Adolescent SBIRT Implementation In Pediatric Primary Care: Results from a Randomized Trial in an Integrated Health Care Delivery System

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NIAAA - R01AA016204

Burden of Adolescent Alcohol and Drug Problems

- Adolescent alcohol and drug use is widespread→ a leading contributor to the major causes of adolescent mortality and morbidity:
  - Injuries, motor vehicle accidents, homicide, suicide, poisonings (NIAAA, 2014, Subramaniam, 2014; Chaisson, 2005).
  - STDs incl. HIV (Ammon, 2005), sexual assault (NIAAA, 2014),
  - Mental health problems (Sterling, 2005),
  - Medical problems (Mertens, 2007)
- **Adult SUDs** frequently begin in adolescence (Hingson, 2006; Degenhardt, 2013)
- **Neurotoxic effects** of alcohol on adolescent brain development (Jacobus, 2013)
- Adolescent cannabis use associated with **neurocognitive impairments** (Volkow, 2014, Schweinsburg, 2008; O'Shea, 2004), **ongoing psychosocial difficulties** (Silins, 2014), **development of psychosis**, especially among youth vulnerable to schizophrenia (Giordano, 2014; Caspi, 2005).

Teen SBI/RT in the Emergency Department

- Majority of teen SBI/RT studies in medical setting have been conducted in Emergency Departments.
- Many found mixed or no main effects of BIs on AOD use (Yuma-Guerrero, 2012; Johnson, 2002), but several found them to be effective on other important outcomes, including:
  - **Drinking and driving**, alcohol-related injuries and problems (Monti, 1999; Neighbors, 2010);
  - **Treatment initiation**, emotional health, hazardous use (Tait, 2004, 2005);
  - **Experiences of violence**, attitudes about alcohol and violence, self-efficacy in dealing with alcohol and violence, consequences (Cunningham, 2009 & 2012; Walton, 2010)
  - **Attempts to quit, cut back**, or to be careful when drinking (Bernstein, 2010)
  - **Abstinence from cannabis**, attempts to quit use, fighting (Bernstein, 2009)
  - **Drinking frequency and binge drinking** among more severe subgroups (Spirito, 2004; Maio, 2005)

Teen SBI/RT in Pediatric Primary Care

Few studies, in spite of the fact that primary care is an opportune place to screen because stigma is a powerful barrier to seeking specialty care (Wisdom, 2011).

Teens and parents are open to screening and intervention by PCPs (Yoast, 2007; Brown, 2009).

Mixed findings:

- Teens who received the BI more likely to report binge drinking than controls (Boekeloo, 2004);
- BIs associated with **less, and less frequent, cannabis use** (D'Amico, 2008); **less substance use among users and reduced initiation among non-users** (De Micheli, 2004).
- Harris et al. found **reductions in any SU** at 3 and 12 months, **alcohol use** and **drinking cessation (***among drinkers)* and **alcohol initiation (***among non-drinkers***)** among the U.S. teens, and **less cannabis use**, **more cannabis cessation** (*among smokers*) and **lower cannabis initiation** (*among non-smokers*) among Czech teens.(Harris, 2012)

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Other SBI/RT Literature

- **Adult SBI/RT evidence base** (Bien, 1993; Bertholet, 2005; Fleming, 2002)
- **Older adolescents and college students** (Fleming, 2010; Schaus, 2009; Marlatt, 1998; Martin, 2005; Lawendowski, 1998).
- **Youth SBIRT in other settings** (Burke, 2005; Gil, 2004; Grenard, 2007; Martin, 2005; Winters, 2007; McCambridge, 2004).
- **USPSTF → insufficient evidence** to recommend alcohol and drug BIs for adolescents (Moyer, 2014 & 2013) [**for patients without recognized signs or symptoms*]

What is effective? What medium? Who should do it? Who should get it?

Needs to be studied in the context of what is implementable.

Need to study implementation.

Adolescent Preventive Services Guideline – U.S. National Organizations

	AAFP	AAP	AMA	BF
Screening/counseling				
Obesity	Yes	Yes	Yes	Yes
Contraception	Yes	Yes	Yes	Yes
Substance use	**Yes**	**Yes**	**Yes**	**Yes**
Alcohol use	**Yes**	**Yes**	**Yes**	**Yes**
Tobacco use	**Yes**	**Yes**	**Yes**	**Yes**
Hypertension	Yes	Yes	Yes	Yes
Depression/suicide	No	Yes	Yes	Yes
Eating disorders	No	Yes	Yes	Yes
School problems	No	Yes	Yes	Yes
Abuse	No	Yes	Yes	Yes
Hearing	Yes	Yes	No	Yes
Vision	No	Yes	No	Yes
Periodicity of visits	**Tailored**	**Annual**	**Annual**	**Annual**
Target age, range,	**13-18**	**11-21**	**11-21**	**11-21**

American Academy of Family Physicians (AAFP), American Academy of Pediatrics (AAP), American Medical Association (AMA), Bright Futures (BF)

Kaiser Permanente Northern California

- Staff-model integrated health care delivery system
- Serves 3.6 million members (about 40% of insured population in the region)
- ~400,000 adolescent members
- 18 hospitals, 27 outpatient clinics, 8,000 physicians, ~700 pediatricians
- Integrated health care system (medical, psychiatry, AOD services)
- Comparable data with the 18 health systems of the HMORN - ~16.5 million members

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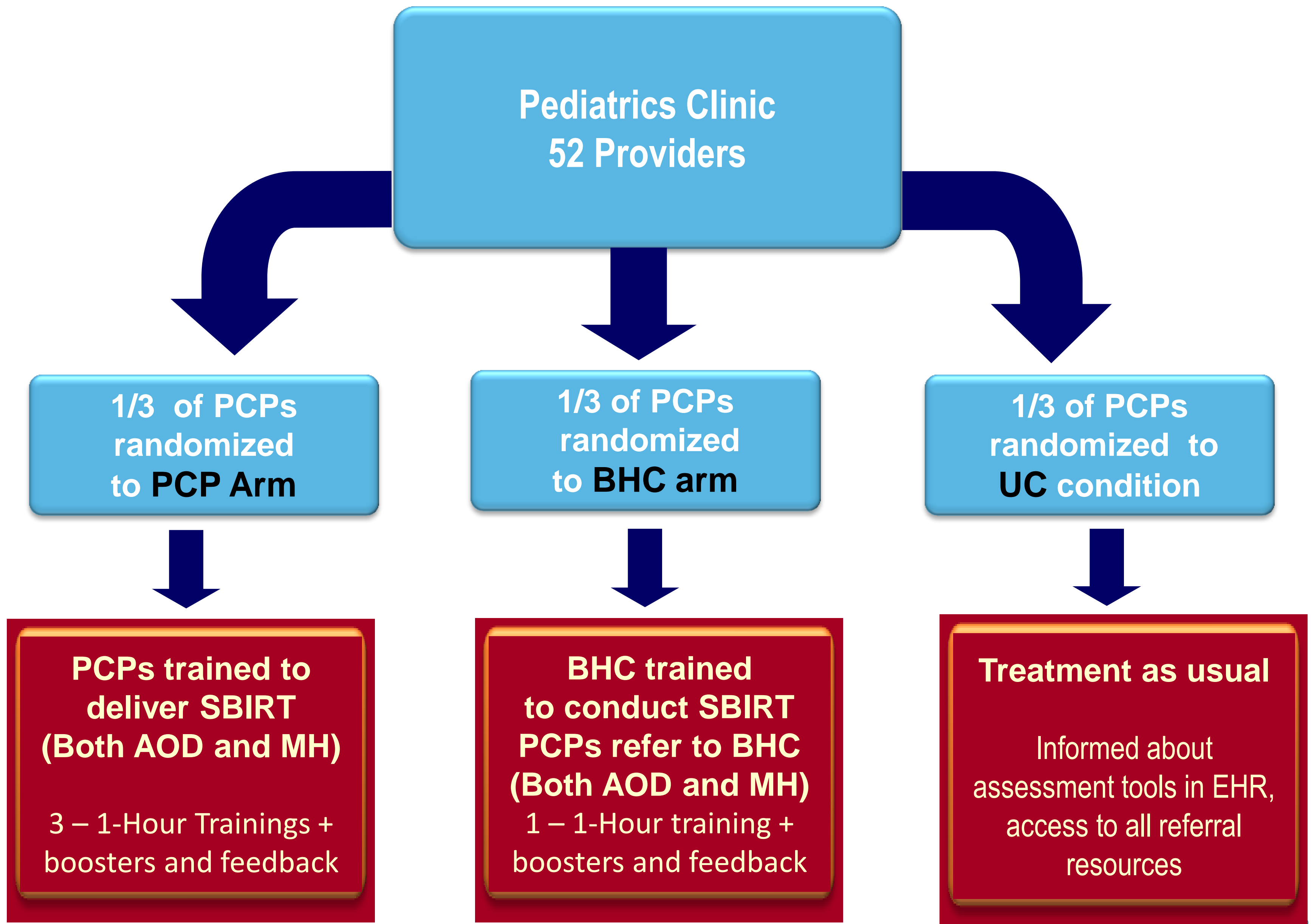
NIAAA Adolescent SBIRT Trial (R01 AA016204)



NIAAA Adolescent SBIRT Trial

1. **Effectiveness**

Provider Outcomes:

Which SBIRT model produces better implementation outcomes - screening, assessment, brief intervention and referral rates?

- **EHR & Automated Utilization Data**

Patient Outcomes:

Which model produces better **patient outcomes** (AOD use and related-school, legal & family problems) at 1 and 2 years?

- **EHR & Automated Utilization Data**

Which model results in better specialty treatment (AOD or Psychiatry) **initiation and engagement rates**?

- **EHR & Automated Utilization Data**

2. **Cost**

Which model of care is most **cost-effective**?

- **Automated Utilization & Cost Data**

3. **Implementation Process**

What are the barriers to, or facilitators of, implementation?

- **Qualitative key informant interviews**

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Screening

TEEN WELL CHECK

created by Ralph Rigaud

Name
DOB

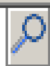
Parent Questionnaire | Teen Questionnaire | Private Teen Questions | Hist

Question			
20. During the past year did you drink any alcohol?	YES	NO	
21a. During the past year did you use marijuana?	YES	NO	
21b. During the past year have you used any other drug to get high (such as prescription drugs, meth, ecstasy, glue or cocaine)?	YES	NO	
22. During the past few weeks, have you OFTEN felt sad, down or hopeless?	YES	NO	
23. Have you seriously thought about killing yourself, made a plan, or tried to kill yourself?	YES	NO	
24a. Have you ever had sex (including oral, vaginal, or anal sex)?	YES	NO	
24b. If yes, do you or your partner always use a condom when you have sex?	NO	YES	

25. Are you attracted to guys, girls, or both? Guys / Girls / Both

Current Questionnaires

CRAFFT QUESTIONNAIRE

Add  Remove

Full CRAFFT Questionnaire (+AOD questions) in EHR

Further Assessment

Adv	Question	Answer	Comment
	In the past 30 days, how many days have you used any of those substances?		← number entry for answer
	Have you ever ridden in a CAR driven by someone (including yourself) who was "high" or had been using alcohol or drugs?		
	Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?		
	Do you ever use alcohol or drugs while you are by yourself, ALONE?		
	Do you ever FORGET things you did while using alcohol or drugs?		
	Do your family or FRIENDS ever tell you that you should cut down on your drinking or drug use?		
	Have you gotten into TROUBLE while you were using alcohol or drugs?		
	If two or more YES answers to the CRAFFT questions above, please complete remaining questions		

Hyperspace - OAK-MW6A >MAIN CAMPUS - Production - HCNCPRODEBM PRODEBM

Epic | Home | Schedule | In Basket | Chart | Enc | Tel Enc | Ref Enc | Ancil Ord Enc | Pt Lists | Secure | Print | Log Out

Prado,Camila I | Whitty,Frances B | Ncaleba-C,Ebavalidation

Ncaleba-C, Ebavalidation MRN 110020000061 Age 21 Y Sex M PCP Allergies Nka Spec Feat N kp.org Inactive

Place orders (Enc Date: 9/8/2011) - Wt: (Not entered for this visit) Ht: 1.778 m (5' 10")

SnapShot
Chart Review
Results Review
Allergies
Medications
Flowsheets
Problem List
History
Letters
Demographics
CIPS
Prev Health Prompt
Patient Report
eConsult No Lock
Order Entry
Imm/Injections
Doc Flowsheets
Work/Activity Status
Forms
Visit Navigator
More Activities

V Codes

(V65.42D) BI for alcohol or drug problem performed

(V65.49ZZZZU) BI for a mental health problem performed

Diagnoses Associate... Auto Associate Level of service: Edit

Add Diagnosis

P	Diagnosis	Code
1.	COUNSELING, SUBSTANCE USE AND ABUSE	V65.42D

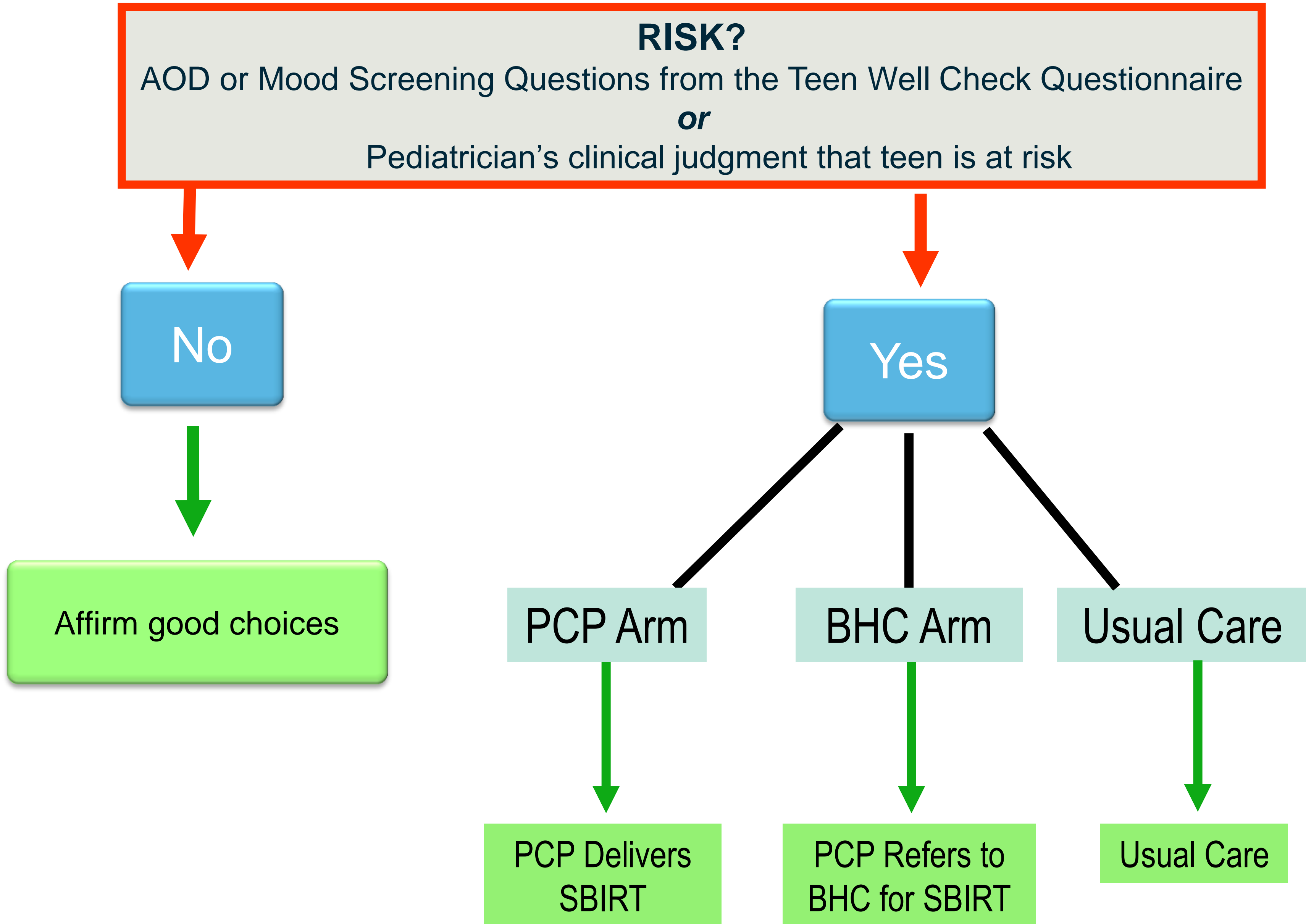
New Problem Show Resolved Edit Resolve

Link	Problem	Code	Noted
	SICK SINUS SYNDROME	427.81A	9/1/11
	SICKLE CELL TRAIT	282.5A	6/8/10
	LIFE CARE PLAN, CHRONIC ILLNESS.	V65.49BAEM	6/1/11

Auth Prov: SABA, KATRINA NELSEN (M.D.) [10058008] | Pharmacy: HAY MAIN - | No unsigned orders

KATRINA N SABA | Future/Standing Orders | Pt: AACC | Chart: Open Visits | Chart: Other Open Encounters | Follow-up Reminder | 2:04 PM

Workflow



- Intervention conducted: 11/1/2011 - 10/31/2013
- Currently collecting outcomes data from EHR
- 9,032 Total Adolescent Well-Visits
- 73% of adolescents screened

Patients Assessed Further Among all Eligible‡ Patients, by Study Arm (%s)

	BHC Arm (n=767)	PCP Arm (n=647)	Control Arm (n=711)	p-Value
Further Assesssments Given	25.3%	26.9%	n/a	ns
Reason				
AOD Symptoms Only (%)	12.3%	22.4%	n/a	**
Mood Symptoms Only (%)	13.6%	7.7%	n/a	**
AOD and/or Mood Symptoms (%)	24.3%	25.0%	n/a	ns
**: p<.001, *: p<.01				
Note: P-values examine differences between PCP and BHC arms only				
‡Eligible patients included patients screening positive on at least one of the TWCQ trigger questions and/or were determined to need further screening by their provider based on initial assessment				

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Brief Interventions Delivered Among all Eligible‡ Patients, by Study Arm (%s)

	BHC Arm (n=767)	PCP Arm (n=647)	Control Arm (n=711)	p-Value
Interventions Provided				
AOD Content only (%)	4.7%	14.8%	1.7%	**
Mental Health Content only (%)	10.6%	1.2%	0.1%	
AOD and Mental Health Content (%)	10.6%	0.5%	0.0%	
None (%)	74.2%	83.5%	98.2%	
**: p<.001, *: p<.01				

There was a significant difference (p<.0001) between the BHC and PCP arms for ANY MENTAL HEALTH; any AOD not sig

Note: ‡Eligible patients included patients screening positive on at least one of the TWCQ and/or patients determined to need further screening by their provider based on initial assessment

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AOD and Mental Health Content (%)	10.6%	0.5%	0.0%	
None (%)	74.2%	83.5%	98.2%	
Any AOD Content (%)	15.3%	15.3%	1.7%	**
Any Mental Health Content (%)	21.1%	1.7%	0.1%	**

**: p<.001, *: p<.01

There was a significant difference (p<.0001) between the BHC and PCP arms for ANY MENTAL HEALTH; any AOD not sig

Note: ‡Eligible patients included patients screening positive on at least one of the TWCQ and/or patients determined to need further screening by their provider based on initial assessment

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Referrals to Treatment Among all Eligible‡ Patients by Study Arm (%s)

	BHC Arm (n=767)	PCP Arm (n=647)	Control Arm (n=711)	p-Value
Referrals				
Chemical Dependency Only (%)	1.0%	1.9%	0.3%	**
Psychiatry Only (%)	12.1%	18.2%	17.7%	
Chemical Dependency and Psychiatry (%)	0.5%	2.0%	0.0%	
None (%)	86.3%	77.9%	82.0%	
**: p<.001, *: p<.01				

Note: ‡Eligible patients included patients screening positive on at least one of the TWCQ and/or patients determined to need further screening by their provider based on initial assessment

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BI/RT in the BHC arm

- PCPs in the BHC arm only referred 30% of those screening positive for any of the 5 Behavioral Health symptoms to the BHC (n=194)
- 74% of referrals from PCP to BHC were live handoffs (n=145)
- **96%** of those who were referred to the BMS received a Brief Intervention.

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Summary

PCP Arm

- Relatively few patients received further assessment, even when endorsing symptoms.
- PCPs were more likely to assess further in response to AOD use.
- PCPs did not typically address mental health concerns during BIs.

BHC Arm

- Relatively few patients were referred to the Behavioral Health Clinicians, even when endorsing symptoms.
- When they were referred to the BHC, most patients received BIs and more had both AOD and mental health concerns addressed.

- Screening, Assessment, Brief Interventions and Referrals to specialty AOD treatment were all significantly higher in both intervention arms than in Usual Care.

Discussion

- Many missed opportunities to address a major threat to adolescent health in Pediatrics.
- AOD problems often only come to light during further assessment.
  - Are teens with alcohol and drug problems, and co-occurring problems missed if we only screen for, and respond to, AOD?
- How can pediatric primary care workflow and workforce be organized to better address adolescent behavioral health?
- How can we encourage pediatricians to refer more teens for further assessment or treatment?

- SBIRT alone is not enough – kids and parents want and need a spectrum of behavioral health services in Pediatrics.
- ↑Behavioral Health training for Pediatric providers (AOD and MH) can improve practices, but training alone not enough.
- We need AOD specialists in Primary Care who understand prevention and the range of people with mild to severe problems – not everyone needs or wants specialty care.

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