective as more extensive treatment
- Wilk et al. (J Gen Intern Med 1997)
  - Pooled outcome data from 12 RCTs of BI
  - Odds ratio 1.9 (95% CI 1.61-2.27) in favor of BI
- D'Onofrio & Degutis (Acad Emerg Med 2002)
  - Review of 39 clinical trials: 30 (RCT) & 9 (Cohort)
  - 32 studies reveal positive effect of BI

Meta Analysis: Single Studies and Pooled Estimate Favor Screening and Intervention.



Effect of screening for excessive drinking:
# of patients with positive outcome (reduction in drinking to below maximum recommended limits)

Beich *BMJ* 2003;536-42

World Health Organization

"A cross-national trial of brief interventions with heavy drinkers"

- Multinational study in 10 countries (n=1,260)
- Interventions included simple advice, brief & extended counseling compared to control group
- Results: Consumption decreased
  - 21% with 5 minutes advice, 27% with 15 minutes compared to 7% controls
  - Significant effect for all interventions

***Am J Public Health* 1996**

Project TREAT: Overview

Subjects: "problem drinkers" N=723

- men: >14 drinks/weeks
- women: > 11 drinks/week
- 17 internal medicine & family medicine practices-64 MDs

Interventions: randomly assigned

- "Brief Physician Advice"
  - two 15 minute MD visits, 1 month apart
  - two follow-up phone calls by RN, 2 wks after MD visit
- usual care (health booklet on general health issues)

Outcomes: 12 months

- alcohol use, 7 days
- binge drinking, 30 days
- excessive drinking, 7 days
- hospital days, 6 months

Fleming *JAMA* 1997;1039-45

Project TREAT Outcomes: 0-12 Months

Mean # drinks, prior 7 days*:

- intervention: 19.1 - 11.5
- control: 18.9 - 15.5

Mean # episodes of binge drinking, prior 30 days*:

- intervention: 5.7 - 3.1
- control: 5.3 - 4.2

% drinking excessively, prior 7 days*:

- intervention: 47.5% - 17.8%
- control: 48.1% - 32.5%

Days of hospitalization, prior 6 months*:

- intervention: 93 - 91
- control: 42 – 146

*p <001 for each

Fleming *JAMA* 1997;1039-45

Project TREAT: Cost-Benefit Analysis

- **primary care practice, managed care setting**
- **problem drinkers**
- **economic cost of intervention = $80,210 ($205 each)**
- **economic benefit of intervention = $423,519**
  - $193,448 in ED and hospital use
  - $228,071 avoided costs in motor vehicle crashes and crime
  - 5.6 to 1 benefit to cost ratio
  - **$6 savings for every $ invested**

Fleming *Medical Care* 2000;7-18.

U.S. Preventative Services Task Force

Behavioral Counseling Interventions in Primary Care To Reduce Risky/Harmful Alcohol Use by Adults: A Summary of the Evidence for the U.S. Preventive Services Task Force

Evelyn P. Whitlock, MD, MPH; Michael R. Polen, MA; Carla A. Green, PhD, MPH; Tracy Orleans, PhD; and Jonathan Klein, MD, MPH

Background: Primary health care visits offer opportunities to identify and intervene with risky or harmful drinkers to reduce alcohol consumption.

Purpose: To systematically review evidence for the efficacy of brief behavioral counseling interventions in primary care settings to reduce risky and harmful alcohol consumption.

Data Sources: Cochrane Database of Systematic Reviews, Database of Research Effectiveness (DARE), MEDLINE, Cochrane Controlled Clinical Trials, PsycINFO, HealthSTAR, CINAHL databases, bibliographies of reviews and included trials from 1994 through April 2002; update search through February 2003.

Study Selection: An inclusive search strategy (*alcohol** or *drink**) identified English-language systematic reviews or trials of primary care interventions to reduce risky/harmful alcohol use. Twelve controlled trials with general adult patients met our quality and relevance inclusion criteria.

Data Extraction: Investigators abstracted study design and setting, participant characteristics, screening and assessment procedures, intervention components, alcohol consumption and other outcomes, and quality-related study details.

Data Synthesis: Six to 12 months after good-quality, brief, multicontact behavioral counseling interventions (those with up to 15 minutes of initial contact and at least 1 follow-up), participants reduced the average number of drinks per week by 13% to 34% more than controls did, and the proportion of participants drinking at moderate or safe levels was 10% to 19% greater compared with controls. One study reported maintenance of improved drinking patterns for 48 months.

Conclusions: Behavioral counseling interventions for risky/harmful alcohol use among adult primary care patients could provide an effective component of a public health approach to reducing risky/harmful alcohol use. Future research should focus on implementation strategies to facilitate adoption of these practices into routine health care.

Ann Intern Med. 2004;140:557-568. www.annals.org

For author affiliations, see end of text.

See related article on pp 554-556.

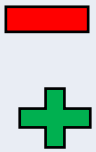
Whitlock EP, et al *Ann Intern Med* 2004;557-586

COCHRANE REVIEW (2007): Brief Alcohol Interventions in in Primary Care

- 29 randomized controlled trials
- >7000 participants, average of 30 drinks/wk
- “brief:” generally 5-15 minutes in duration
- reduced intake by range of 2.5-9 drinks/wk
- benefit most clear in men
- Conclusion: “Overall brief interventions lowered alcohol consumption.”

Kaner E. ***Cochrane Database of Systematic Reviews*** **2007;Issue 2; Art No: CD004148.**

Alcohol SBIRT: ED Studies

Author	N/Enrolled	Findings	
Havard 2008 Addiction	Systematic review and Meta-analyses 13 Studies	No difference in alcohol consumption Interventions were associated with approximately half the odds of experiencing an AR injury OR=0.59; 95% CI 0.42-0.84	
D'Onofrio 2011 Submitted	N=889 Adult Harmful/hazardous drinkers	RCT: SC, BNI performed by EP, BNI+Booster by RN 1-month later BNI and BNI+B reduced weekly consumption p=.045 and 28 day binge episodes p=-.031	

SBIRT Alcohol: In-patient Trauma Centers

Author	N/Enrolled	Findings	
Gentilello 1999 Ann of Surgery	762 Admitted Trauma	RCT: control, brief intervention + Outcome: Consumption Not significant Negative Consequences Reduction in injuries (p=.07)	

47% reduction in injuries requiring either ED or trauma center admission (hazard ration 0.53, 95% CI0.26 to 1.07, p=0.07)

48% reduction in injuries requiring hospital admission at 3 year follow-up.

Policy: American College of Surgeons requires screening and intervention for alcohol problems for all U.S. Level 1 Trauma Center designations

Project ED Health II

EP-Performed Brief Interventions to Reduce Hazardous and Harmful Alcohol Use in the ED

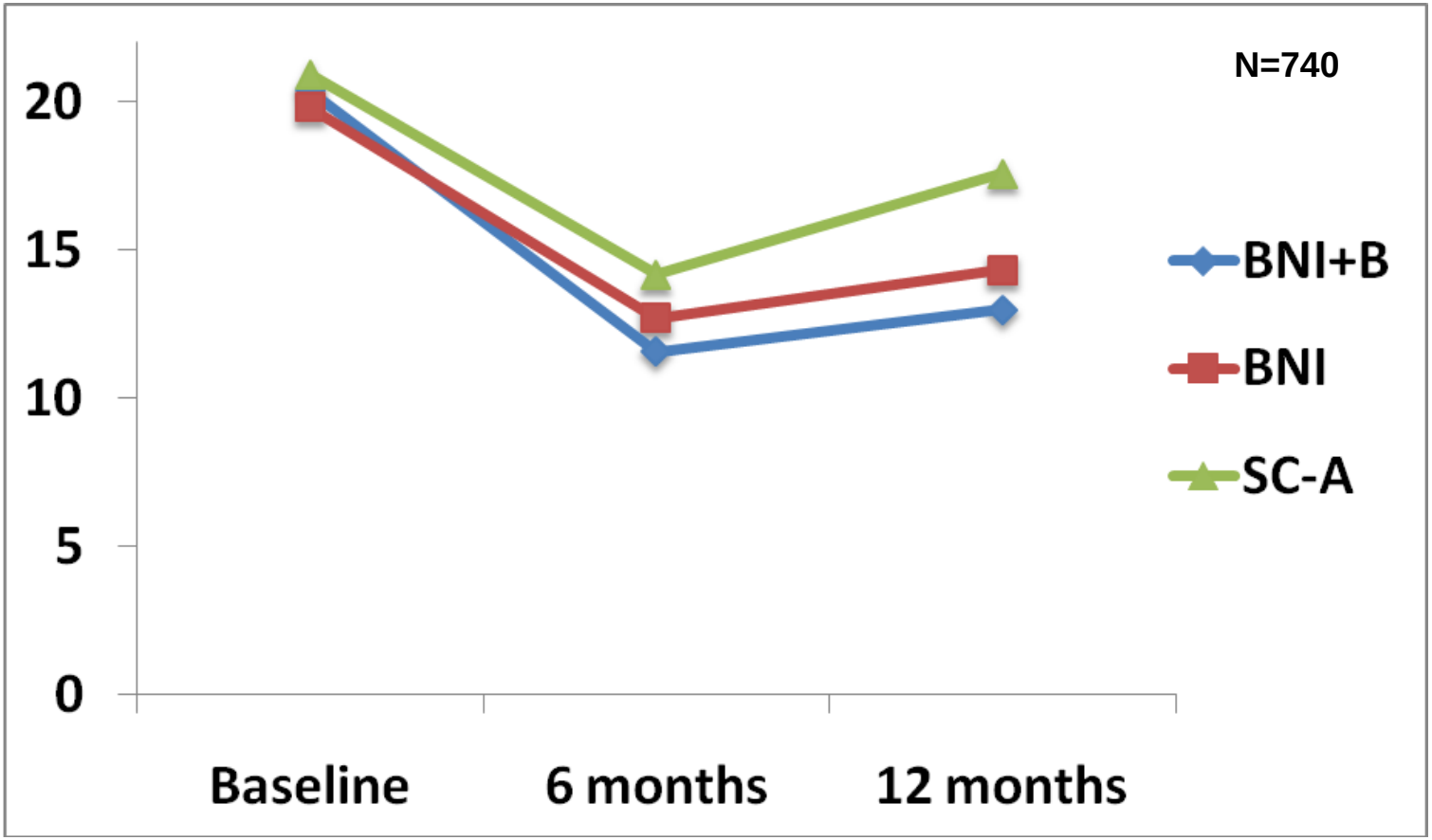
Gail D'Onofrio MD, MS; David Fiellin MD;
Michael Pantalon PhD; Linda Degutis DrPH;
Patricia Owens MS; Steven Bernstein MD;
Susan Busch PhD; Marek Chawarski PhD;
Patrick O'Connor MD, MPH

Funded by NIAAA: 1RO1AA014963

Methods

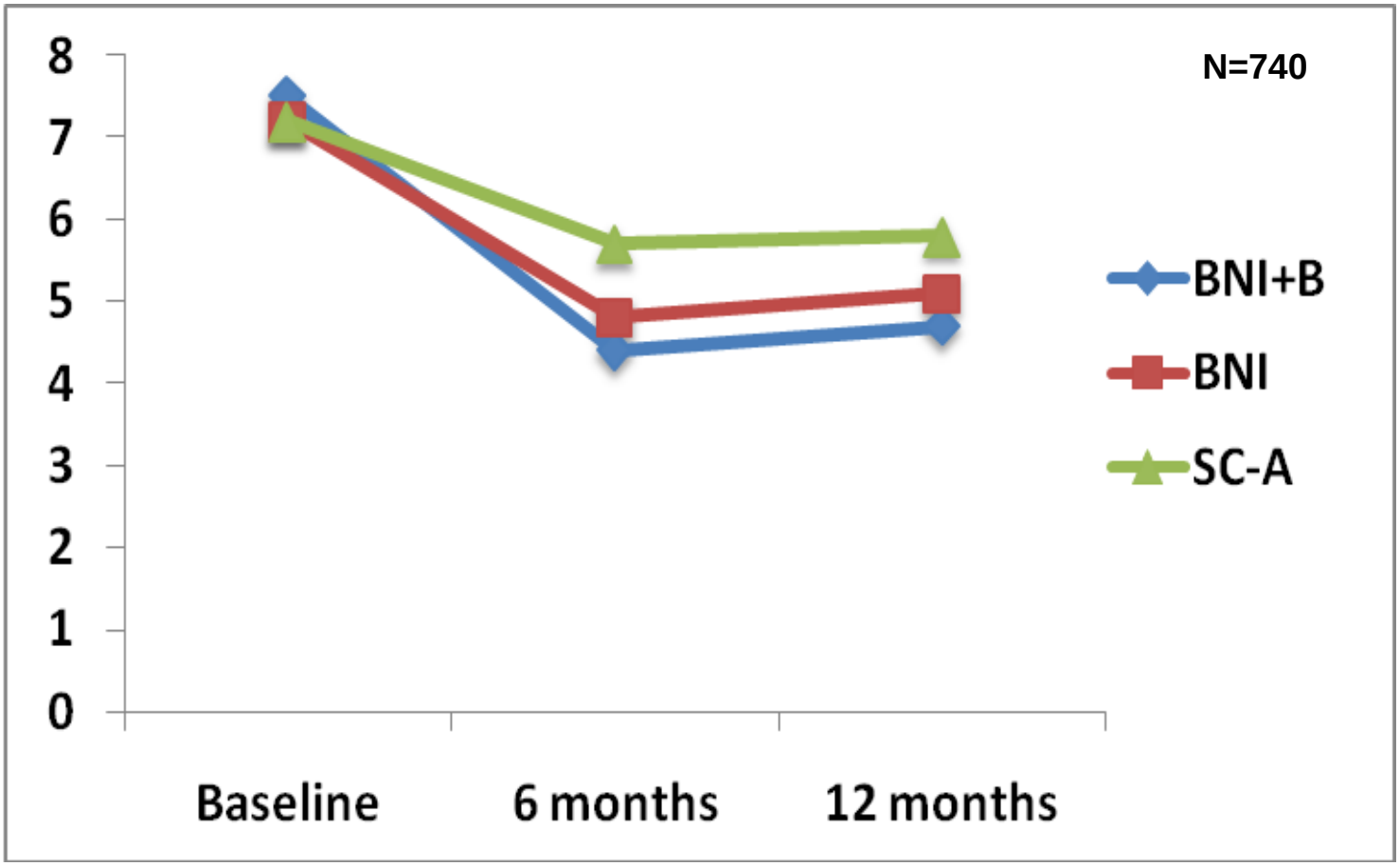
- **Design:** Randomized Control Trial (10/17/05-10/25/08)
- **Setting:** Level-1 trauma center, urban teaching hospital; 77,000 visits per year
- **Eligibility:**
  - ≥ 18 years of age
  - English Speaking
  - Screen positive for above NIAAA low risk levels in Health Quiz. Questions embedded in a 17-item health screen
  - AUDIT scores <20
- **Exclusion Criteria:**
  - Cognitive impairment or critical life threatening illness
  - Suicidal or psychotic
  - Enrolled in an alcohol treatment program

Mean # Drinks Past 7-Days



Time effect: p<.001; **Treatment effect: p=.045**

Mean # of Binge Episodes Past 28-Days

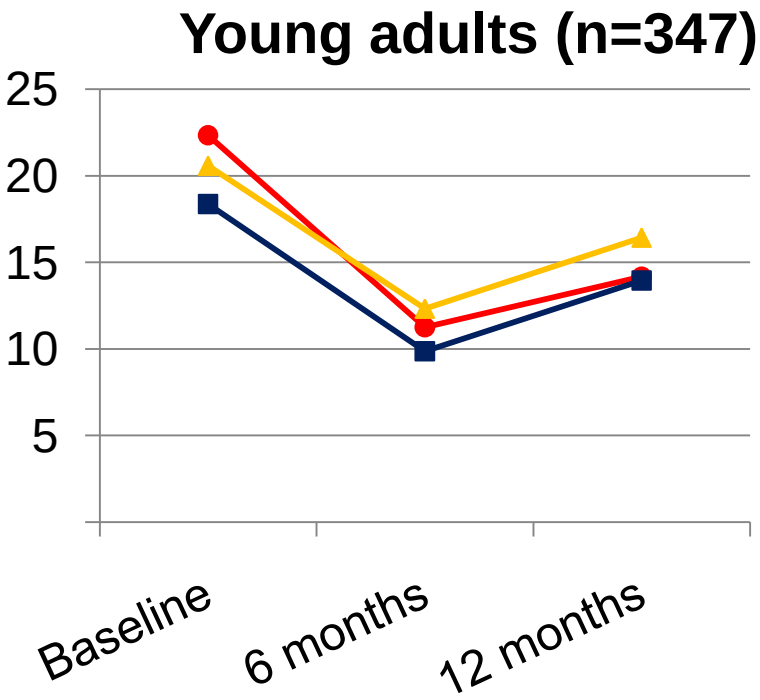


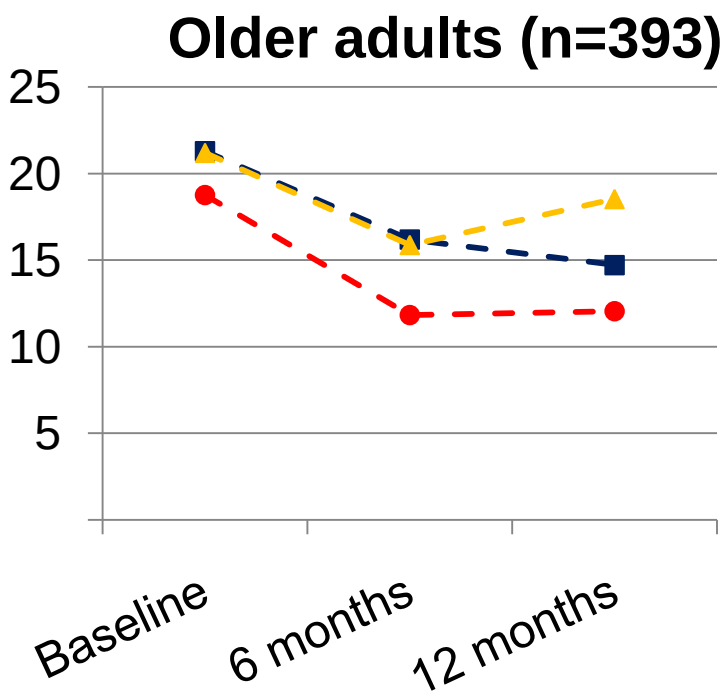
Time effect: p<.001; **Treatment effect: p=.031**

Results

Driving after ≥ 3 drinks	BASELINE n (%)	12 MONTHS n (%)	Time Effect	Treatment Effect
(BNI + B)	116/295 (38%)	81/260 (31%)	P=.025	P=.040
(BNI)	113/297 (39%)	74/253 (29%)		
(SCA)	64/148 (43%)	51/122 (42%)		

Mean Number of Drinks in the Past 7-Days





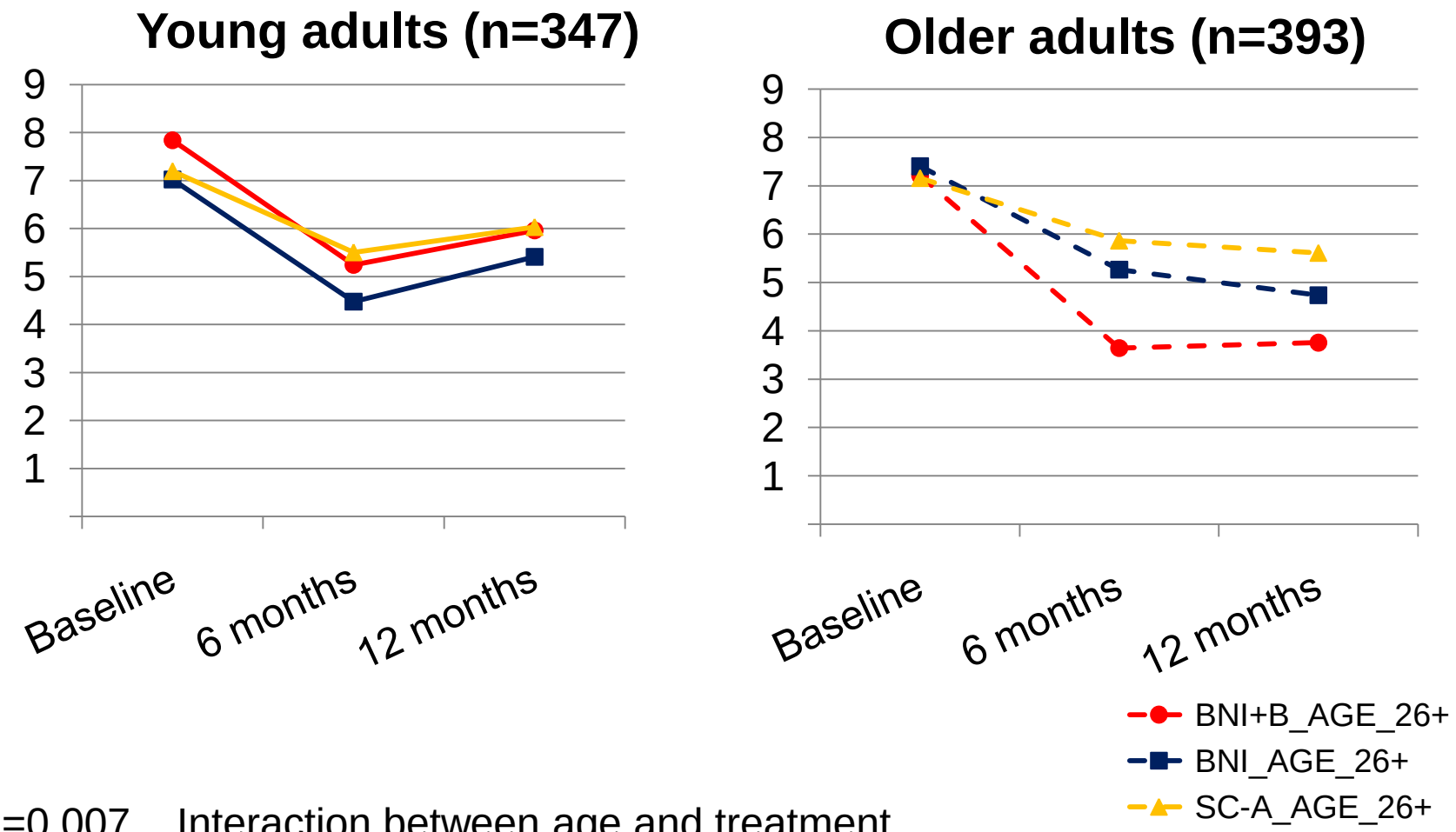
BNI+B_AGE_26+

BNI_AGE_26+

SC-A_AGE_26+

P=0.002 interaction between age and treatment

Mean Number of Binge Drinking Episodes in the Past 28 Days



P=0.007 Interaction between age and treatment

ED Interventions Link Dependent Drinkers to Treatment

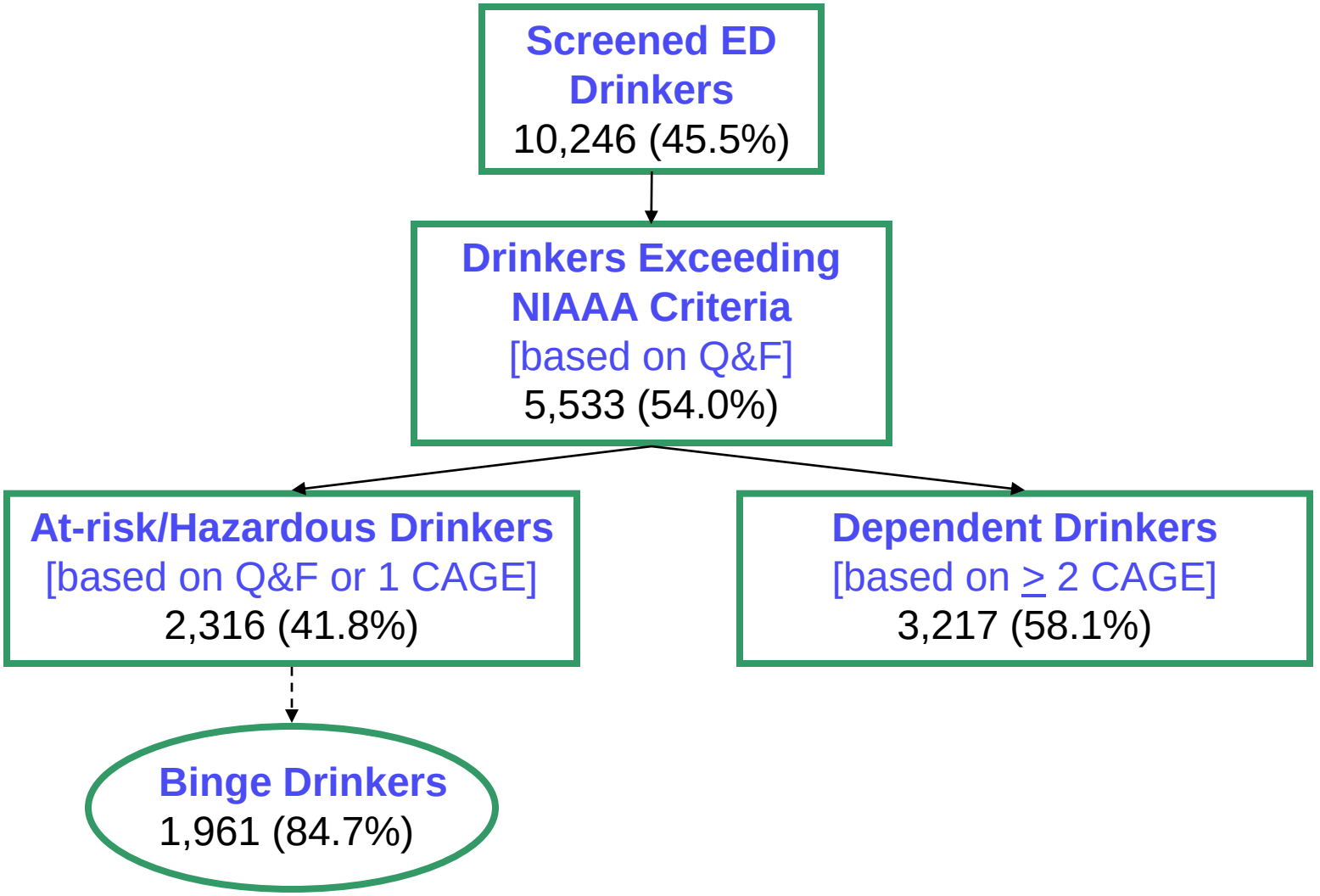
Project ASSERT

Alcohol and Substance Abuse Services, Education and Referral to Treatment

Health Promotion Advocates provide SBIRT in ED setting

D'Onofrio G, Degutis C. Integrating Project ASSERT: a screening, intervention, and referral to treatment program for unhealthy alcohol and drug use into an urban emergency department. Acad Emerg Med 2010;17:903-911.

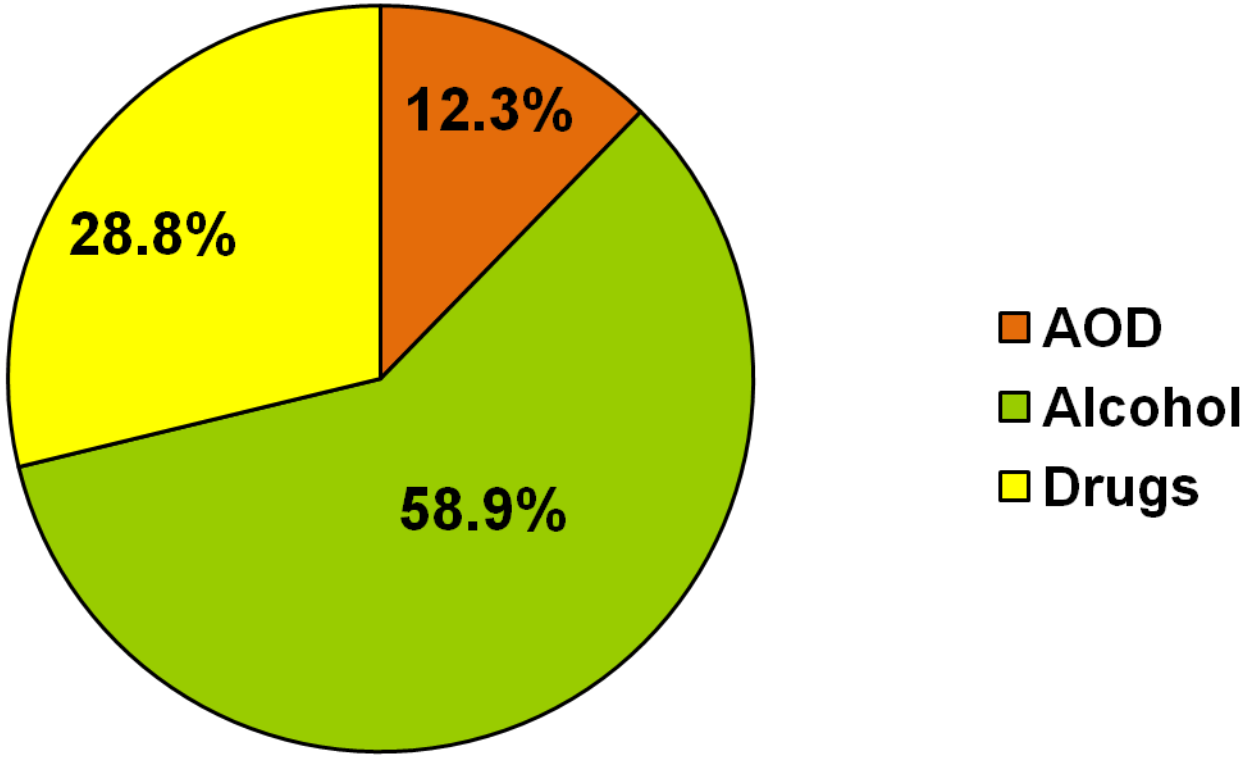
Alcohol Use


Screened ED Drinkers
10,246 (45.5%)
Drinkers Exceeding NIAAA Criteria
[based on Q&F]
5,533 (54.0%)
At-risk/Hazardous Drinkers
[based on Q&F or 1 CAGE]
2,316 (41.8%)
Dependent Drinkers
[based on ≥ 2 CAGE]
3,217 (58.1%)
Binge Drinkers
1,961 (84.7%)

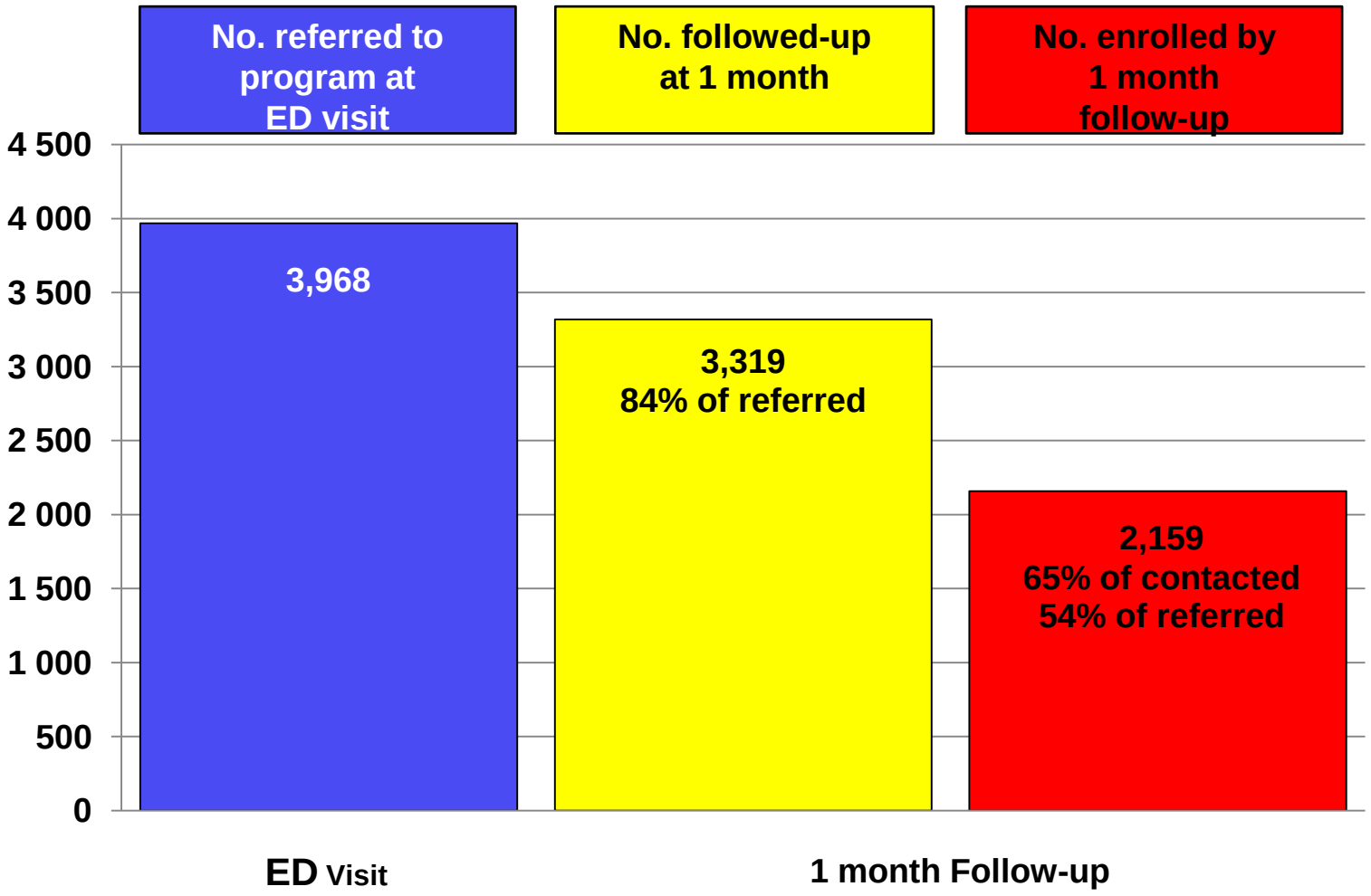
Brief Interventions & Referrals

Brief Interventions: 6,266 (27.8% of all screened pts)

AOD Referrals: 3,968



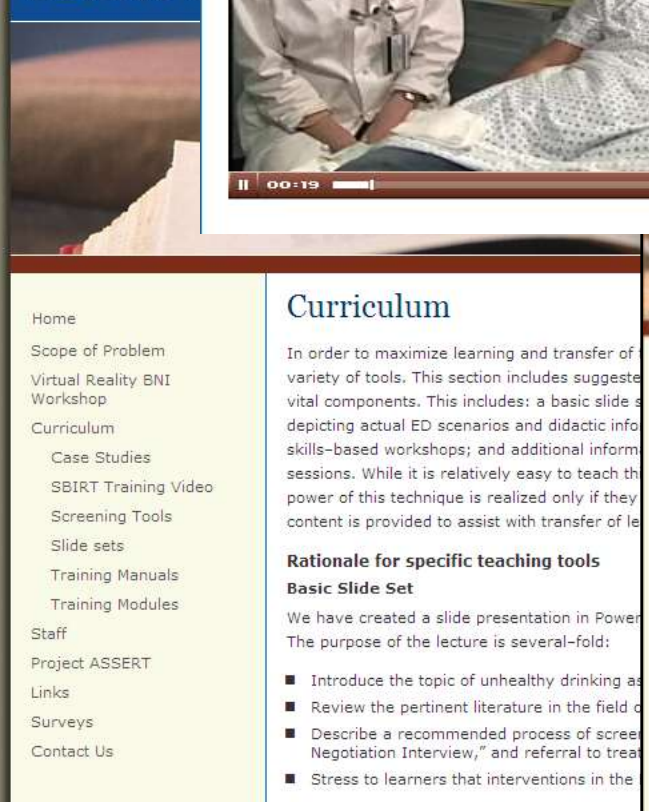
Results

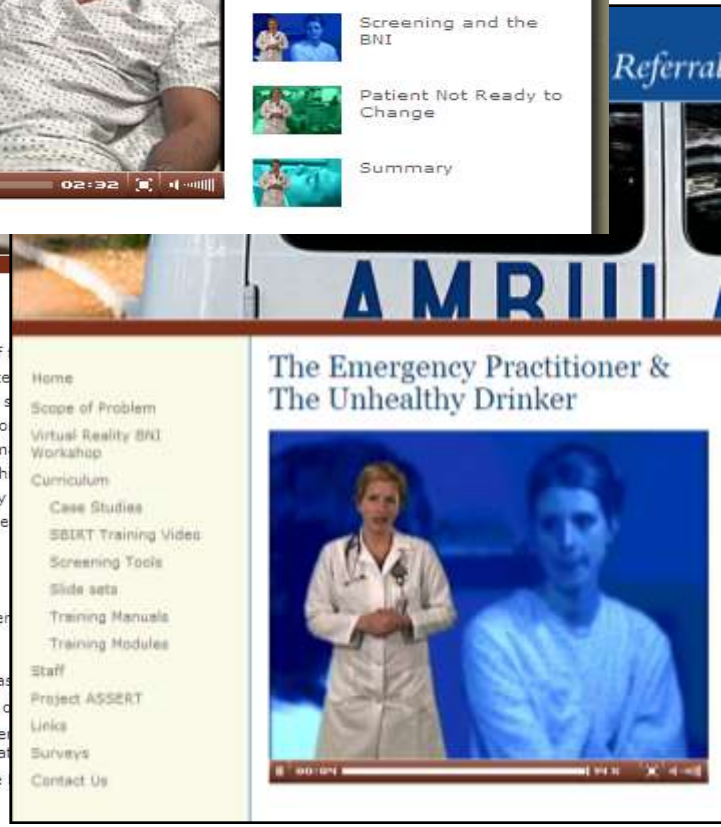

No. referred to program at ED visit
No. followed-up at 1 month
No. enrolled by 1 month follow-up
4 500
4 000
3 500
3 000
2 500
2 000
1 500
1 000
500
0
3,968
3,319
84% of referred
2,159
65% of contacted
54% of referred
ED Visit
1 month Follow-up

Adoption of Screening and Intervention into HealthCare Practice

Dissemination and Sustainability

www.yale.edu/sbirt





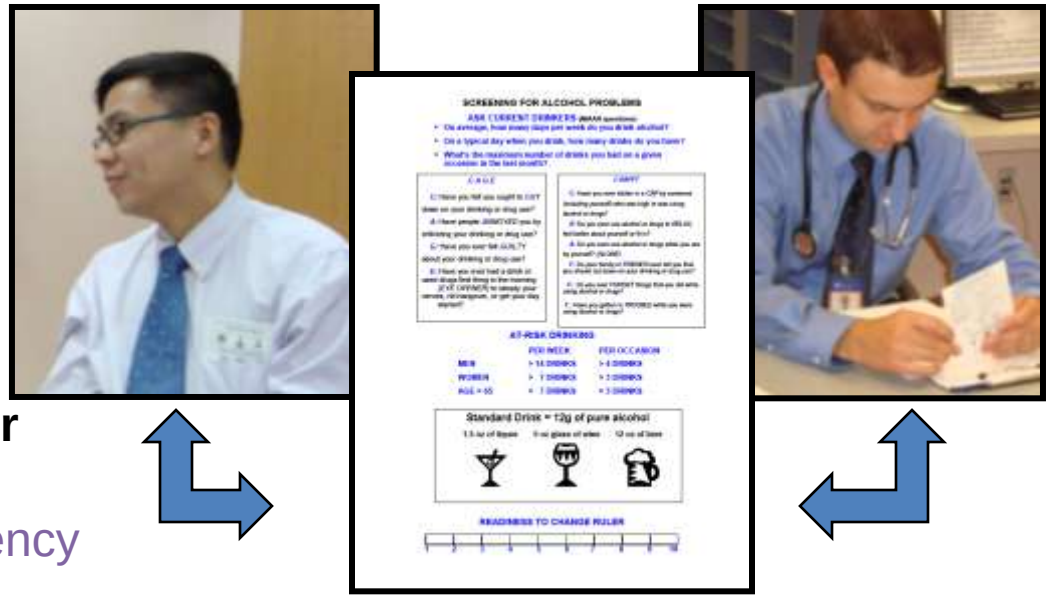
Adoption

- Engage residency directors and other faculty
- Even better: value added……help with the core competencies

Name	Trainee Role	Procedure Name	Activity	Supervisor	Supervisor Signature	Date	Patient ID	Setting	Age	Gender	Status
David Smith	Performed	BNI		Adam Landman	No Signature Available	07/13/2009	3738825		Adult	Female	Confirmed
David Smith	Performed	BNI		No Supervisor Specified	No Signature Available	01/11/2010	1111111		Adult	Female	Confirmed
David Smith	Performed	BNI		No Supervisor Specified	No Signature Available	10/19/2009	2222222		Adult	Male	Confirmed
David Smith	Performed	BNI		No Supervisor Specified	No Signature Available	09/30/2009	3333333		Adult	Female	Confirmed
David Smith	Performed	BNI		No Supervisor Specified	No Signature Available	09/29/2009	4444444		Adult	Male	Confirme
David Smith	Performed	BNI		No Supervisor Specified	No Signature Available	10/29/2009	5555555		Adult	Female	Confirme
David Smith	Performed	BNI		No Supervisor Specified	No Signature Available	03/07/2010	7777777		Adult	Female	Confirmed
David Smith	Performed	BNI		No Supervisor Specified	No Signature Available	10/20/2009	8888888		Adult	Male	Confirmed

Elements of Success

Scripted Laminated Cards

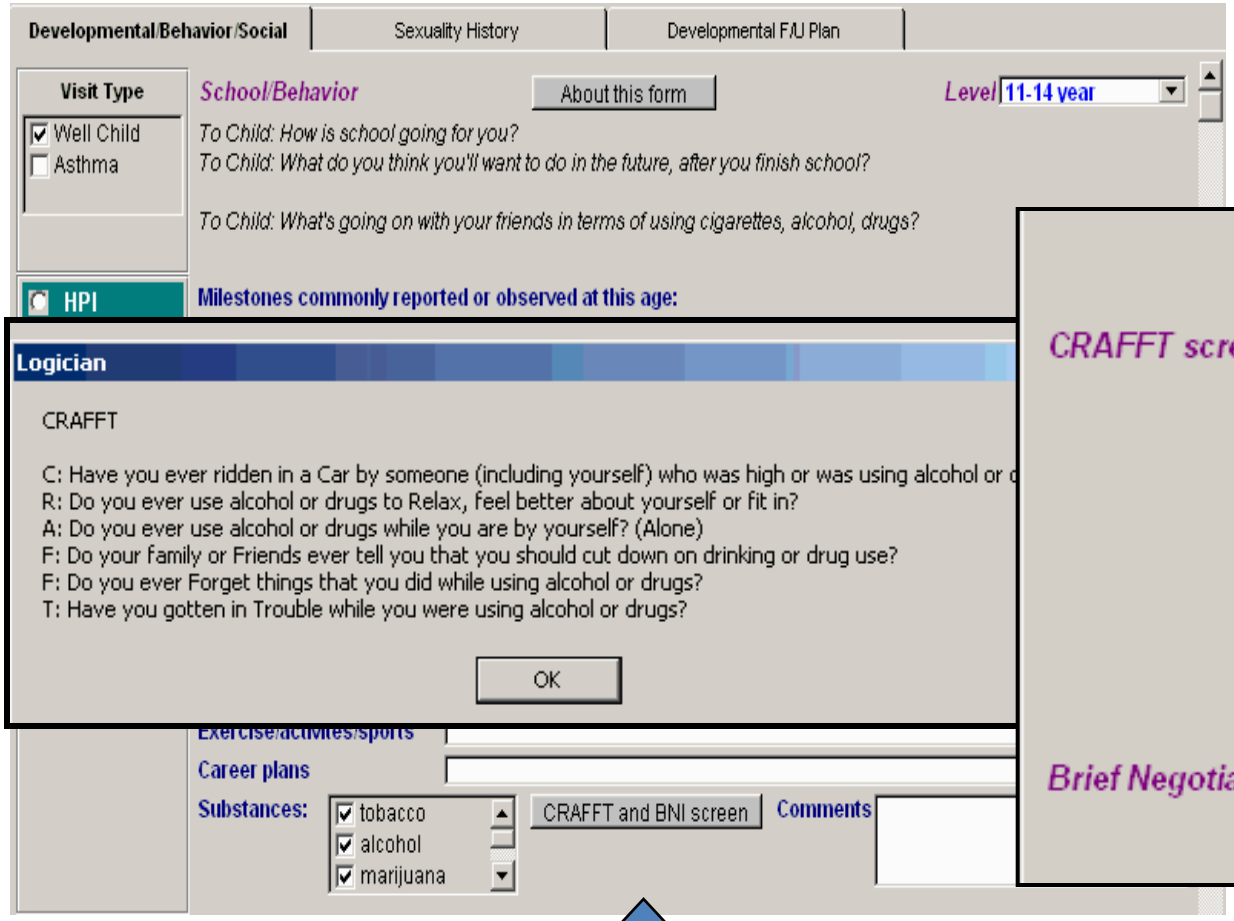


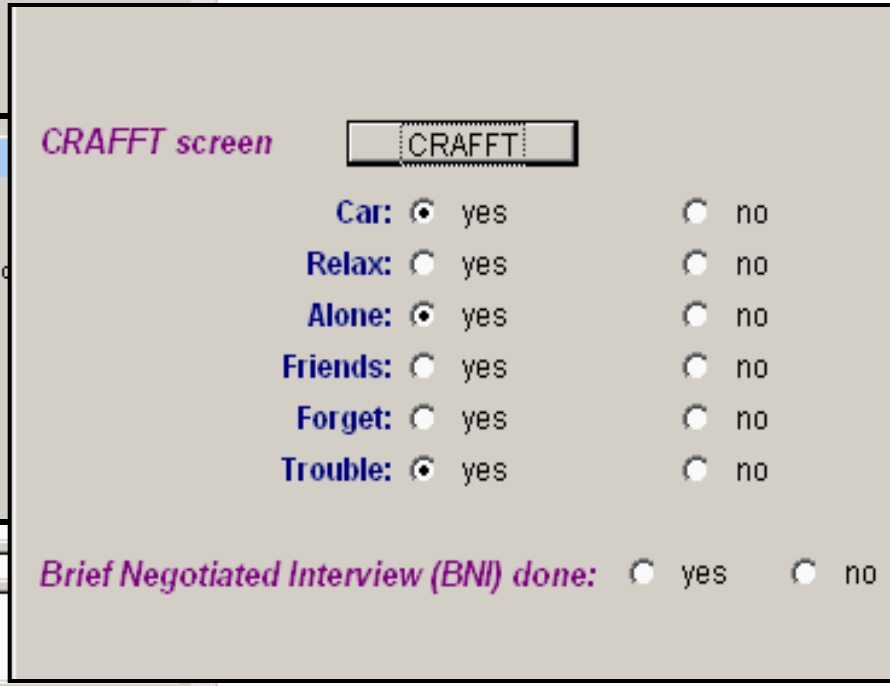
Standardized Patient Encounter

-Feedback

-Fulfills ACGME core competency requirements

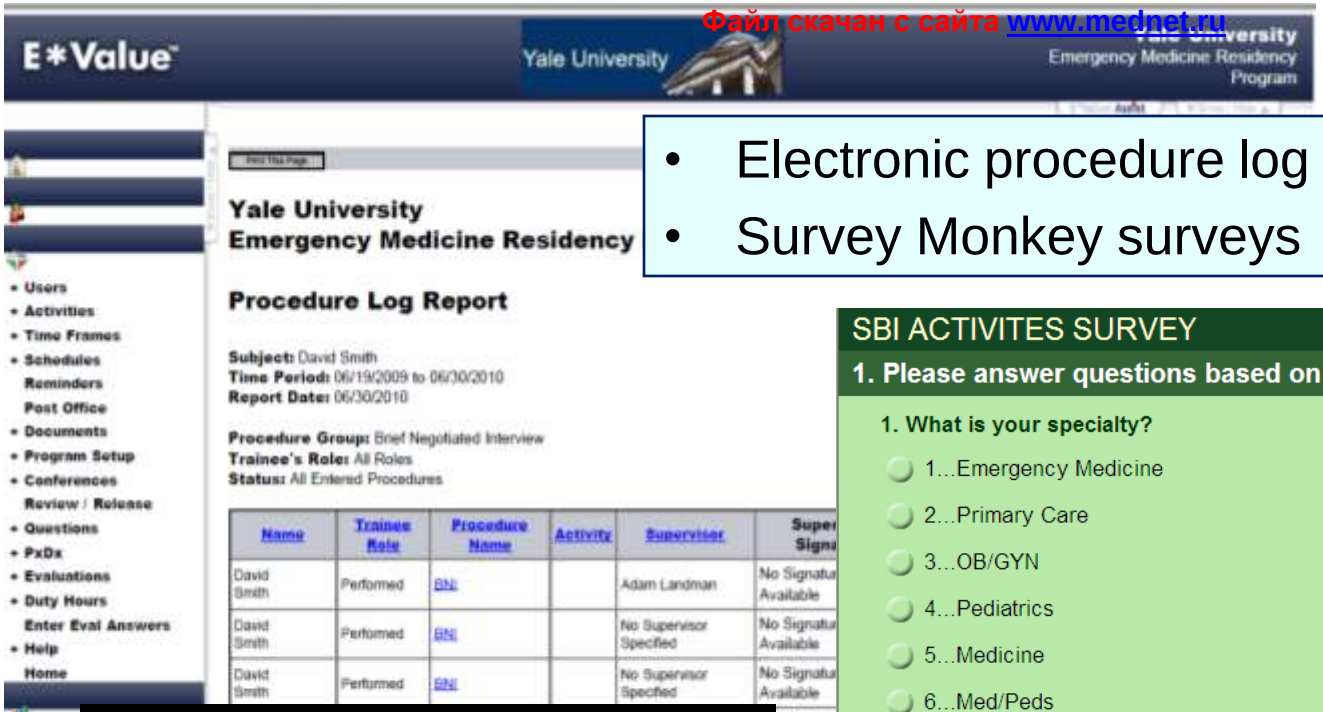
Integration into Clinical Practice



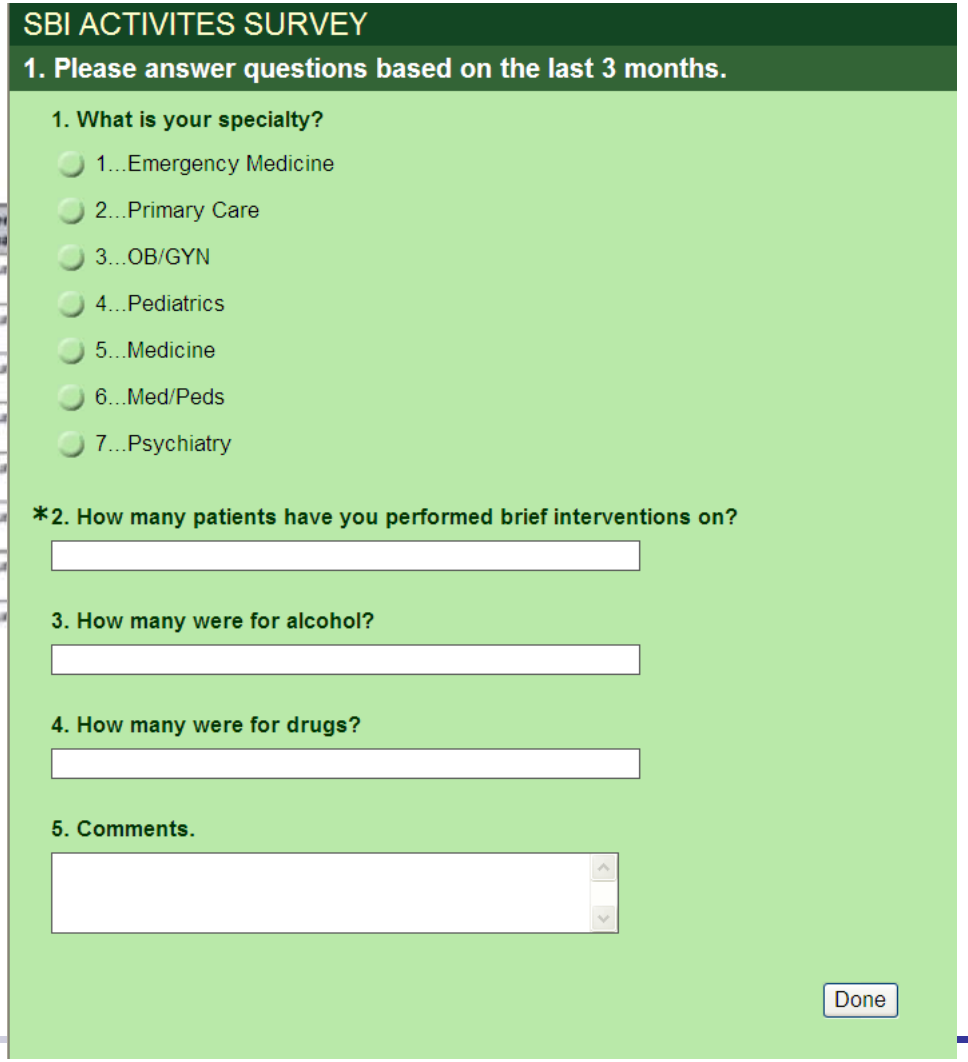


- CRAFFT screen
- Log of BNI performed

- Electronic procedure log
- Survey Monkey surveys



Specialty	BI's done
Internal Medicine	197
Psychiatry	162
Ob/Gyn	27
Emergency Medicine	138
Pediatrics	32
TOTAL	556



BARRIERS

Questions??? Comments…

Disclosure/Funding Sources

- NIAAA 1R01AA014963
- NIDA 5R01DA025991
- SAMHSA 1U79T1020253

Assess for Dependence Symptoms

- Impaired control/Preoccupation
  - A great deal of time getting, using, recovering
  - Activities given up or reduced
  - More or longer than intended
  - Cannot cut down or control
  - Use despite knowledge of health problem
- Withdrawal
  - Symptoms, using to relieve symptoms
- Tolerance
  - Increased amounts to achieve effect
  - Diminished effect from same amount

Summary

- Screen to identify the spectrum of unhealthy use
  - Includes (risky) use, problem use (and abuse), dependence
- Validated questions best
- Incorporate into health history, ask “matter of fact”
- Assess after a positive screening test
  - To confirm unhealthy use
  - To identify dependence (and consequences not meeting criteria)

Objective

To determine the efficacy of a Brief Negotiation Interview (BNI) and BNI+Booster (BNI+B) compared with standard care (SC) in reducing alcohol consumption in ED patients with hazardous and harmful (HH) drinking.

Primary Outcomes

- Alcohol Consumption
  - 7-day alcohol consumption by TLFB Methods
  - # of binge episodes in past 28-days
- Negative Consequences
  - Short Inventory of Problems (SIP)
  - Other event data
- Alcohol Consumption and SIP Measured by Interactive Voice Response technology (IVR)

Screening

- **Recruitment:** rotating 8 hr shifts from 5am-11pm, Sun-Sat
- **Screen:** NIAAA questions embedded into a 17-item Health Quiz

	Drinks per week	Drinks per occasion
Men	> 14	> 4
Women	> 7	> 3
All Age >65	> 7	> 3

Assessments

- **NA-SC** received only HQ at baseline with telephone follow-up @12 months
- **SC, BNI, BNI+B**:

- Alcohol consumption data collected using Time Line Follow-back method by Interactive Voice Response (IVR) technology at baseline, 6 and 12 months
- (SIP) collected by IVR at baseline and 12 months
- Other event data, treatment services review, in person at baseline and by phone at 6 and 12 months

- **Mean Times**
  - Baseline Assessment 10.5 minutes (SD ± 4.7)
  - IVR 9.4 minutes (SD ± 5.0)

Interventions

- Index EP-Performed BNI
  - Mean time: 8.04 minutes (SD±3.2); range 2-33
- 4-steps
  - Raise the Subject
  - Provide Feedback
  - Enhance Motivation
  - Negotiate and Advise
- RN Booster session by phone (81% completed)
  - Mean time: 10.14 minutes (SD±4.1)
- Audio-taped for adherence and reviewed by independent raters

D'Onofrio et al. *Acad Emerg Med*, 2005;12:211-8.

Data Analysis

- Repeated measures MIXED models procedures to analyze primary outcome of alcohol consumption. IVR responses log-transformed to normalize distribution
- Data for 740 subjects included in analyses
- SNA-SC group discussed separately

Results: Demographics*

	BNI+B (n=295) # (%)	BNI (n=297) # (%)	SCA (n=148) # (%)	NA-SC (n=147) # (%)
Gender (% male)	215 (73)	208 (70)	111 (75)	104 (71)
Age, year, mean (±SD)				
Male	32 (14)	31 (13)	35 (15)	33(15)
Female	36 (16)	31(13)	31(14)	31 (14)
Marital Status (% married)	54 (18)	50 (17)	27 (18)	18 (12)
Education				
High school or less	119 (40)	120 (40)	72 (49)	47 (32)
Some college	129 (44)	131 (44)	56 (38)	55 (37)
College degree or more	47 (16)	46 (16)	20 (13)	12 (8)
Race/ethnicity				
White	189 (64)	189 (64)	86 (58)	94 (64)
Black	58 (20)	57 (19)	38 (26)	38 (26)
Hispanic	40 (14)	43 (14)	22 (15)	13 (9)
Other	7 (2)	8 (3)	2 (1)	1 (1)

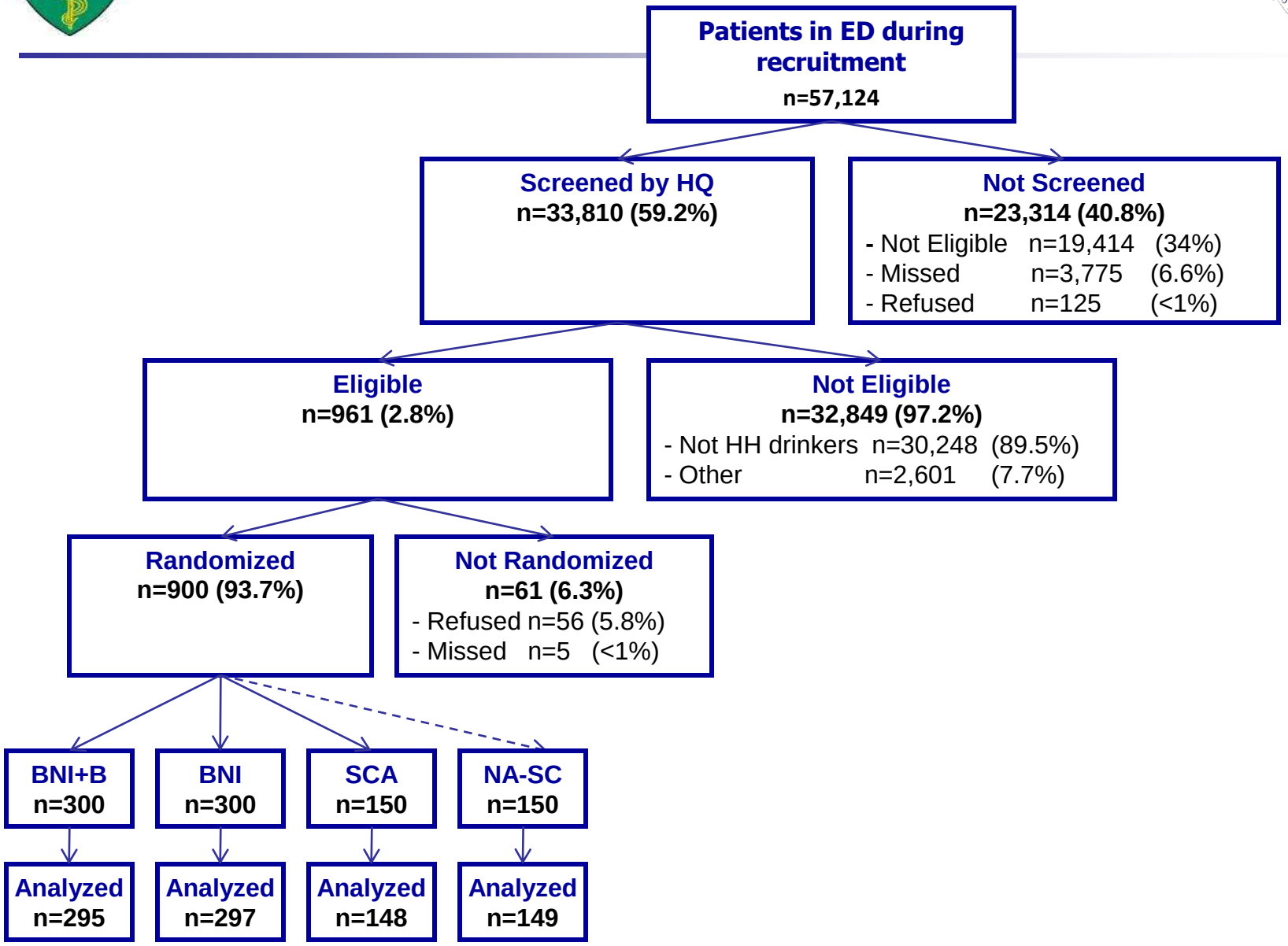
*No significance between groups

Results: Demographics*

	BNI+B (n=295) # (%)	BNI (n=297) # (%)	SCA (n=148) # (%)	SCNA (n=147) # (%)
Insurance Coverage				
Private (HMO/Private)	183 (78)	188 (80)	88 (73)	72 (76)
Medicare/Medicaid	47 (20)	42 (18)	28 (23)	23 (24)
Other	4 (2)	4 (2)	5 (4)	0 (0)
Primary Physician	206 (70)	186 (63)	91 (62)	87 (59)
Usual Source of Care				
Clinic	48 (16)	64 (21)	27 (18)	30 (20)
ED or no place	70 (24)	70 (24)	39 (26)	45 (31)
Private doctor	177 (60)	162 (55)	81 (55)	72 (49)
Injured	99 (34)	107 (36)	63 (43)	46 (31)
AUDIT Scores mean ±SD	11 (4)	11 (4)	12 (4)	11 (4)
Smokers	134 (45)	155 (50)	83(51)	81(55)

*No significance between groups

Results: Consort Diagram



Randomization

- Standard Care with assessments (SC) N=150
- BNI performed by Emergency practitioners:
  EM attendings and residents, physician associates and advanced practice nurses (BNI) N=300
- BNI+Booster (BNI+B): RN phone call at 30 days N=300
- Non-assessed Standard Care (NA-SC) N=150

Discrepancy in Alcohol Reporting

- NA-SC screened by Health Quiz only
- All other groups used IVR system for baseline and 6 & 12-month assessments
- Mean number of drinks in past 7-days

Alcohol Consumption Past 7-Days	Mean (±SD)
IVR	20.2 (13.62)
Health Quiz	18.87 (12.2)

*This is a difference of 1.4 (SD±8.22), **p<0.001; 95% CI:0.8- 2.0**

Conclusions

- EP-performed BNI reduces HH drinking
- BNI decreases driving after drinking
- Booster offers little/no additional benefit
- IVR significantly increased patient report of drinking