



TOWARDS IMPROVING SYSTEMS OF CARE FOR YOUTH WITH SUBSTANCE USE DISORDERS

Rachel H. Alinsky, MD, MPH

Assistant Professor, Division of Adolescent/Young Adult Medicine
Department of Pediatrics, Johns Hopkins University School of Medicine



High Risk Substance Use & Overdose Among Youth, Jan 25th 2021

Learning Objectives



- After attending today's activity, participants will be able to . . .
 1. Describe the current system of treatment for adolescent substance use disorders in the US
 2. Recognize gaps and needs in the adolescent substance use disorder treatment system



Outline:

1. Introduction
2. Treatment for Youth SUD
3. Gaps in Care
4. Wrap Up



Introduction

Language & stigma



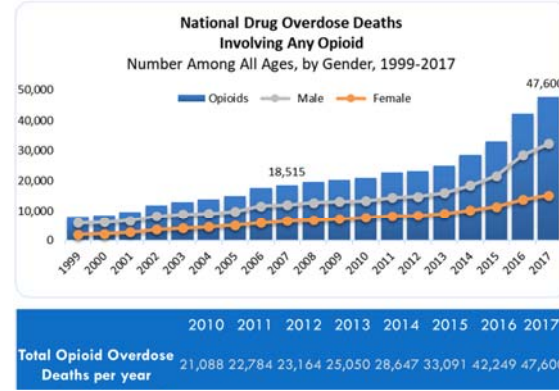
- Substance use and addiction historically viewed as a moral failing
- Stigmatizing language reflecting this biased view is commonly used
- Contributed to health disparities for people of racial and ethnic minorities
- Clinical terminology shifting towards understanding addiction as a medical disorder, not moral failure
- Stigmatizing language negatively impacts community members' and healthcare providers' perceptions of people who use substances, leading to worse healthcare delivery

A Quick Primer: Language Matters

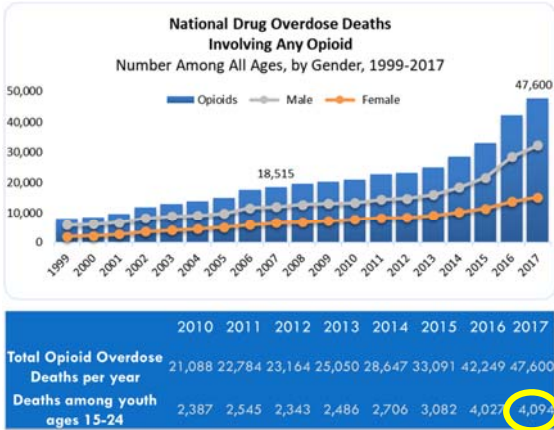
INSTEAD OF....	TRY....
Drug abuse	Substance use disorder, or addiction
Abuser, addict, junkie, alcoholic	Person with a substance use disorder
Clean	Abstinent, not using Negative test
Dirty	Actively using Positive test
Former addict	Person in recovery
Addicted baby	Baby with Neonatal Abstinence Syndrome

Changing language → one step towards decreasing stigma

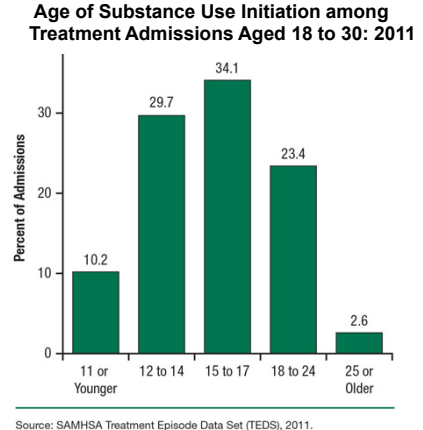
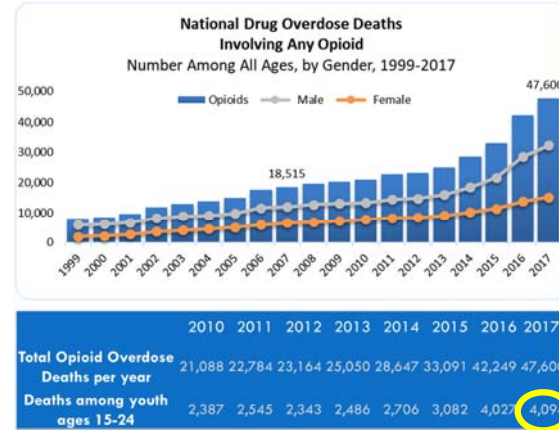
Addiction



Addiction



Addiction



Source: SAMHSA Treatment Episode Data Set (TEDS), 2011.



- 17yoF w repeated hospitalizations for cannabis hyperemesis syndrome, family smokes together
- 16yoF in PICU w polysubstance overdose, minimal parental supervision at home, no inpatient/residential tx available in the state
- 20yoM with ESRD s/p transplant, now w rejection from medication non-adherence in setting of multiple substance use disorders
- 18yoM w depression, PTSD, smokes 15 blunts MJ daily
- 23yoM on buprenorphine for the first time, s/p multiple overdoses and detox admissions, witnessing friends die
- 16yoM in PICU w polysubstance OD, mom hesitant to "force" treatment

Total D
Deat

Treatment for Youth SUD



Levels of Prevention



Adolescence

Adulthood

Substance initiation

Development of substance use disorder

Severe substance use disorder

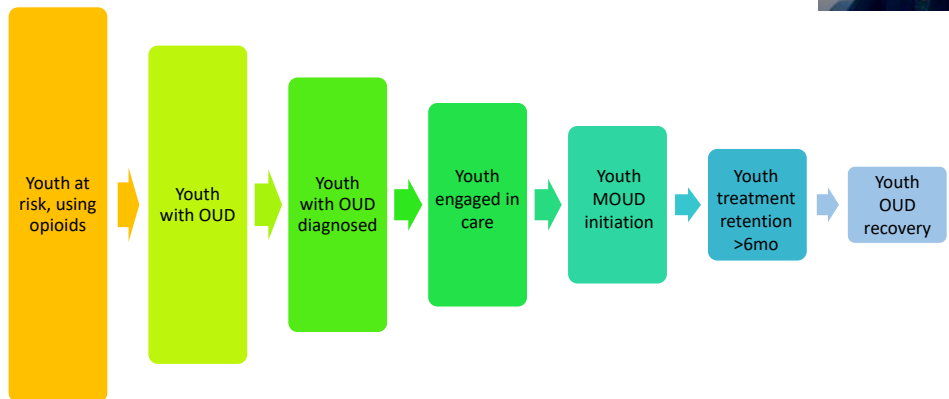
1° Prev

2° Prev

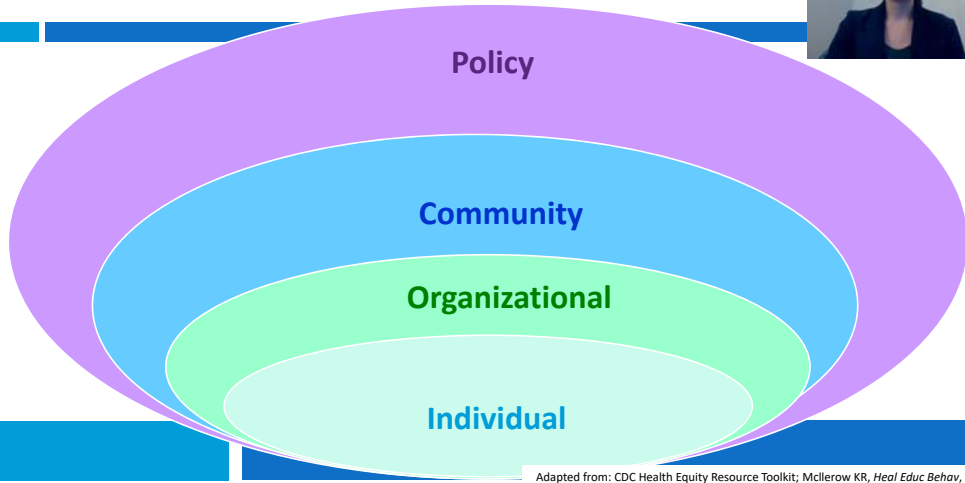
Screening,
Treatment
Stigma
Developmental perspective

3° Prev

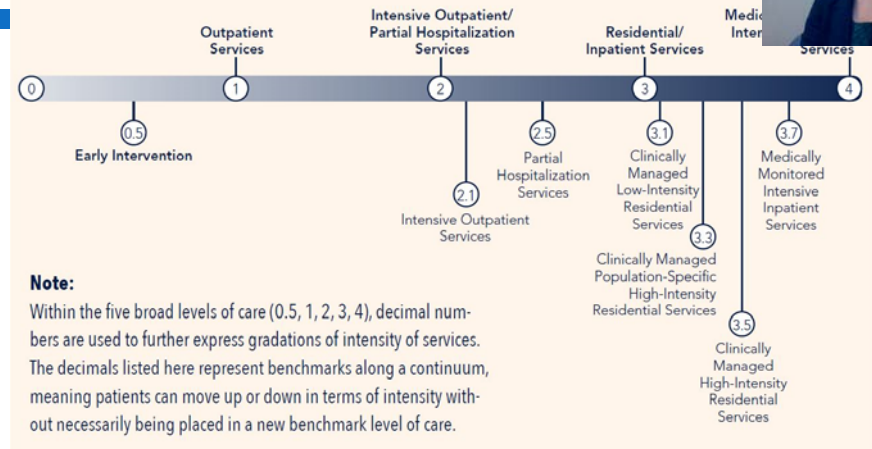
Opioid Use Disorder (OUD) Cascade of Care



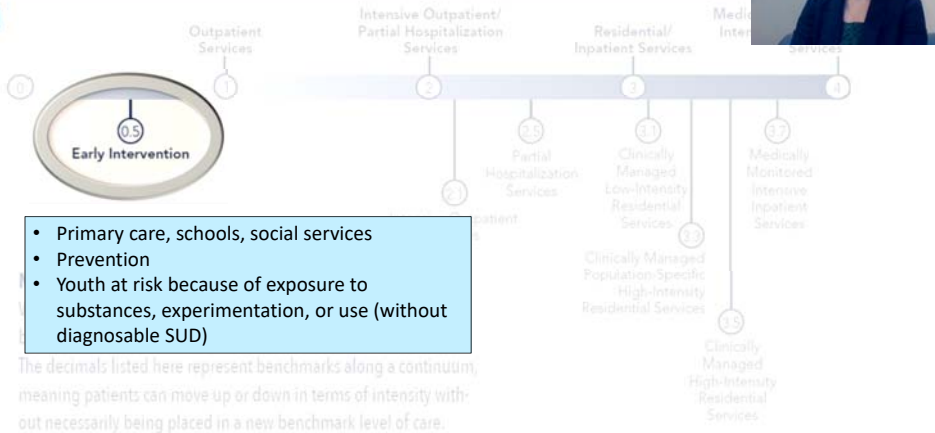
Socioecological Model



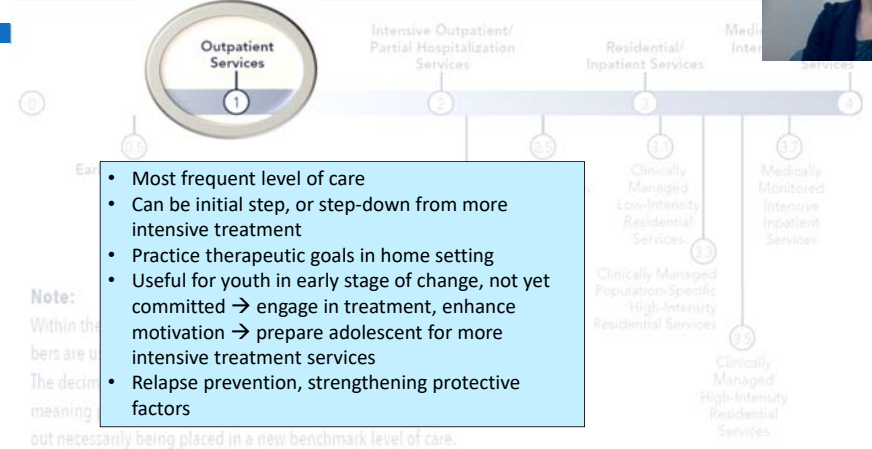
REFLECTING A CONTINUUM OF CARE



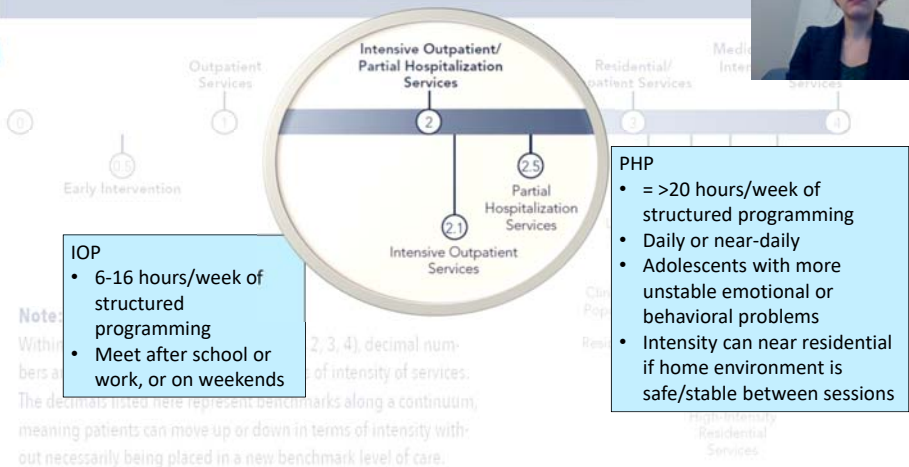
REFLECTING A CONTINUUM OF CARE



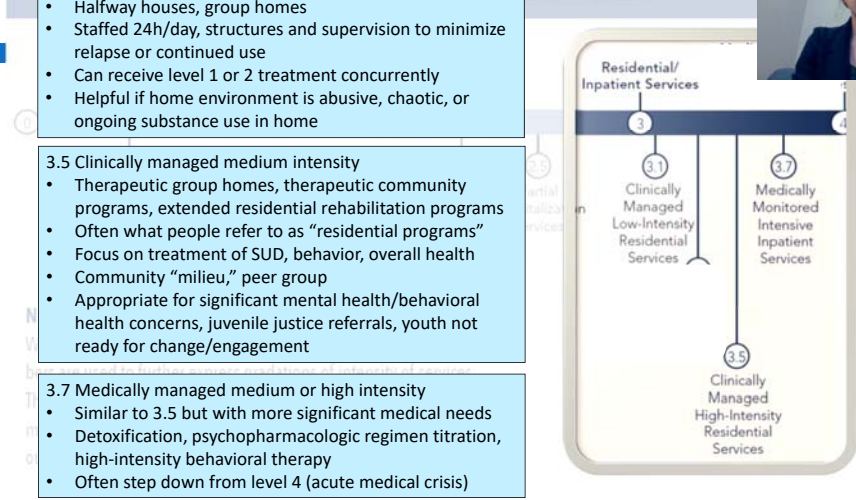
REFLECTING A CONTINUUM OF CARE



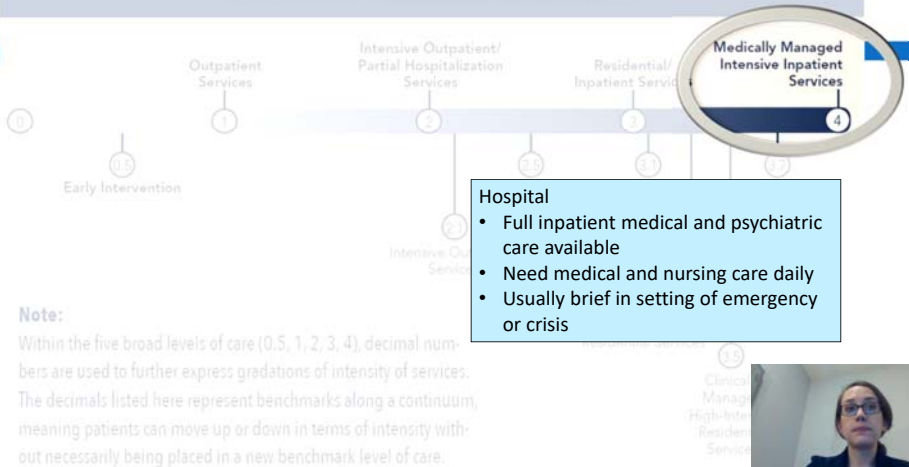
REFLECTING A CONTINUUM OF CARE



CONTINUUM OF CARE



REFLECTING A CONTINUUM OF CARE

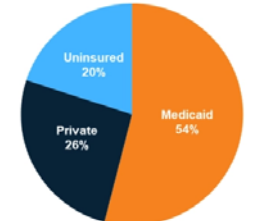


Payment for Addiction Treatment



- Medicaid= public health insurance program for people with low income in the USA
 - 20% of Americans
 - 40% of all children
 - 38% of adults with OUD
- Medicaid is state/federal partnership
- Because of the Affordable Care Act, states can choose to expand enrollment beyond typically covered groups (ie. can cover low income childless adults)
- Adults with OUD who have Medicaid are 2x more likely to receive treatment than privately insured
- All state Medicaid plans cover buprenorphine, naltrexone (41/51 cover methadone)

Nonelderly Adults with Opioid Use Disorder Who Received Any Treatment in Past Year, by Insurance Status, 2017



Total Nonelderly Adults with OUD Who Received Treatment: 617,000

<http://files.kff.org/attachment/INFOGRAPHIC-MEDICAIDS-ROLE-IN-ADDRESSING-THE-OPIOID-EPIDEMIC>
<https://www.kff.org/medicaid/issue-brief/10-things-to-know-about-medicaid-setting-the-facts-straight/>
<https://www.kff.org/medicaid/issue-brief/the-opioid-epidemic-and-medicoids-role-in-facilitating-access-to-treatment/>

Gaps in Care



JAMA Pediatrics | Original Investigation

Receipt of Addiction Treatment After Opioid Overdose Among Medicaid-Enrolled Adolescents and Young Adults

Rachel H. Alinsky, MD, MPH; Bonnie T. Zima, MD, MPH; Jonathan Rodean, MPP; Pamela A. Matson, MPH, PhD; Marc R. Larochelle, MD, MPH; Hoover Adger Jr, MD, MPH, MBA; Sarah M. Bagley, MD, MSc; Scott E. Hadland, MD, MPH, MS



- Published 1/2020, *JAMA Pediatrics*
- AMERSA presentation 11/2018
 - Best Research Abstract
- SAHM presentation 3/2019
 - New Investigator Finalist
- 2019 JHSOM Dept of Pediatrics Scientific Grand Rounds

NIH Director's Blog

Posted on January 28th, 2020 by Dr. Francis Collins



[After Opioid Overdose, Most Young People Aren't Getting Addiction Treatment](#)

Drug overdoses continue to take far too many lives, driven primarily by the opioid crisis (though other drugs like methamphetamine and cocaine are also major concerns). While NIH's Helping End Addiction Long Term (HEAL) Initiative is

Background & Significance



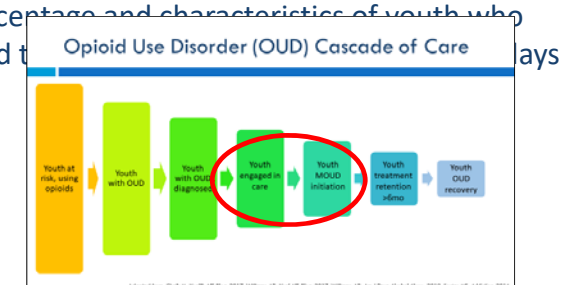
- 4,110 youth <25y died of opioid overdose in 2016¹
- Non-fatal opioid overdose = critical touchpoint
- Guidelines recommend youth and adults with OUD receive medication
- After overdose, 16% of adults receive medication within 1 month,² and 30% within 1 year³
- Youth treatment receipt after opioid overdose is unknown

¹Seth, *MMWR* (2018); ²Ali, *CBHSQ Report* (2016); ³Larochelle, *Ann Intern Med* (2018)

Study Aims



- To identify characteristics of youth who experience nonfatal opioid overdose, and the differences between those with heroin versus other opioid overdose
- To determine the percentage and characteristics of youth who receive recommended treatment days after overdose



Methods



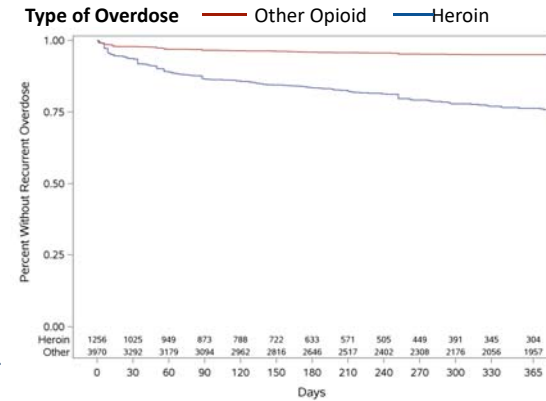
- Retrospective cohort study: Truven MarketScan-IBM Watson Health data (Medicaid claims)
 - 16 US states, 4 million youth

Exposure	Opioid-related overdose: <ul style="list-style-type: none"> Hospital or Emergency Dept claim Classified as heroin or other opioid
Outcome	“Timely” receipt of treatment within 30 days of overdose: <ul style="list-style-type: none"> behavioral health services buprenorphine, methadone, or naltrexone

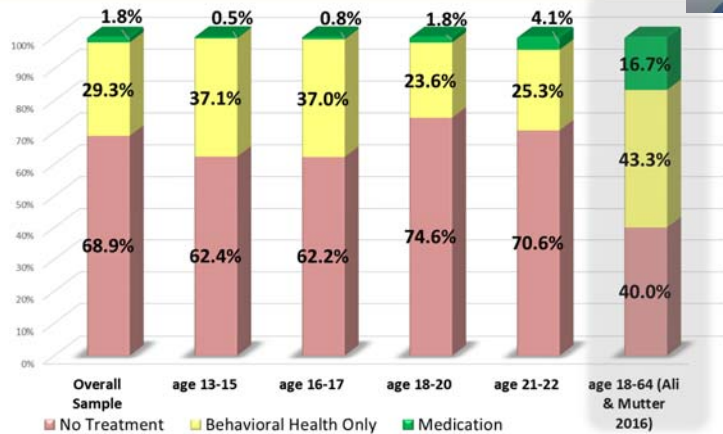
Results: Overdose Characteristics



- 3,908 (0.1%) youth experienced incident overdose
 - Heroin overdose: 1,021 (26.1%)
 - Other opioid overdose: 2,887 (73.9%)
- Median age 18, 59% female, 65% non-Hispanic white
- Crude incident opioid overdose rate 44 per 100,000 person yrs
- Risk of recurrent overdose 2.6 times higher among youth with incident heroin overdose (vs other opioid overdose)



Results: Timely Treatment by Age



Discussion & Conclusion



- Youth with heroin overdose (compared to other opioid overdose) have high rates of diagnosed SUDs, and 2.6 times greater risk of recurrent overdose
- Less than **one-third** of youth received any timely addiction treatment after opioid overdose
- Only **1 in 54** youth received recommended evidence-based medications
- Compared to adults, far fewer youth receive treatment following opioid overdose

We urgently need interventions to link youth to treatment after opioid overdose, with a priority placed on improving access to recommended medication



A Policy Analysis Of The Passage Of Massachusetts Chapter 208 Of The Acts Of 2018, An Act for Prevention and Access to Appropriate Care and Treatment of Addiction

Rachel Alinsky, MD, Catherine Silva, MD, Hoover Adger, MD, MPH, MBA, Beth McGinty, PhD

Background



- Initiating treatment for OUD in the ED has been demonstrated to increase access, improve retention in treatment, decrease opioid use, and overall is cost-effective^{2,3}
- ED induction programs starting throughout country
- Massachusetts passed law in 2018:
 - “An acute-care hospital...that provides emergency services in an **emergency department**... shall maintain... protocols and capacity to provide appropriate, evidence-based interventions **prior to discharge... following an opioid- related overdose** including... protocols and capacity to possess, **dispense, administer and prescribe opioid agonist treatment.**”

1. Weiner SG, Baker O, Benson D, Schuur JD. One-Year Mortality of Patients After Emergency Department Treatment for Nonfatal Opioid Overdose. *Ann Emerg Med.* 2019 Jun 19.
 2. Busch SH, Fiellin DA, Chawarski MC, et al. Cost-effectiveness of emergency department-initiated treatment for opioid dependence. *Addiction.* 2017;112(11):2002-2010.
 3. Houry DE, Haegerich TM, Vivolo-Kantor A. Opportunities for Prevention and Intervention of Opioid Overdose in the Emergency Department. *Ann Emerg Med.* 2018;71(6):688-690.
 4. U.S. National Library of Medicine. NIH Clinical Trials. <https://clinicaltrials.gov/>. Accessed March 2, 2019.

Study Aims



- To characterize the law formulation and policymaking process
 - Role of research, personal stories, economic considerations, public health
 - Stakeholder engagement, compromises
- To describe the plans for implementation, enforcement, and expected challenges
- To explore the ways in which the specific needs of adolescents and young adults were considered



Methods and Results



- 10 key stakeholder interviews completed (State legislative & executive branches, hospitals/physicians, related associations, advocacy groups)
- Themes:
 - Idea borne of governor’s office to increase access to treatment
 - Role of strong research > role of personal stories
 - Collaboration between exec branch, legislative branch, physicians, associations
 - Compromises regarding feasibility, adapting models to smaller hospitals
 - Concerns regarding network of outpatient providers to continue treatment
 - Youth not considered
- Goal: guidance for other states thinking of passing similar legislation



Adolescent-Serving Addiction Treatment Facilities in the United States and the Availability of Medications for Opioid Use Disorder

Rachel H. Alinsky, MD, MPH, Scott E. Hadland, MD, MPH, MS, Pamela Matson, PhD, Magdalena Cerda, DrPH, Brendan Saloner, PhD



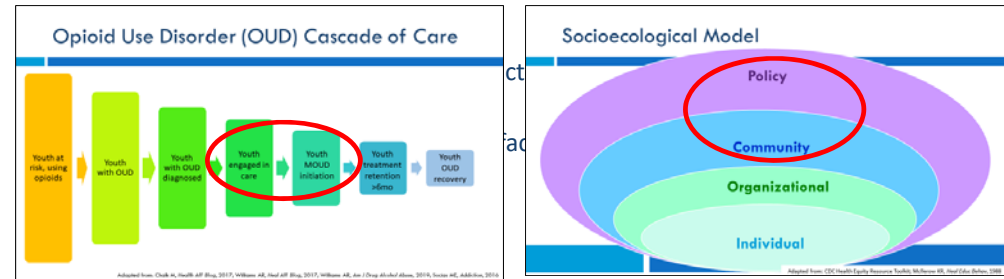
Society for Adolescent Health & Medicine Annual Conference
Charles E. Irwin, Jr. New Investigators, March 13th, 2020

- Association for Multidisciplinary Education and Research in Substance use and Addiction (AMERSA) presentation 11/2019
- Society for Adolescent Health & Medicine (SAHM) New Investigator Finalist 3/2020
- 10/2020, *Journal of Adolescent Health*

Background and Aims



- Youth with OUD and opioid overdose are significantly less likely than adults to receive the recommended treatment
 - The extent to which addiction treatment facility characteristics contribute to this differential access is unknown



¹Seth, *MMWR* (2018); ²Ali, *CBHSQ Report* (2016); ³Alinsky, *JAMA Pediatrics* forthcoming; ⁴Feder, *JAH* (2017)



Methods: Study Design

- Cross-sectional study using the 2017 National Survey of Substance Abuse Treatment Services (N-SSATS), an annual survey of all addiction treatment facilities in the U.S. performed by the Substance Abuse and Mental Health Services Administration (SAMHSA)
 - Setting: all U.S. states and territories in 2017
 - Participants: 13,585 addiction treatment facilities

Methods: Variables



Primary Exposure	Offering a specialized program for adolescents ("adolescent-serving" versus "adult-focused")
Facility Characteristics	<ul style="list-style-type: none"> Facility ownership type Hospital affiliation Insurance/Payments accepted Accepts government grants Licensing, certification, accreditation Location: State, U.S. Census Regions
Facility Services	<ul style="list-style-type: none"> Levels of care provided Offering MOUD: <ul style="list-style-type: none"> Short Term Only Maintenance MOUD: <ul style="list-style-type: none"> Opioid agonist (buprenorphine, methadone) maintenance Extended-release naltrexone

Methods: Analyses



- Descriptive statistics and chi-square tests to compare characteristics and services between **adolescent-serving vs adult-focused facilities**
 - Simple logistic regression to identify characteristics associated with **offering an adolescent program**
- Stratifying by **adolescent-serving vs adult-focused facilities**, describe **characteristics of facilities offering maintenance MOUD**
 - Simple logistic regression to examine association of **facility characteristics** with offering **maintenance MOUD**
 - Interaction term to test whether the facility characteristic associated with offering MOUD **differed** between adolescent-serving and adult-focused facilities
 - Sensitivity analysis: multivariable model with regression adjusted probabilities
- Scatterplot to examine the **state-level availability of maintenance MOUD for youth versus adults**
- All analyses performed in Stata IC 15; graph generated in Microsoft Excel 2016

Table 1: Characteristics of Adult-focused and Adolescent-serving facilities



Characteristic	Adult-focused facilities N (Column %)	Adolescent-serving facilities N (Column %)	χ ² p-value	OR for offering program for adolescents (95% CI)
N total = 13,585	10,048 (74.0%)	3,537 (26.0%)		
Facility Ownership				
Private for-profit	3790 (37.7%)	1141 (32.3%)		Ref
Private non-profit	5169 (51.4%)	1994 (56.4%)	<0.001	1.28 (1.18, 1.39)
State/Local/ Tribal Gov	813 (8.1%)	389 (11.0%)		1.59 (1.38, 1.82)
Federal Gov	276 (2.7%)	13 (0.4%)		0.16 (0.09, 0.27)
Hospital-Affiliated	1040 (10.4%)	235 (6.6%)	<0.001	0.62 (0.53, 0.71)
Payment/Insurances Accepted				
Private Insurance	6786 (68.6%)	2745 (78.5%)	<0.001	1.67 (1.52, 1.83)
Medicaid	6045 (61.3%)	2640 (75.5%)	<0.001	1.94 (1.78, 2.12)
Other Public Insurance	6108 (61.2%)	2571 (73.1%)	<0.001	1.72 (1.58, 1.87)
Free & Reduced Fees	6926 (68.9%)	2812 (79.5%)	<0.001	1.75 (1.60, 1.92)
Cash & Self-pay only	597 (5.9%)	53 (1.5%)	<0.001	0.24 (0.18, 0.32)
Receives government grants	5130 (53.1%)	2108 (61.7%)	<0.001	1.42 (1.31, 1.54)
Certification, licensing, and accreditation				
By State/Hospital Authority	9020 (89.8%)	3153 (89.1%)	0.29	0.94 (0.83, 1.06)
By National Authority	5226 (52.0%)	1703 (48.1%)	<0.001	0.86 (0.79, 0.93)
US Census Regions				
1: Northeast	2021 (20.1%)	584 (16.5%)		Ref
2: Midwest	2426 (24.1%)	862 (24.4%)		1.23 (1.09, 1.39)
3: South	2993 (29.8%)	990 (28.0%)	<0.001	1.14 (1.02, 1.29)
4: West	2517 (25.0%)	1088 (30.8%)		1.50 (1.33, 1.68)
Other/Territories	91 (0.9%)	13 (0.4%)		0.49 (0.27, 0.89)

Table 2: Services offered at Adult-focused and Adolescent-serving facilities



Characteristic	Adult-focused facilities N (Column %)	Adolescent-serving facilities N (Column %)	χ ² p-value	OR for offering program for adolescents (95% CI)
N total = 13,585	10,048 (74.0%)	3,537 (26.0%)		
Medications Offered				
Offers MOUD	4474 (44.5%)	1009 (28.5%)	<0.001	0.50 (0.46, 0.54)
Offers only short term opioid agonist MOUD	610 (6.1%)	106 (3.0%)	<0.001	0.48 (0.39, 0.59)
Offers any maintenance MOUD	3612 (35.9%)	816 (23.1%)	<0.001	0.53 (0.49, 0.58)
Offers opioid agonist maintenance MOUD	2574 (25.6%)	531 (15.0%)	<0.001	0.51 (0.46, 0.57)
Offers only antagonist MOUD	698 (6.9%)	228 (6.4%)	0.31	0.92 (0.79, 1.08)
Levels of Care				
Inpatient services	586 (5.8%)	129 (3.6%)	<0.001	0.61 (0.50, 0.74)
Residential services	2712 (27.0%)	413 (11.7%)	<0.001	0.36 (0.32, 0.40)
Outpatient services	7917 (78.8%)	3267 (92.4%)	<0.001	3.26 (2.85, 3.72)

Table 3: Number and percent of Adult-focused and Adolescent-serving facilities that offer maintenance MOUD



Characteristic	Adult-focused facilities		Adolescent-serving facilities	
	N (Row %)	χ ² p-value	N (Row %)	χ ² p-value
Offers maintenance MOUD	3612 (35.9%)		816 (23.1%)	
Facility Ownership				
Private for-profit	1617 (42.7%)		226 (19.8%)	
Private non-profit	1557 (30.1%)	<0.001	503 (25.2%)	0.005
State/Local/ Tribal Gov	252 (31.0%)		85 (21.9%)	
Federal Gov	186 (67.4%)		2 (15.4%)	
Hospital-Affiliated	577 (55.5%)	<0.001	115 (48.9%)	<0.001
Payment/Insurances Accepted				
Private Insurance	2709 (39.9%)	<0.001	765 (27.9%)	<0.001
Medicaid	2377 (39.3%)	<0.001	684 (25.9%)	<0.001
Other Public Insurance	2339 (38.3%)	<0.001	681 (26.5%)	<0.001
Free & Reduced Fees	2200 (31.8%)	<0.001	616 (21.9%)	0.001
Cash & Self-pay only	248 (41.5%)	0.003	7 (13.2%)	0.085
Receives government grants	1628 (31.7%)	<0.001	479 (22.7%)	0.68
Certification, licensing, accreditation				
By State/Hospital Authority	3227 (35.8%)	0.29	762 (24.2%)	<0.001
By National Authority	2684 (51.4%)	<0.001	478 (28.1%)	<0.001
US Census Regions				
1: Northeast	1034 (51.2%)		285 (48.8%)	
2: Midwest	708 (29.2%)		208 (24.1%)	
3: South	1082 (36.2%)	<0.001	182 (18.4%)	<0.001
4: West	764 (30.4%)		137 (12.6%)	
Other/Territories	24 (26.4%)		4 (30.8%)	
Inpatient services	286 (48.8%)	<0.001	65 (50.4%)	<0.001
Residential services	841 (31.0%)	<0.001	93 (22.5%)	0.78
Outpatient services	3044 (38.4%)	<0.001	759 (23.2%)	0.43

Table 4: Crude odds of offering maintenance MOUD by facility characteristic



	Adult-focused facilities	Adolescent-serving facilities	Interaction Term OR (95% CI)
	Crude OR (95% CI)	Crude OR (95% CI)	
Facility Ownership			
Private for-profit	<i>Ref</i>	<i>Ref</i>	
Private non-profit	0.58 (0.53, 0.63)	1.37 (1.14, 1.63)	2.36 (1.93, 2.87)
State/Local/ Tribal Gov	0.60 (0.51, 0.71)	1.13 (0.85, 1.50)	1.88 (1.36, 2.59)
Federal Gov	2.78 (2.14, 3.60)	0.74 (0.16, 3.34)	0.26 (0.06, 1.23)
Hospital-Affiliated	2.45 (2.15, 2.79)	3.55 (2.72, 4.65)	1.45 (1.07, 1.95)
Payment/Insurances Accepted			
Private Insurance	1.73 (1.58, 1.90)	5.92 (4.34, 8.07)	3.41 (2.47, 4.72)
Medicaid	1.47 (1.35, 1.60)	2.06 (1.67, 2.54)	1.41 (1.12, 1.76)
Other Public Insurance	1.29 (1.19, 1.41)	2.26 (1.85, 2.78)	1.75 (1.40, 2.19)
Free & Reduced Fees	0.56 (0.52, 0.61)	0.73 (0.61, 0.89)	1.30 (1.06, 1.60)
Cash & Self-pay only	1.29 (1.09, 1.52)	0.50 (0.23, 1.12)	0.39 (0.17, 0.88)
Receives government grants	0.68 (0.63, 0.74)	0.97 (0.82, 1.14)	1.41 (1.18, 1.70)
Certification, licensing, and accreditation			
By State/Hospital Authority	0.93 (0.81, 1.06)	1.95 (1.44, 2.63)	2.09 (1.51, 2.90)
By National Authority	4.43 (4.05, 4.85)	1.73 (1.47, 2.02)	0.39 (0.32, 0.47)
US Census Regions			
1: Northeast	<i>Ref</i>	<i>Ref</i>	
2: Midwest	0.39 (0.35, 0.45)	0.33 (0.27, 0.42)	0.85 (0.66, 1.10)
3: South	0.54 (0.48, 0.61)	0.24 (0.19, 0.30)	0.44 (0.34, 0.56)
4: West	0.42 (0.37, 0.47)	0.15 (0.12, 0.19)	0.36 (0.28, 0.48)
Other/Territories	0.34 (0.21, 0.55)	0.47 (0.14, 1.53)	1.36 (0.38, 4.90)
Inpatient services	1.76 (1.49, 2.08)	3.59 (2.52, 5.12)	2.04 (1.38, 3.02)
Residential services	0.74 (0.67, 0.81)	0.97 (0.76, 1.23)	1.30 (1.00, 1.70)
Outpatient services	1.72 (1.55, 1.91)	1.13 (0.83, 1.53)	0.66 (0.48, 0.91)

Table 4: Crude odds of offering maintenance MOUD by facility characteristic



	Adult-focused facilities	Adolescent-serving facilities	Interaction Term OR (95% CI)
	Crude OR (95% CI)	Crude OR (95% CI)	
Facility Ownership			
Private for-profit	<i>Ref</i>	<i>Ref</i>	
Private non-profit	0.58 (0.53, 0.63)	1.37 (1.14, 1.63)	2.36 (1.93, 2.87)
State/Local/ Tribal Gov	0.60 (0.51, 0.71)	1.13 (0.85, 1.50)	1.88 (1.36, 2.59)
Federal Gov	2.78 (2.14, 3.60)	0.74 (0.16, 3.34)	0.26 (0.06, 1.23)
Hospital-Affiliated	2.45 (2.15, 2.79)	3.55 (2.72, 4.65)	1.45 (1.07, 1.95)
Payment/Insurances Accepted			
Private Insurance	1.73 (1.58, 1.90)	5.92 (4.34, 8.07)	3.41 (2.47, 4.72)
Medicaid	1.47 (1.35, 1.60)	2.06 (1.67, 2.54)	1.41 (1.12, 1.76)
Other Public Insurance	1.29 (1.19, 1.41)	2.26 (1.85, 2.78)	1.75 (1.40, 2.19)
Free & Reduced Fees	0.56 (0.52, 0.61)	0.73 (0.61, 0.89)	1.30 (1.06, 1.60)
Cash & Self-pay only	1.29 (1.09, 1.52)	0.50 (0.23, 1.12)	0.39 (0.17, 0.88)
Receives government grants	0.68 (0.63, 0.74)	0.97 (0.82, 1.14)	1.41 (1.18, 1.70)
Certification, licensing, and accreditation			
By State/Hospital Authority	0.93 (0.81, 1.06)	1.95 (1.44, 2.63)	2.09 (1.51, 2.90)
By National Authority	4.43 (4.05, 4.85)	1.73 (1.47, 2.02)	0.39 (0.32, 0.47)
US Census Regions			
1: Northeast	<i>Ref</i>	<i>Ref</i>	
2: Midwest	0.39 (0.35, 0.45)	0.33 (0.27, 0.42)	0.85 (0.66, 1.10)
3: South	0.54 (0.48, 0.61)	0.24 (0.19, 0.30)	0.44 (0.34, 0.56)
4: West	0.42 (0.37, 0.47)	0.15 (0.12, 0.19)	0.36 (0.28, 0.48)
Other/Territories	0.34 (0.21, 0.55)	0.47 (0.14, 1.53)	1.36 (0.38, 4.90)
Inpatient services	1.76 (1.49, 2.08)	3.59 (2.52, 5.12)	2.04 (1.38, 3.02)
Residential services	0.74 (0.67, 0.81)	0.97 (0.76, 1.23)	1.30 (1.00, 1.70)
Outpatient services	1.72 (1.55, 1.91)	1.13 (0.83, 1.53)	0.66 (0.48, 0.91)

Table 4: Crude odds of offering maintenance MOUD by facility characteristic



	Adult-focused facilities	Adolescent-serving facilities	Interaction Term OR (95% CI)
	Crude OR (95% CI)	Crude OR (95% CI)	
Facility Ownership			
Private for-profit	<i>Ref</i>	<i>Ref</i>	
Private non-profit	0.58 (0.53, 0.63)	1.37 (1.14, 1.63)	2.36 (1.93, 2.87)
State/Local/ Tribal Gov	0.60 (0.51, 0.71)	1.13 (0.85, 1.50)	1.88 (1.36, 2.59)
Federal Gov	2.78 (2.14, 3.60)	0.74 (0.16, 3.34)	0.26 (0.06, 1.23)
Hospital-Affiliated	2.45 (2.15, 2.79)	3.55 (2.72, 4.65)	1.45 (1.07, 1.95)
Payment/Insurances Accepted			
Private Insurance	1.73 (1.58, 1.90)	5.92 (4.34, 8.07)	3.41 (2.47, 4.72)
Medicaid	1.47 (1.35, 1.60)	2.06 (1.67, 2.54)	1.41 (1.12, 1.76)
Other Public Insurance	1.29 (1.19, 1.41)	2.26 (1.85, 2.78)	1.75 (1.40, 2.19)
Free & Reduced Fees	0.56 (0.52, 0.61)	0.73 (0.61, 0.89)	1.30 (1.06, 1.60)
Cash & Self-pay only	1.29 (1.09, 1.52)	0.50 (0.23, 1.12)	0.39 (0.17, 0.88)
Receives government grants	0.68 (0.63, 0.74)	0.97 (0.82, 1.14)	1.41 (1.18, 1.70)
Certification, licensing, and accreditation			
By State/Hospital Authority	0.93 (0.81, 1.06)	1.95 (1.44, 2.63)	2.09 (1.51, 2.90)
By National Authority	4.43 (4.05, 4.85)	1.73 (1.47, 2.02)	0.39 (0.32, 0.47)
US Census Regions			
1: Northeast	<i>Ref</i>	<i>Ref</i>	
2: Midwest	0.39 (0.35, 0.45)	0.33 (0.27, 0.42)	0.85 (0.66, 1.10)
3: South	0.54 (0.48, 0.61)	0.24 (0.19, 0.30)	0.44 (0.34, 0.56)
4: West	0.42 (0.37, 0.47)	0.15 (0.12, 0.19)	0.36 (0.28, 0.48)
Other/Territories	0.34 (0.21, 0.55)	0.47 (0.14, 1.53)	1.36 (0.38, 4.90)
Inpatient services	1.76 (1.49, 2.08)	3.59 (2.52, 5.12)	2.04 (1.38, 3.02)
Residential services	0.74 (0.67, 0.81)	0.97 (0.76, 1.23)	1.30 (1.00, 1.70)
Outpatient services	1.72 (1.55, 1.91)	1.13 (0.83, 1.53)	0.66 (0.48, 0.91)

Table 4: Crude odds of offering maintenance MOUD by facility characteristic



	Adult-focused facilities	Adolescent-serving facilities	Interaction Term OR (95% CI)
	Crude OR (95% CI)	Crude OR (95% CI)	
Facility Ownership			
Private for-profit	<i>Ref</i>	<i>Ref</i>	
Private non-profit	0.58 (0.53, 0.63)	1.37 (1.14, 1.63)	2.36 (1.93, 2.87)
State/Local/ Tribal Gov	0.60 (0.51, 0.71)	1.13 (0.85, 1.50)	1.88 (1.36, 2.59)
Federal Gov	2.78 (2.14, 3.60)	0.74 (0.16, 3.34)	0.26 (0.06, 1.23)
Hospital-Affiliated	2.45 (2.15, 2.79)	3.55 (2.72, 4.65)	1.45 (1.07, 1.95)
Payment/Insurances Accepted			
Private Insurance	1.73 (1.58, 1.90)	5.92 (4.34, 8.07)	3.41 (2.47, 4.72)
Medicaid	1.47 (1.35, 1.60)	2.06 (1.67, 2.54)	1.41 (1.12, 1.76)
Other Public Insurance	1.29 (1.19, 1.41)	2.26 (1.85, 2.78)	1.75 (1.40, 2.19)
Free & Reduced Fees	0.56 (0.52, 0.61)	0.73 (0.61, 0.89)	1.30 (1.06, 1.60)
Cash & Self-pay only	1.29 (1.09, 1.52)	0.50 (0.23, 1.12)	0.39 (0.17, 0.88)
Receives government grants	0.68 (0.63, 0.74)	0.97 (0.82, 1.14)	1.41 (1.18, 1.70)
Certification, licensing, and accreditation			
By State/Hospital Authority	0.93 (0.81, 1.06)	1.95 (1.44, 2.63)	2.09 (1.51, 2.90)
By National Authority	4.43 (4.05, 4.85)	1.73 (1.47, 2.02)	0.39 (0.32, 0.47)
US Census Regions			
1: Northeast	<i>Ref</i>	<i>Ref</i>	
2: Midwest	0.39 (0.35, 0.45)	0.33 (0.27, 0.42)	0.85 (0.66, 1.10)
3: South	0.54 (0.48, 0.61)	0.24 (0.19, 0.30)	0.44 (0.34, 0.56)
4: West	0.42 (0.37, 0.47)	0.15 (0.12, 0.19)	0.36 (0.28, 0.48)
Other/Territories	0.34 (0.21, 0.55)	0.47 (0.14, 1.53)	1.36 (0.38, 4.90)
Inpatient services	1.76 (1.49, 2.08)	3.59 (2.52, 5.12)	2.04 (1.38, 3.02)
Residential services	0.74 (0.67, 0.81)	0.97 (0.76, 1.23)	1.30 (1.00, 1.70)
Outpatient services	1.72 (1.55, 1.91)	1.13 (0.83, 1.53)	0.66 (0.48, 0.91)

Table 4: Crude odds of offering maintenance MOUD by facility characteristic



	Adult-focused facilities	Adolescent-serving facilities	Interaction Term OR (95% CI)
	Crude OR (95% CI)	Crude OR (95% CI)	
Facility Ownership			
Private for-profit	Ref	Ref	
Private non-profit	0.58 (0.53, 0.63)	1.37 (1.14, 1.63)	2.36 (1.93, 2.87)
State/Local/ Tribal Gov	0.60 (0.51, 0.71)	1.13 (0.85, 1.50)	1.88 (1.36, 2.59)
Federal Gov	2.78 (2.14, 3.60)	0.74 (0.16, 3.34)	0.26 (0.06, 1.23)
Hospital-Affiliated	2.45 (2.15, 2.79)	3.55 (2.72, 4.65)	1.45 (1.07, 1.95)
Payment/Insurances Accepted			
Private Insurance	1.73 (1.58, 1.90)	5.92 (4.34, 8.07)	3.41 (2.47, 4.72)
Medicaid	1.47 (1.35, 1.60)	2.06 (1.67, 2.54)	1.41 (1.12, 1.76)
Other Public Insurance	1.29 (1.19, 1.41)	2.26 (1.85, 2.78)	1.75 (1.40, 2.19)
Free & Reduced Fees	0.56 (0.52, 0.61)	0.73 (0.61, 0.89)	1.30 (1.06, 1.60)
Cash & Self-pay only	1.29 (1.09, 1.52)	0.50 (0.23, 1.12)	0.39 (0.17, 0.88)
Receives government grants	0.68 (0.63, 0.74)	0.97 (0.82, 1.14)	1.41 (1.18, 1.70)
Certification, licensing, and accreditation			
By State/Hospital Authority	0.93 (0.81, 1.06)	1.95 (1.44, 2.63)	2.09 (1.51, 2.90)
By National Authority	4.43 (4.05, 4.85)	1.73 (1.47, 2.02)	0.39 (0.32, 0.47)
US Census Regions			
1: Northeast	Ref	Ref	
2: Midwest	0.39 (0.35, 0.45)	0.33 (0.27, 0.42)	0.85 (0.66, 1.10)
3: South	0.54 (0.48, 0.61)	0.24 (0.19, 0.30)	0.44 (0.34, 0.56)
4: West	0.42 (0.37, 0.47)	0.15 (0.12, 0.19)	0.36 (0.28, 0.48)
Other/Territories	0.34 (0.21, 0.55)	0.47 (0.14, 1.53)	1.36 (0.38, 4.90)
Inpatient services	1.76 (1.49, 2.08)	3.59 (2.52, 5.12)	2.04 (1.38, 3.02)
Residential services	0.74 (0.67, 0.81)	0.97 (0.76, 1.23)	1.30 (1.00, 1.70)
Outpatient services	1.72 (1.55, 1.91)	1.13 (0.83, 1.53)	0.66 (0.48, 0.91)

Table 4: Crude odds of offering maintenance MOUD by facility characteristic

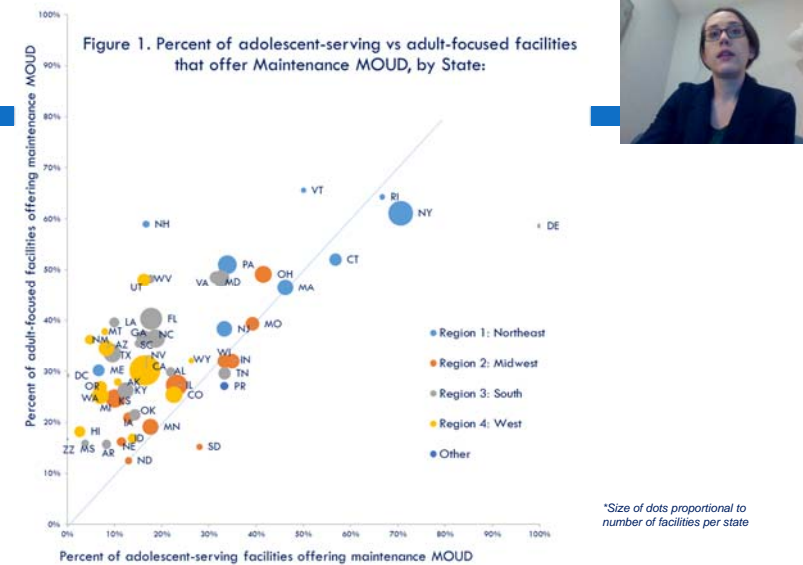


	Adult-focused facilities	Adolescent-serving facilities	Interaction Term OR (95% CI)
	Crude OR (95% CI)	Crude OR (95% CI)	
Facility Ownership			
Private for-profit	Ref	Ref	
Private non-profit	0.58 (0.53, 0.63)	1.37 (1.14, 1.63)	2.36 (1.93, 2.87)
State/Local/ Tribal Gov	0.60 (0.51, 0.71)	1.13 (0.85, 1.50)	1.88 (1.36, 2.59)
Federal Gov	2.78 (2.14, 3.60)	0.74 (0.16, 3.34)	0.26 (0.06, 1.23)
Hospital-Affiliated	2.45 (2.15, 2.79)	3.55 (2.72, 4.65)	1.45 (1.07, 1.95)
Payment/Insurances Accepted			
Private Insurance	1.73 (1.58, 1.90)	5.92 (4.34, 8.07)	3.41 (2.47, 4.72)
Medicaid	1.47 (1.35, 1.60)	2.06 (1.67, 2.54)	1.41 (1.12, 1.76)
Other Public Insurance	1.29 (1.19, 1.41)	2.26 (1.85, 2.78)	1.75 (1.40, 2.19)
Free & Reduced Fees	0.56 (0.52, 0.61)	0.73 (0.61, 0.89)	1.30 (1.06, 1.60)
Cash & Self-pay only	1.29 (1.09, 1.52)	0.50 (0.23, 1.12)	0.39 (0.17, 0.88)
Receives government grants	0.68 (0.63, 0.74)	0.97 (0.82, 1.14)	1.41 (1.18, 1.70)
Certification, licensing, and accreditation			
By State/Hospital Authority	0.93 (0.81, 1.06)	1.95 (1.44, 2.63)	2.09 (1.51, 2.90)
By National Authority	4.43 (4.05, 4.85)	1.73 (1.47, 2.02)	0.39 (0.32, 0.47)
US Census Regions			
1: Northeast	Ref	Ref	
2: Midwest	0.39 (0.35, 0.45)	0.33 (0.27, 0.42)	0.85 (0.66, 1.10)
3: South	0.54 (0.48, 0.61)	0.24 (0.19, 0.30)	0.44 (0.34, 0.56)
4: West	0.42 (0.37, 0.47)	0.15 (0.12, 0.19)	0.36 (0.28, 0.48)
Other/Territories	0.34 (0.21, 0.55)	0.47 (0.14, 1.53)	1.36 (0.38, 4.90)
Inpatient services	1.76 (1.49, 2.08)	3.59 (2.52, 5.12)	2.04 (1.38, 3.02)
Residential services	0.74 (0.67, 0.81)	0.97 (0.76, 1.23)	1.30 (1.00, 1.70)
Outpatient services	1.72 (1.55, 1.91)	1.13 (0.83, 1.53)	0.66 (0.48, 0.91)

Table 4: Crude odds of offering maintenance MOUD by facility characteristic



	Adult-focused facilities	Adolescent-serving facilities	Interaction Term OR (95% CI)
	Crude OR (95% CI)	Crude OR (95% CI)	
Facility Ownership			
Private for-profit	Ref	Ref	
Private non-profit	0.58 (0.53, 0.63)	1.37 (1.14, 1.63)	2.36 (1.93, 2.87)
State/Local/ Tribal Gov	0.60 (0.51, 0.71)	1.13 (0.85, 1.50)	1.88 (1.36, 2.59)
Federal Gov	2.78 (2.14, 3.60)	0.74 (0.16, 3.34)	0.26 (0.06, 1.23)
Hospital-Affiliated	2.45 (2.15, 2.79)	3.55 (2.72, 4.65)	1.45 (1.07, 1.95)
Payment/Insurances Accepted			
Private Insurance	1.73 (1.58, 1.90)	5.92 (4.34, 8.07)	3.41 (2.47, 4.72)
Medicaid	1.47 (1.35, 1.60)	2.06 (1.67, 2.54)	1.41 (1.12, 1.76)
Other Public Insurance	1.29 (1.19, 1.41)	2.26 (1.85, 2.78)	1.75 (1.40, 2.19)
Free & Reduced Fees	0.56 (0.52, 0.61)	0.73 (0.61, 0.89)	1.30 (1.06, 1.60)
Cash & Self-pay only	1.29 (1.09, 1.52)	0.50 (0.23, 1.12)	0.39 (0.17, 0.88)
Receives government grants	0.68 (0.63, 0.74)	0.97 (0.82, 1.14)	1.41 (1.18, 1.70)
Certification, licensing, and accreditation			
By State/Hospital Authority	0.93 (0.81, 1.06)	1.95 (1.44, 2.63)	2.09 (1.51, 2.90)
By National Authority	4.43 (4.05, 4.85)	1.73 (1.47, 2.02)	0.39 (0.32, 0.47)
US Census Regions			
1: Northeast	Ref	Ref	
2: Midwest	0.39 (0.35, 0.45)	0.33 (0.27, 0.42)	0.85 (0.66, 1.10)
3: South	0.54 (0.48, 0.61)	0.24 (0.19, 0.30)	0.44 (0.34, 0.56)
4: West	0.42 (0.37, 0.47)	0.15 (0.12, 0.19)	0.36 (0.28, 0.48)
Other/Territories	0.34 (0.21, 0.55)	0.47 (0.14, 1.53)	1.36 (0.38, 4.90)
Inpatient services	1.76 (1.49, 2.08)	3.59 (2.52, 5.12)	2.04 (1.38, 3.02)
Residential services	0.74 (0.67, 0.81)	0.97 (0.76, 1.23)	1.30 (1.00, 1.70)
Outpatient services	1.72 (1.55, 1.91)	1.13 (0.83, 1.53)	0.66 (0.48, 0.91)



Discussion



- Paucity of addiction treatment facilities available to adolescents
 - Only **one-quarter** of U.S. addiction treatment facilities offer programs for adolescents
 - Particularly few facilities with higher level of care (inpatient, residential)
- Harder for youth to access MOUD, as **adolescent-serving facilities are half as likely** as adult-focused to offer **maintenance MOUD**
 - Only 6% of all U.S. facilities serve adolescents & offer MOUD
 - Result of societal & financial factors including stigma against MOUD, and an insufficient number of youth-serving MOUD prescribers

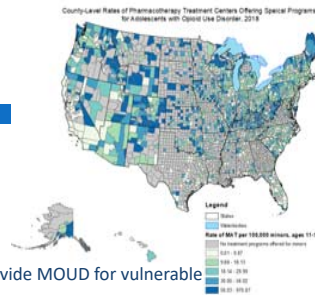
Conclusion and Implications



- Adolescents have less access than adults to addiction treatment, and specifically to inpatient or residential services, or MOUD
 - Especially adolescents who rely on free & reduced fee services, or live in the U.S. South or West
- This study may explain why adolescents are less likely than adults to receive MOUD, by demonstrating that the few facilities that serve them are less likely to provide MOUD
- Strategies to increase access to addiction treatment for adolescents may include insurance reforms/incentives, facility accreditation, and geographically-targeted funding

Access to Opioid Use Disorder Treatment Facilities with Programs for Special Populations, Including Veterans, Pregnant Women, and Adolescents: A 2018 US County-Level Analysis

Scott E. Hadland, MD, MPH, MS^{1,2}
Victoria A. Jent, MAS³
Rachel H. Alinsky, MD, MPH⁴
Brandon D. L. Marshall, PhD⁵
Pia M. Mauro, PhD⁶
Magdalena Cerdá, DrPH, MPH³

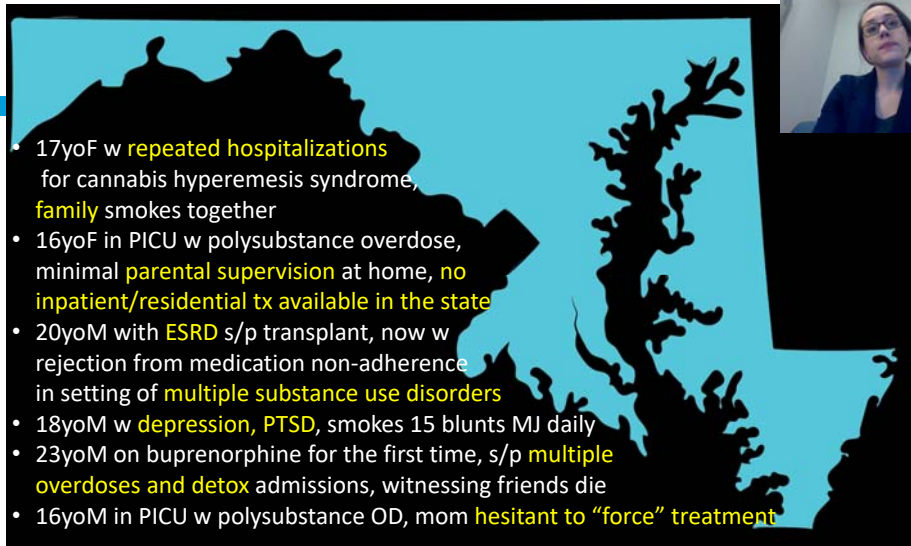


- Data: 2018 SAMHSA Treatment Locator (From N-SSATS data)
- Aims:
 - Assess the county-level geographic distribution of treatment centers that provide MOUD for vulnerable populations: veterans, pregnant women, adolescents
 - Identify regions where the burden of opioid overdose death is greater than treatment availability
- Results: Of 3,142 US counties, 1,889 (60.1%) had OUD treatment facilities
 - Facilities with tailored programs:
 - Veterans: 701 (22.3%) counties
 - Pregnant and postpartum women: 918 (29.2%) counties
 - Adolescents: 1,062 (33.8%) counties
 - 54% of counties with adolescent opioid overdose deaths had no adolescent-serving facility
- Manuscript in press, *AJPM*



Wrap Up





- 17yoF w **repeated hospitalizations** for cannabis hyperemesis syndrome, **family** smokes together
- 16yoF in PICU w polysubstance overdose, minimal **parental supervision** at home, **no inpatient/residential tx available in the state**
- 20yoM with **ESRD** s/p transplant, now w rejection from medication non-adherence in setting of **multiple substance use disorders**
- 18yoM w **depression, PTSD**, smokes 15 blunts MJ daily
- 23yoM on buprenorphine for the first time, s/p **multiple overdoses and detox** admissions, witnessing friends die
- 16yoM in PICU w polysubstance OD, mom **hesitant to “force” treatment**



Next directions and needs

- Adapt systems to COVID-19 and telemedicine
- Combat stigma and misinformation
- Identify and address health disparities
- Recognize addiction as pediatric disease, increase training
- Increase pediatric primary care capacity for substance use screening and early intervention
- Hospital-wide protocols and standards of care for youth presenting with substance use related conditions
- Increase network of youth-serving addiction providers in our community
 - Developmental/family context and co-occurring mental health disorders
- Increase number of treatment centers for youth needing higher levels of care



Rachel H. Alinsky, MD, MPH
RALinsk1@jhmi.edu
 @DrRachelAlinsky



Acknowledgements and References

Thank you: Hopkins Adolescent Medicine, Bloomberg School of Public Health, Scott Hadland, Hoover Adger, Pamela Matson, Maria Trent, Brendan Saloner, Beth McGinty, Marc Fishman, Josh Sharfstein, Magda Cerda

References:

- Seth P, Scholl L, Rudd RA, Bacon S. Overdose Deaths Involving Opioids, Cocaine, and Psychostimulants — United States, 2015–2016. *MMWR Morb Mortal Wkly Rep* 2018;67:349–358. DOI: <http://dx.doi.org/10.15585/mmwr.mm6712a1>
- Ali MM, Muttter R. Patients Who Are Privately Insured Receive Limited Follow-Up Services After Opioid-Related Hospitalizations. *Substance Abuse and Mental Health Services Administration (US)*; 2016. doi:10.1176/appi.ps.2013.00235
- Alinsky RH, Zima BT, Rodean J, Matson PA, Larochele MR, Adger H Jr, Bagley SM, Hadland SE. Receipt of Addiction Treatment after Opioid Overdose among Medicaid-Enrolled Adolescents and Young Adults. *JAMA Pediatr*. 2020 Jan 6; 6:e195183. doi: 10.1001/jamapediatrics.2019.5183. PMID: 31905233.
- Feder KA, Krawczyk N, Saloner B. Medication-Assisted Treatment for Adolescents in Specialty Treatment for Opioid Use Disorder. *J Adolesc Heal*. 2017;60(6):747-750. doi:10.1016/j.jadohealth.2016.12.023
- American Academy of Pediatrics, Committee on Substance Use and Prevention. Substance use screening, brief intervention, and referral to treatment for pediatricians. *Pediatrics*. 2011;128(5):e1330-40.
- Jackson P, Yule A, Wilens T. Chapter 23: Adolescent Substance Use and Prevention, In: *MassGeneral Hospital for Children Adolescent Medicine Handbook* (2nd ed.). Edited by Mark A. Goldstein M.D. Springer, Dec 2016
- U.S. Department of Health and Human Services (HHS), Office of the Surgeon General, *Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health, Executive Summary*. Washington DC: HHS, November 2016.
- Miller, W. R., & Rollnick, S. (2013). *Motivational interviewing: Helping people change*. New York, NY: Guilford Press.
- Rastegar, D., & Fingerhord, M. (2016). *The American Society of Addiction Medicine Handbook of Addiction Medicine*. New York, NY: Oxford University Press.
- Weinstein Z, Wakeman S, Nolan S. Inpatient Addiction Consult Service: Expertise for Hospitalized Patients with Complex Addiction Problems. *Med Clin North Am*. 2018 Jul;102(4):587-601. doi: 10.1016/j.mcna.2018.03.001.
- ASAM Criteria: www.asam.org/asam-criteria/about
- Fishman, Marc. Chapter 105: Placement Criteria and Strategies for Adolescent Treatment Matching, in *The ASAM Principles of Addiction Medicine*. Wolters Kluwer, 2014.
- ASAM, *An Introduction to the ASAM Criteria for Patients and Families*. American Society for Addiction Medicine, 2015.
- Schuckit, M. *Treatment of Opioid Use Disorders*. *NEJM* 2016; 375:357-68
- <http://files.kff.org/attachment/INFOGRAPHIC-MEDICAIDS-ROLE-IN-ADDRESSING-THE-OPIOID-EPIDEMIC>
- <https://www.kff.org/medicaid/issue-brief/10-things-to-know-about-medicaid-setting-the-facts-straight/>
- <https://www.kff.org/medicaid/issue-brief/the-opioid-epidemic-and-medicaids-role-in-facilitating-access-to-treatment/>