Note from the Planning Committee

Thank you so much for participating in ASAM Virtual 2021! Please ensure that your presentation meets the following requirements:

- Includes a disclosure for every presenter
- Is free from commercial bias (uses generic rather than trade names, no logos, balanced discussion of therapeutic options)
- Uses language that is inclusive of all members of the health care team and is non-stigmatizing (eg, "provider" or "clinician" instead of "physician" and "patient" instead of "addict")
- Uses 20 point font or higher for all content (except for references)

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Principles of Addiction Medicine: High Impact Research from 2020 (& early 2021)

Sarah E. Wakeman MD
Joshua D Lee MD MSc

Thanks to : Anna Cheng, Nancy Pace, Talia Rosen

Live Webinar Session: Fri April 23, 2021 2-3pm

Disclosure Information (Required)

- Sarah Wakeman
  - Presenter 1 Commercial Interests: Name of Company, What was received, For What Role – Put “No Disclosures” if they do not have any
- Joshua D Lee
  - In-kind study drug : Indivior, Alkermes
  - ISS Research Funding : Indivior
  - Paid advising : Drug Deliver Inc, Nirsum Labs, Oar Rx

Methods

1. Highest impact medical journals :
   - NEJM (Impact Factor = 79), Lancet (53), JAMA (48), JAMA IM (21), Annals IM (19), JAMA Psyche (16)
2. 'ASAM'-iest journals for most downloaded or discussed:
   - Addiction (6), J Add Med (2.4), JSAT (2.7), Drug Alc Dep (3.3), Am J Add (2.1), Substance Abuse (2.7)
3. Newsletters: BU's Alcohol, Other Drugs, and Health; NEJMJournalWatch; ASAM Weekly
4. Other Journals:
   - MMWR (13), PLoS Medicine (12), Jour Gen Int Med (5), JAMA Network Open (17), Cochrane Reviews (6)
5. Altmetric Scores and Top 100, Sarah and Josh's edits:
   - Altmetric.com is an 'Attention Score' : News coverage, tweets, blogs, treatment guidelines
   - Altmetric is NOT a citation count (# citations over time link to Journal Impact scores)

2020...the year that was

COVID-19...COVID-19...COVID-19...

Election...Election...Election…

Alcohol, tobacco, and drug consumption and treatment trends amidst COVID-19

Legal cannabis

Opioid epidemic

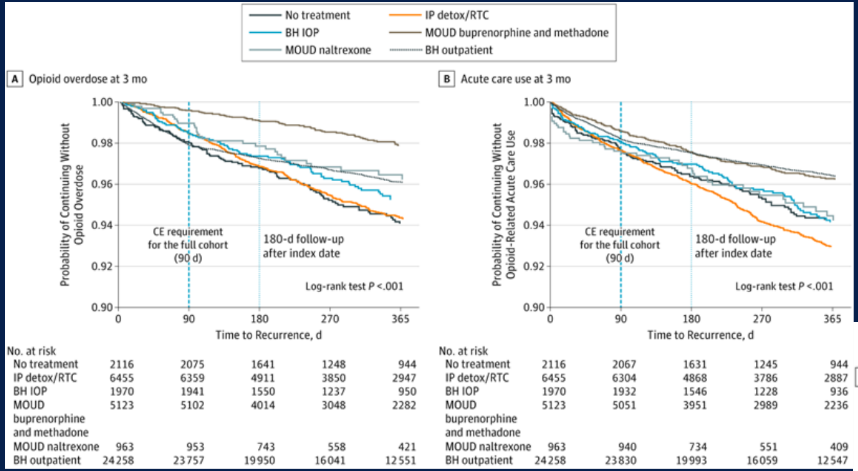
Principles of Addiction Medicine Chapters

Section		# Cites
1	Basic Science and Core Concepts (Neurobiology)	5
2	Pharmacology	?
3	Diagnosis, Assessment, Early Intervention	?
4	**Overview of Addiction Treatment**	1
5	Special Issues	4
6	Management of Intoxication and WD	1
7	Pharmacological Interventions	5
8	Behavioral Interventions	1
9	Mutual Help, 12-Step, and Other Recovery	1
10	Medical Disorders and Complications of Addiction	5
11	Co-Occurring Addiction and Psychiatric Disorders	1
12	Pain and Addiction	5
13	Children and Adolescents	4
14	Ethical, Legal, and Liability Issues in Addiction Practice	2

Highest Rated Addiction Med Paper of 2020?

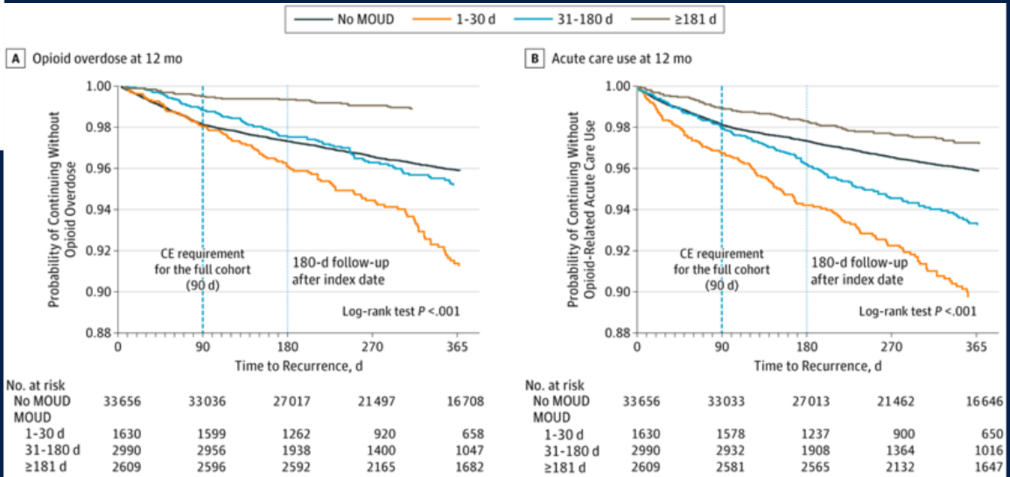
Wakeman, JAMA Network Open, 2020

Comparative Effectiveness of Different Treatment Pathways for Opioid Use Disorder



- Retrospective study using claims data to compare effectiveness of 6 different treatment pathways on outcomes of overdose and opioid-related acute care use.
- OUD was identified based on 1+ inpatient or 2+ outpatient claims for OUD diagnosis codes within 3 months of each other; 1+ claims for OUD plus diagnosis codes for opioid-related overdose, injection-related infection, or inpatient detoxification or residential services; or MOUD claims between January 1, 2015, and September 30, 2017.

- 40 885 individuals with OUD were identified. 59.3% received nonintensive behavioral health, 15.8% received inpatient detox/residential, 12.5% received buprenorphine or methadone, 4.8% received intensive behavioral health, and 2.4% received naltrexone.
- Only treatment with methadone or buprenorphine was associated with a reduction in overdose; 76% reduction in overdose at 3 months and 59% reduction in overdose at 12 months.
- Methadone and buprenorphine treatment were also associated with a reduction in opioid-related acute care utilization at 3 and 12 months.

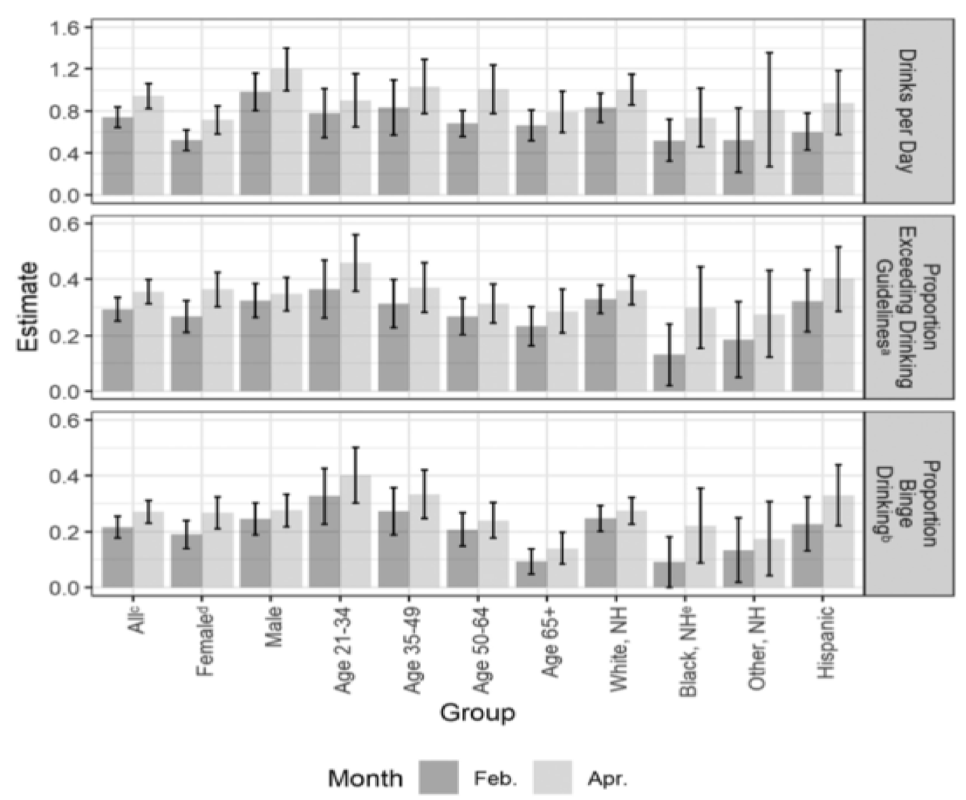


#ASAM2020

Barbosa, JAM, 2020

1. Epi, COVID-19 and Drinking: Alcohol Consumption in Response to COVID-19 Pandemic in the Unites States

- Cross-sectional online survey of 993 individuals using a probability-based panel designed to represent the US population 21 and older used to assess drinking patterns before and after enactment of stay at home orders.
- Compared to February, respondents in April reported an increase in drinks per day of +29%, P <0.001) and a greater proportion exceeding drinking limits (+20% P<0.001) and binge drinking (+21%, P=0.001)
- Differences were larger for women than men (P=0.026) and for Black non-Hispanic people than White, non hispanic people (P=0.028)
- Concluded association among COVID-19 pandemic and alcohol consumption



Ross, DAD, 2020

1. Core Causation: Twins and Cannabis: Investigating the Causal Effect of Cannabis Use on Cognitive Function with a Quasi-Experimental Co-Twin Design

- Examined the phenotype associations between cannabis initiation, frequency, and use disorder with cognitive abilities, while controlling for pre-use general ability and other substance involvement
- There were few within-family twin -specific associations, except that age 17 cannabis frequency was associated with worse age 23 Common EF and general cognitive ability.
- Little support for casual effect of cannabis use on cognition

Table 2
Unstandardized coefficients for the phenotypic analyses of the association between cannabis use variables with intelligence and executive functions.

Dependent (Cognitive) and Independent (Cannabis) Variables	Path from Cannabis Variable
Model Set 1: **Raven (age 17)**	
Age of cannabis initiation ($N = 718$)	0.435**
Cannabis frequency (age 17; $N = 757$)	−0.269
CUD (age 17; $N = 758$)	−2.449
Model Set 2: **Raven-S (age 23)**	
Age of cannabis initiation ($N = 713$)	0.378**
Cannabis frequency (age 17; $N = 666$)	−0.259
CUD (age 17; $N = 667$)	−1.982
Cannabis frequency (age 23; $N = 710$)	−0.298*
CUD (age 23; $N = 698$)	−1.382
Model Set 3: **WAIS (age 17)**	
Age of cannabis initiation ($N = 720$)	0.128*
Cannabis frequency (age 17; $N = 759$)	−0.060
CUD (age 17; $N = 760$)	−0.552
Model Set 4: **Common EF (age 17)**	
Age of cannabis initiation ($N = 706$)	0.017*
Cannabis frequency (age 17; $N = 751$)	−0.020
CUD (age 17; $N = 751$)	−0.198*
Model Set 5: **Common EF (age 23)**	
Age of cannabis initiation ($N = 717$)	0.008
Cannabis frequency (age 17; $N = 670$)	−0.009
CUD (age 17; $N = 671$)	−0.094
Cannabis frequency (age 23; $N = 714$)	−0.004
CUD (age 23; $N = 702$)	−0.047
Model Set 6: **Updating-Specific (age 17)**	
Age of cannabis initiation ($N = 706$)	−0.001
Cannabis frequency (age 17; $N = 751$)	0.006
CUD (age 17; $N = 751$)	0.049
Model Set 7: **Updating-Specific (age 23)**	
Age of cannabis initiation ($N = 717$)	−0.008
Cannabis frequency (age 17; $N = 670$)	0.008
CUD (age 17; $N = 671$)	0.067
Cannabis frequency (age 23; $N = 714$)	0.001
CUD (age 23; $N = 702$)	0.079
Model Set 8: **Shifting-Specific (age 17)**	
Age of cannabis initiation ($N = 706$)	−0.004
Cannabis frequency (age 17; $N = 751$)	−0.011
CUD (age 17; $N = 751$)	−0.179
Model Set 9: **Shifting-Specific (age 23)**	
Age of cannabis initiation ($N = 717$)	0.004
Cannabis frequency (age 17; $N = 670$)	−0.011
CUD (age 17; $N = 671$)	−0.134
Cannabis frequency (age 23; $N = 714$)	−0.008
CUD (age 23; $N = 702$)	−0.032

Investigating the Causal Effect of Cannabis Use on Cognitive Function with a Quasi-Experimental Co-Twin Design (Continued)

Table 3
Within- and between-family unstandardized regression coefficients for the association between cannabis use variables with intelligence and executive functions.

Dependent (Cognitive) and Independent (Cannabis) Variables	Total Within-Family Effect	MZ Within-Family Effect	DZ Within-Family Effect	Between-Family Effect
Model Set 1: **Raven (age 17)**				
Age of cannabis initiation (*N* = 718)	0.238	0.264	0.209	0.482**
Cannabis frequency (age 17; *N* = 757)	−0.065†	−0.365	0.273	−0.417
CUD (age 17; *N* = 758)	1.808†	0.197	3.624*	−5.33**
Model Set 2: **Raven-S (age 23)**				
Age of cannabis initiation (*N* = 713)	0.255	0.209	0.306	0.407**
Cannabis frequency (age 17; *N* = 666)	−0.163†	−0.528*	0.220	−0.350
CUD (age 17; *N* = 667)	−0.949	−0.669	−1.246	−2.309
Cannabis frequency (age 23; *N* = 710)	−0.159	−0.075	−0.250	−0.342*
CUD (age 23; *N* = 698)	0.357	−0.547	1.341	−2.543
Model Set 3: **WAIS (age 17)**				
Age of cannabis initiation (*N* = 720)	0.039	0.023	0.057	0.149*
Cannabis frequency (age 17; *N* = 759)	−0.031	−0.020	−0.043	−0.075
CUD (age 17; *N* = 760)	0.091	−0.248	0.471	−1.012
Model Set 4: **Common EF (age 17)**				
Age of cannabis initiation (*N* = 706)	0.002	0.010	−0.006	0.019*
Cannabis frequency (age 17; *N* = 751)	−0.019	−0.016	−0.022	−0.003
CUD (age 17; *N* = 751)	−0.136†	0.009	−0.297	−0.189
Model Set 5: **Common EF (age 23)**				
Age of cannabis initiation (*N* = 717)	−0.009	0.000	−0.019	0.012
Cannabis frequency (age 17; *N* = 670)	−0.023**	−0.023*	−0.023**	−0.001
CUD (age 17; *N* = 671)	−0.031	0.083	−0.152	−0.095
Cannabis frequency (age 23; *N* = 714)	−0.006	−0.009	−0.004	−0.001
CUD (age 23; *N* = 702)	−0.010	−0.052	0.035	−0.079
Model Set 6: **Updating-Specific (age 17)**				
Age of cannabis initiation (*N* = 706)	0.019	0.029	0.008	−0.004
Cannabis frequency (age 17; *N* = 751)	−0.002	0.003	−0.007	0.002
CUD (age 17; *N* = 751)	−0.056	−0.011	−0.106	0.102
Model Set 7: **Updating-Specific (age 23)**				
Age of cannabis initiation (*N* = 717)	−0.003	−0.005	−0.001	−0.008
Cannabis frequency (age 17; *N* = 670)	0.007	−0.001	0.016	0.001
CUD (age 17; *N* = 671)	−0.007	−0.032	0.018	0.105
Cannabis frequency (age 23; *N* = 714)	−0.005	−0.002	−0.008	0.001
CUD (age 23; *N* = 702)	0.033	−0.024	0.094	0.119
Model Set 8: **Shifting-Specific (age 17)**				
Age of cannabis initiation (*N* = 706)	−0.023	−0.016	−0.031	0.000
Cannabis frequency (age 17; *N* = 751)	0.002	0.010	−0.008	−0.003
CUD (age 17; *N* = 751)	−0.009	0.077	−0.105	−0.240
Model Set 9: **Shifting-Specific (age 23)**				
Age of cannabis initiation (*N* = 717)	−0.006	−0.019	−0.033	0.005
Cannabis frequency (age 17; *N* = 670)	−0.003	0.009	−0.017	−0.002
CUD (age 17; *N* = 671)	0.079	0.152	0.001	−0.225
Cannabis frequency (age 23; *N* = 714)	−0.004	−0.009	0.002	−0.002
CUD (age 23; *N* = 702)	0.070	0.067	0.072	−0.113

Shiffman, Addiction, 2020

1. Core Epi: Dependence on E-cigarettes and Cigarettes in a Cross-Sectional Study of US Adults

- Cross-sectional data from the Population Assessment of Tobacco and Health (PATH) study from 2013–2016.
- 16-item scale assessing tobacco dependence
- Current users: dependence on e-cigs was significantly lower than dependence on cigarettes, in within-subjects comparisons among dual users of both e-cigarettes and cigarettes, and in separate groups of e-cigarette users and cigarette smokers ,and among both daily and non-daily users of each product
- Former users: residual symptoms for e-cigarettes < cigarettes with dual users and separate users
- Use of e-cigarettes appears to be associated with lower nicotine dependence and smoking
- Dependence on e-cigarettes was lower than dependence on cigarettes in dual users (1.58 [SE=0.05] vs. 2.76 [0.04]), P<0.0001) and in separate users (1.95 [0.05] vs. 2.76 [0.04]), P< 0.0001).
- Use of e-cigarettes appears to be consistently associated with lower nicotine dependence than cigarette smoking.

Table 3 Comparisons of dependence on cigarettes and e-cigarettes.

	Adjusted analysis[a]										
	Cigarette dependence				*E-cigarette dependence*						
Current users	*n*	*k*	*Mean*	*SE*	*n*	*k*	*Mean*	*SE*	M_{CIG}-M_{ECIG}	*95% CI*	*p*[b]
Current non-dual users	9768	19 089	2.52	0.02	2310	3382	1.95	0.05	0.56	0.51,0.62	<0.001
Daily cigarettes or e-cigarettes	8271	15 927	2.81	0.02	1149	1671	2.22	0.07	0.58	0.51,0.65	<0.001
Non-daily cigarettes or e-cigarettes	2310	3133	1.64	0.03	1374	1694	1.56	0.06	0.08	0.02,0.15	<0.001
Current dual users (within-subjects)	1277	1664	2.76	0.04	1277	1664	1.58	0.05	1.18	1.07,1.30	<0.001
Both cigarettes and e-cigarettes daily	321	364	2.94	0.12	321	364	1.81	0.09	1.13	0.90,1.36	<0.001
Both cigarettes and e-cigarettes non-daily	155	164	2.14	0.09	155	164	1.38	0.08	0.76	0.51,1.01	<0.001
Former users											
Former non-dual users	2155	2474	1.53	0.03	1735	2022	1.28	0.03	0.25	0.20,0.31	<0.001
Former non-dual users, quit in past 6 months	1587	1779	1.61	0.04	1269	1429	1.33	0.04	0.28	0.22,0.34	<0.001
Former non-dual users, quit in past 3 months	1151	1258	1.71	0.05	870	959	1.42	0.06	0.29	0.20,0.37	<0.001
Former dual users (within-subjects)	173	179	1.41	0.06	173	179	1.23	0.07	0.19	0.02,0.35	<0.001
Current e-cigarette users, smokers vs. former smokers	E-cigarette dependence: stopped smoking[c]				E-cigarette dependence: smoking						
Current e-cigarette users[d]	428	465	2.17	0.08	1277	1664	1.58	0.05	0.59	0.47,0.72	<0.001
Daily e-cigarette use	364	399	2.31	0.10	532	628	1.92	0.08	0.39	0.25,0.53	<0.001
Non-daily e-cigarette use	64	65	1.14	0.05	854	1029	1.24	0.03	−0.11	−0.20,	<0.036

Friedman, JAMA Network Open, 2020

1. Epi of Vaping: Associations of Flavored e-Cigarette Uptake With Subsequent Smoking Initiation and Cessation

- Cohort study to evaluate whether new uptake of flavored e-cigarettes is more strongly associated with subsequent smoking initiation and cessation than uptake of unflavored e-cigarettes, separately for youths (12-17 years), emerging adults (18-24 years), and prime-age adults (25-54 years) (n=17,929)
- Vaping uptake was positively associated with smoking initiation in youth (adjusted odds ratio [AOR], 6.75; 95% CI, 3.93-11.57; P < .001) and in emerging adults (AOR, 3.20; 95% CI, 1.70-6.02; P < .001). Vaping uptake was associated with cessation in adults (AOR, 1.34; 95% CI, 1.02-1.75; P = .03)

Figure 1. Adjusted Odds Ratios for the Association of Vaping Uptake With Subsequent Smoking Behavior

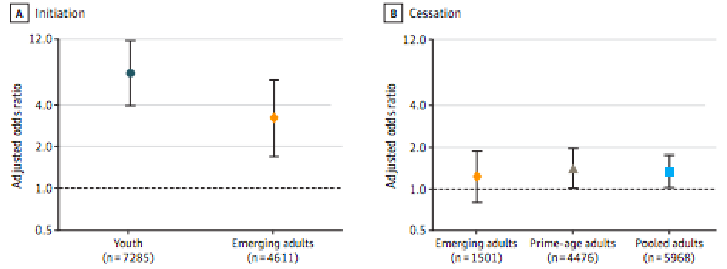


Table 1. Summary Statistics for Those Who Did Not Smoke or Vape at Baseline, Among Youths and Emerging Adults[a]

	Vaped, % (95% CI)			
Wave 2 vaping status	No	Yes	Flavored	Unflavored
Youths (12-17 y)				
No.	7096	164	129	14
Ever tried cigarettes, wave 1	4.86 (4.24-5.57)	22.77 (15.79-31.67)	21.64 (14.64-30.78)	35.56 (10.63-71.91)
Smoked in past 30 d, wave 3	2.84 (2.40-3.35)	21.80 (16.16-28.73)	19.47 (13.82-26.71)	41.76 (14.80-74.74)
Male youths	51.18 (49.79-52.57)	56.69 (48.41-64.62)	57.19 (48.20-65.73)	42.83 (19.96-69.23)
Race				
White	66.88 (64.15-69.51)	74.56 (68.05-80.14)	72.36 (64.74-78.88)	88.68 (58.33-97.77)
Black	15.28 (13.27-17.53)	7.84 (4.57-13.14)	7.49 (3.64-14.79)	6.82 (0.75-41.53)
Other	13.68 (12.28-15.21)	13.53 (8.94-19.95)	16.32 (10.56-24.37)	0
Hispanic	22.40 (19.66-25.41)	20.64 (14.96-27.77)	19.95 (13.98-27.66)	23.39 (7.74-52.63)
Parental education				
<High school	17.18 (15.67-18.79)	18.78 (13.01-26.32)	20.11 (13.62-28.68)	20.94 (5.93-52.66)
High school graduate	17.35 (16.14-18.63)	19.58 (13.71-27.18)	18.43 (12.07-27.10)	29.31 (6.92-69.80)
Some college	30.79 (28.96-32.68)	30.60 (23.98-38.14)	34.14 (26.29-42.98)	4.69 (0.51-32.26)
≥College degree	34.17 (31.60-36.83)	31.04 (23.27-40.04)	27.32 (19.32-37.10)	45.07 (17.88-75.56)
Parental household income, $				
<10 000	7.23 (6.21-8.40)	7.76 (4.36-13.46)	7.53 (3.83-14.27)	10.71 (2.06-40.67)
10 000-24 999	13.86 (12.64-15.19)	15.76 (11.23-21.67)	16.13 (10.33-24.30)	21.29 (3.53-66.65)
25 000-49 999	20.02 (18.78-21.32)	17.99 (12.08-25.94)	14.65 (8.83-23.31)	29.99 (9.57-63.43)
50 000-99 999	23.41 (22.15-24.72)	28.54 (21.19-37.23)	28.11 (20.24-37.60)	21.46 (5.50-56.17)
≥100 000	23.61 (21.61-25.73)	21.82 (14.33-31.77)	23.79 (15.61-34.50)	16.55 (3.44-52.46)
Emerging adults (18-24 y)				
No.	4517	102	92	8
Ever tried cigarettes, wave 1	40.03 (38.00-42.10)	67.52 (54.51-78.29)	69.41 (56.08-80.13)	47.51 (11.97-85.77)
Established smoking, wave 3	5.34 (4.69-6.06)	21.91 (14.68-31.39)	23.79 (15.96-33.91)	8.17 (0.70-52.74)
Male emerging adults	47.00 (45.43-48.57)	65.73 (54.90-75.14)	62.68 (51.39-72.74)	93.84 (55.01-99.48)
Race				
White	65.44 (62.53-68.24)	71.25 (59.28-80.83)	70.48 (57.92-80.55)	74.59 (31.84-94.86)
Black	15.50 (13.46-17.79)	11.38 (6.29-19.71)	10.93 (5.76-19.77)	16.52 (2.49-60.57)
Other	15.36 (13.46-17.49)	13.51 (6.94-24.66)	14.22 (7.00-26.76)	8.89 (0.77-55.08)
Hispanic	21.82 (19.29-24.57)	23.22 (14.82-34.45)	25.18 (15.92-37.43)	8.89 (0.77-55.08)
Any college at baseline	59.40 (57.26-61.51)	39.77 (29.69-50.81)	42.26 (31.37-53.97)	17.07 (2.76-59.86)
Household income, $				
<10 000	24.17 (22.47-25.94)	22.85 (15.25-32.78)	24.48 (16.11-35.37)	0
10 000-24 999	20.14 (18.46-21.93)	23.87 (14.94-35.88)	24.64 (14.93-37.84)	19.94 (3.26-64.76)
25 000-49 999	16.89 (15.56-18.30)	14.82 (8.10-25.56)	13.13 (7.00-23.27)	31.14 (4.62-80.86)
50 000-99 999	15.40 (14.16-16.73)	12.83 (7.19-21.88)	13.59 (7.40-23.62)	7.77 (0.67-51.33)
≥100 000	10.64 (9.25-12.22)	12.04 (6.03-22.59)	8.83 (3.94-18.60)	41.15 (8.55-83.94)

[a] Sample-weighted means use data from Population Assessment of Tobacco and Health Study waves 1 to 3. Age groups are based on age at wave 1. A total of 51 youths and 15 … ethnicity, (parental) education, and (parental) income were missing in 0.26%, 4.18%, 2.33%, 0.50%, and 11.78% of youth observations, respectively; for emerging adults,

Bidwell, JAMA Psychiatry, 2020

Association of Naturalistic Administration of Cannabis Flower and Concentrates with Intoxication and Impairment

- 121 participants: 55 flower users and 66 concentrate users
- Mean plasma THC levels were 0.32 (SE=0.43) ug/mL in concentrate users and 0.14 (SE=0.16) ug/mL in flower users
- Delayed verbal memory and balance function were impaired after use, with no difference outcome per type of product
- Short-term use of concentrates was associated with higher levels of THC exposure.

Figure 2. Subjective Drug Effects After Use of Cannabis by Cannabis Form and Potency During Acute Mobile Laboratory Session

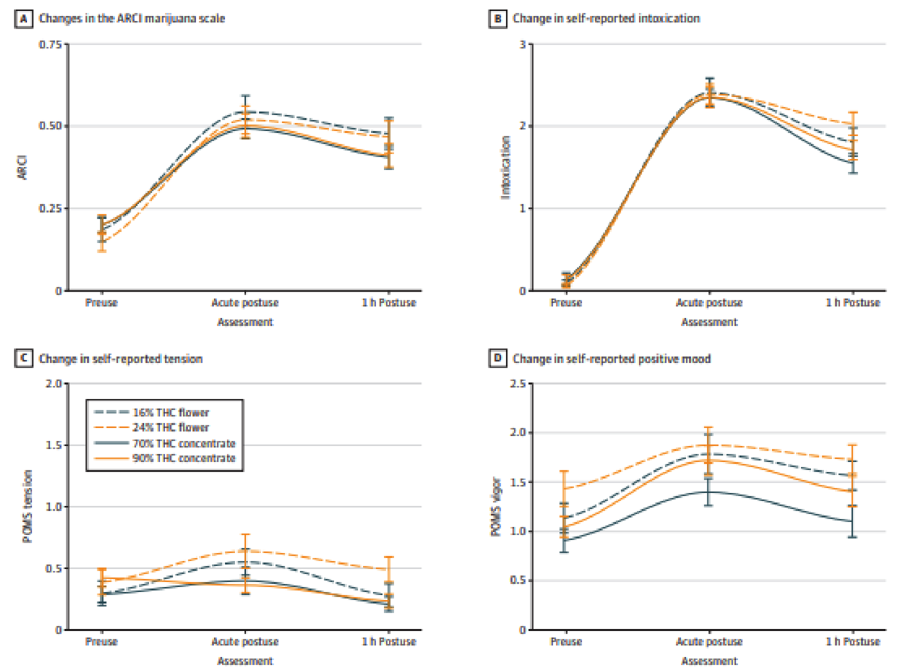
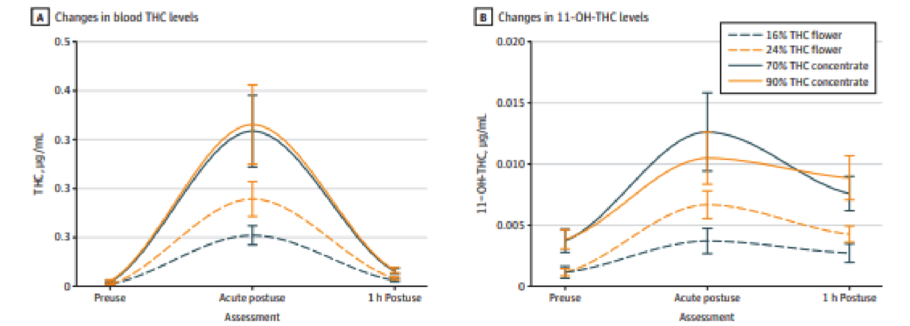


Figure 1. Blood Levels by Cannabis Form and Potency During Acute Mobile Laboratory Session



Bae, Addiction, 2020

3. Early Ed: Marijuana use trends among college students in states with and without legalization of recreational use: initial and longer-term changes from 2008 to 2018

- Cross-sectional National College Health Assessment survey administered twice yearly from 2008 to 2018 to investigate changes in students' marijuana use following recreational marijuana legalization (RML). Participants were undergraduates aged 18–26 years attending college in US states that did (n = 234 669 in seven states) or did not (n = 599 605 in 41 states) enact RML between 2008 and 2018.

- Prevalence of 30-day marijuana use increased more among students exposed to RML [odds ratio (OR) = 1.23, 95% confidence interval (CI) = 1.19–1.28, P < 0.001] than among non-RML state students throughout the same time-period;

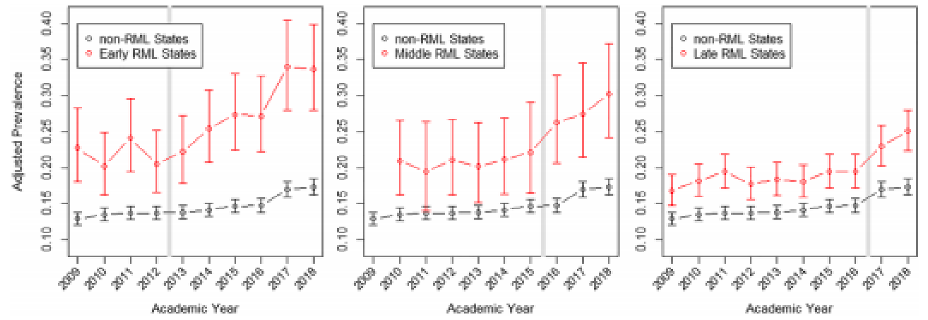


Figure 1 Adjusted prevalence trends of 30-day marijuana use comparing early, middle and late recreational marijuana legalization (RML) states versus non-RML states. Adjusted prevalence estimates are predicted by a logistic regression model that included the indicators for early, middle, late and non-RML states, academic year, interaction between the indicators and academic year, institutions and study covariates (gender, sexual orientation, relationship status, type of residence, race/ethnicity, first-year status, legal age status, international student status, membership in the fraternity/sorority, private/public institution, season of survey administration, enrollment size, population and geographical regions). Estimates are derived from a single model; however, for a clearer illustration, panels are separated by early RML states versus non-RML states (left panel), middle RML states versus non-RML states (middle panel) and late RML states versus non-RML states (right panel). Gray vertical bars indicate when legalization was enacted in each group of states. Whiskers indicate error bars. [Colour figure can be viewed at wileyonlinelibrary.com]

Beard, Addiction, 2020

5. Special Issues: Smoking Vaping Natural History: Association of prevalence of electronic cigarette use with smoking cessation and cigarette consumption in England: a time–series analysis between 2006 and 2017

- Time–series analysis involving repeated, cross-sectional household surveys of individuals aged 16 years and older to provide up-to-date estimates of how changes in the prevalence of electronic cigarette (e-cigarette) use have been associated with changes in smoking cessation activities and daily cigarette consumption among smokers in England. Data were aggregated on approximately 1200 past-year smokers each quarter (total n = 50,498) between 2007 and 2017
- Overall quit rates increased by 0.054% [95% confidence interval (CI) = 0.032 –0.076, P < 0.001] and 0.050% (95% CI = 0.031–0.069, P < 0.001) respectively for every 1% increase in the prevalence of e-cigarette use by smokers and e-cigarette use during a quit attempt.

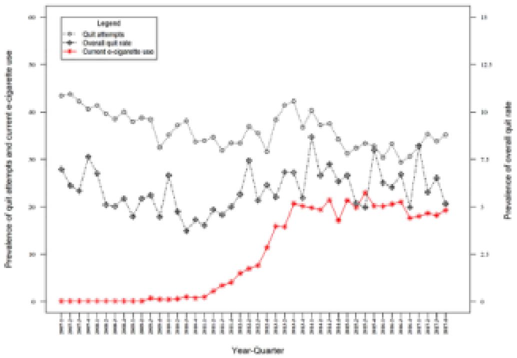


Figure 1 Quarterly prevalence of quit attempt rate, overall quit rate and current use of e-cigarettes in England [Colour figure can be viewed at wileyonlinelibrary.com]

Table 2 *Adjusted estimated percentage point changes in quitting activities and cigarette consumption as a function of use of e-cigarettes during a quit attempt, based on ARIMAX models.*

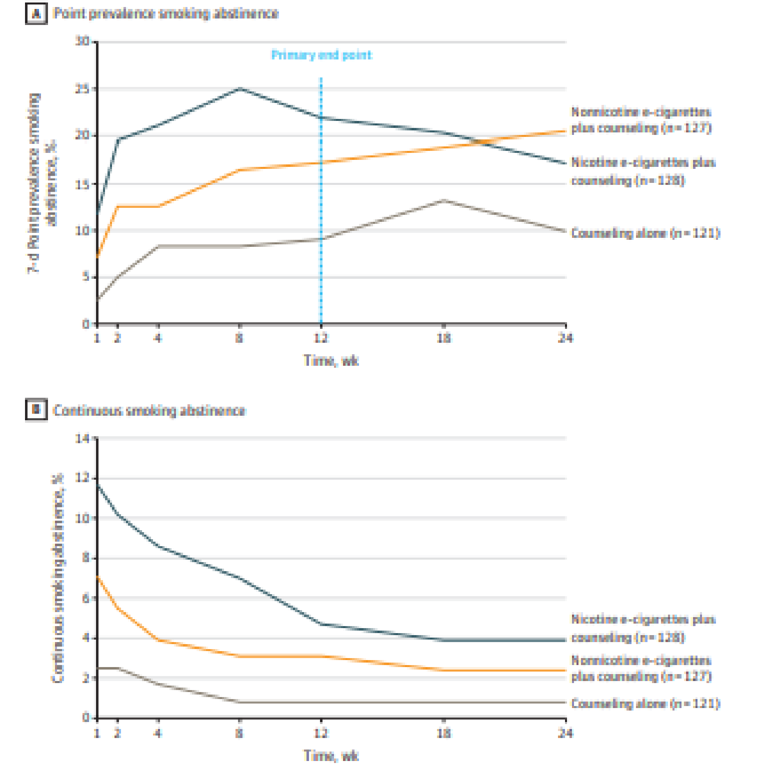
	Quit success rate			*Overall quit rate*		
	Percentage change per 1% change in the exposure	*95% CI*	*P-value*	*Percentage change per 1% change in the exposure*	*95% CI*	*P-value*
Prevalence of e-cigarette use during a quit attempt	0.060	0.043 to 0.078	< 0.001	0.050	0.031 to 0.069	< 0.001
Mass media	0.143	0.055 to 0.231	0.001	0.212	0.1179 to 0.305	< 0.001
	Total change due to the exposure	*95% CI*	*P-value*	*Total change due to the exposure*	*95% CI*	*P-value*
Smoking ban (temporary impact in third quarter of 2007)	0.400	0.126 to 0.674	0.004	0.472	0.186 to 0.759	0.001
Increase in age of sale (temporary impact in fourth quarter of 2007)	0.318	0.041 to 0.596	0.025	0.439	0.147 to 0.731	0.003
Move to local authority (temporary impact in second quarter of 2013)	−0.216	−0.489 to 0.056	0.120	−0.020	−0.308 to 0.269	0.895
Tobacco control directive (temporary impact in the second quarter of 2016)	0.181	−0.091 to 0.453	0.192	0.130	−0.157 to 0.417	0.375
Model	$ARIMA(0,1,1)(1,0,0)_4$			$ARIMA(0,1,1)(1,0,0)_4$		
Lag for e-cigarettes	No lag			No lag		
Lag for mass media	No lag			No lag		
Adjusted R^2	48.61			47.47		

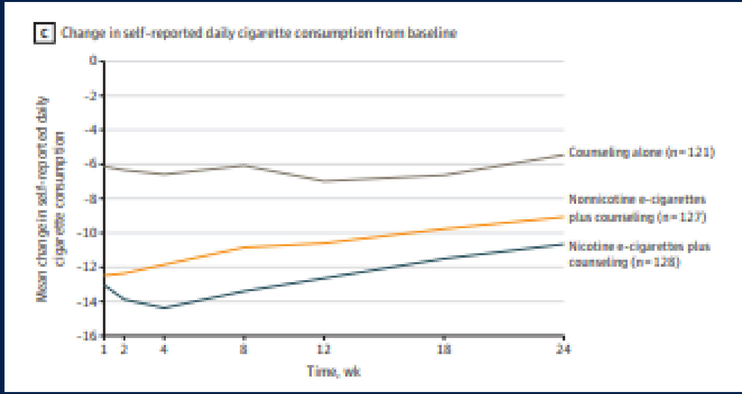
ARIMA = autoregressive integrated moving average analysis; ARIMAX = Autoregressive Integrated Moving Average with Exogenous Input; CI = confidence interval.

Eisenbeg, JAMA, 2020

A 5. Special Issue?: Effect of e-Cigarettes Plus Counseling vs Counseling Alone on Smoking Cessation: A Randomized Clinical Trial

- 76 randomized participants (mean age, 52 years; 178 women [47%]),
  - 299 (80%) and 278 (74%) self-reported smoking status at 12 and 24 weeks, respectively.
- Among adults motivated to quit smoking, nicotine e-cigarettes plus counseling vs counseling alone significantly increased point prevalence abstinence at 12 weeks (21.9% vs 9.1%; risk difference [RD], 12.8 [95% CI, 4.0 to 21.6]), but not 24 weeks (17.2% vs 9.9%; RD, 7.3 [95% CI, –1.2 to 15.7])
- Interpretation is limited by early trial termination, and further research is needed regarding long-term efficacy of e-cigarettes for smoking cessation.



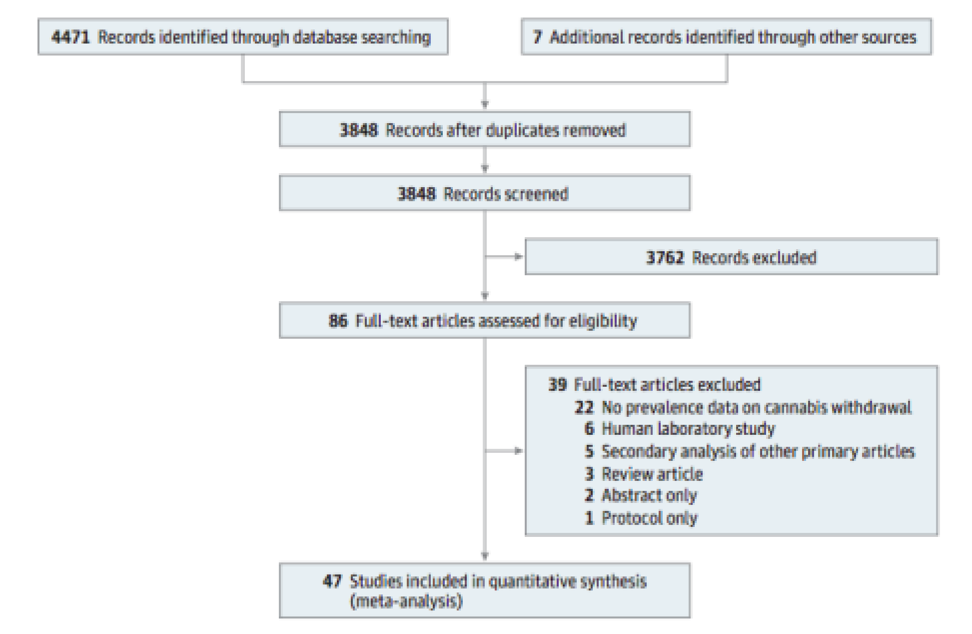


Bahji, JAMA Network Open, 2020

6. Withdrawal: Prevalence of Cannabis Withdrawal Symptoms Among People With Regular or Dependent Use of CannabinoidsA Systematic Review and Meta-analysis

- Systematic review and meta-analysis conducted to estimate the prevalence of Cannabis Withdrawal Syndrome (CWS) and identify contributors to heterogeneity in reported results.
- The overall pooled prevalence of CWS was 47% (6,469 of 23,518) (95% CI, 41%-52%), with significant heterogeneity between estimates (I 2 = 99.2%).
- Concurrent cannabis (β = 0.005, P < .001), tobacco (β = 0.002, P = .02), and other substance use disorders (β = 0.003, P = .05) were associated with a higher CWS prevalence, as was daily cannabis use (β = 0.004, P < .001).

Figure 1. PRISMA Flowchart of Study Selection



McGinty, Annals Internal Medicine, 2020

7. PharmacoRx: Medication for Opioid Use Disorder: A National Survey of Primary Care Physicians

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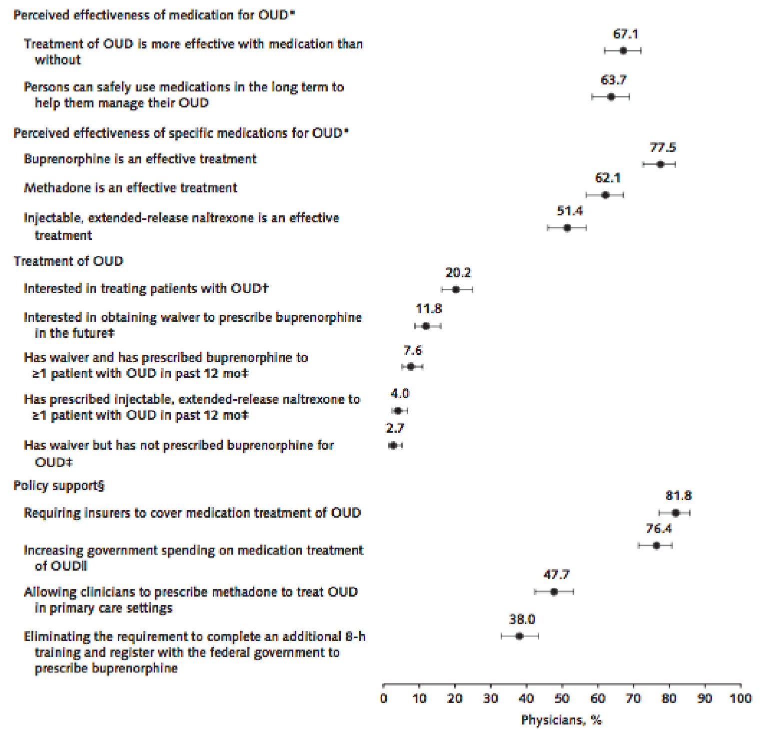
- Questionnaire mailed to nationally representative, random sample of 1000 U.S. family, internal and general medicine physicians selected from the AMA Physician Masterfile.
- Of the 668 eligible physicians, 54% (n = 361) responded to the survey.
- Two thirds of physicians believed that treatment of OUD is more effective with medication than without (67.1%). Physicians were more likely to perceive buprenorphine (77.5%) as effective than methadone (62.1%) or injectable, extended -release naltrexone (51.4%). Few reported prescribing buprenorphine (7.6%) or naltrexone (4.0%) for OUD, and few expressed interest in obtaining a buprenorphine waiver (11.8%). Fewer than half supported allowing physicians to prescribe methadone for OUD in primary care settings (47.7%) or eliminating the buprenorphine waiver requirement (38.0%).

Figure. U.S. primary care physicians' attitudes about medication for treatment of OUD.



ASAM

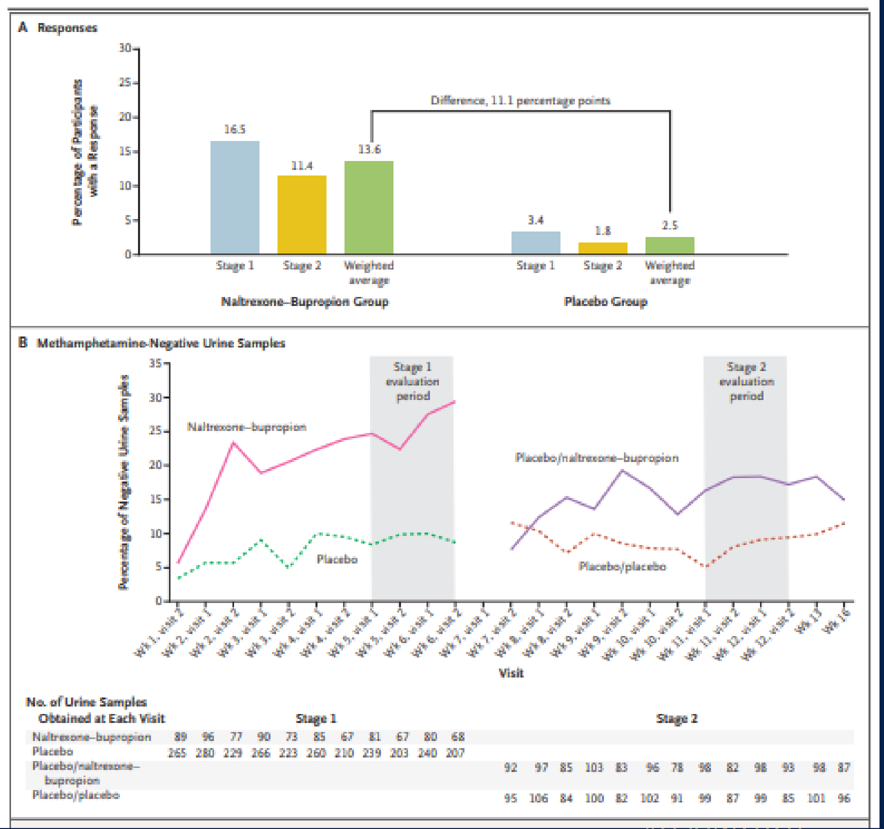
Trivedi, NEJM, 2020

7. Pharmacotherapy: Bupropion and Naltrexone in Methamphetamine Use Disorder

- Multisite, double-blind, two-stage, placebo-controlled sequential parallel comparison
- efficacy and safety of extended-release injectable naltrexone (380 mg every 3 weeks) plus oral extended-release bupropion (450 mg per day) in adults with moderate or severe methamphetamine use disorder.
- Response over a period of 12 weeks among participants who received extended-release injectable naltrexone plus oral extended-release bupropion was low but was higher than placebo

Table 2. Primary and Secondary Outcomes in the Intention-to-Treat Population.*

Outcome	Stage 1		Stage 2		Treatment Effect	
	Naltrexone–Bupropion (N=109)	Placebo (N=294)	Naltrexone–Bupropion (N=114)	Placebo (N=111)	Weighted Difference	95% CI
Primary outcome — no. of participants (%)†	18 (16.5)	10 (3.4)	13 (11.4)	2 (1.8)	11.1±2.5	—
Secondary outcomes						
Methamphetamine-negative urine samples — %‡	20.4±2.2	12.3±1.6	19.2±2.6	13.4±1.5	6.8±1.7	3.5 to 10.1
Change in methamphetamine craving according to visual analogue scale§	−30.0±3.2	−22.3±1.8	−31.8±3.2	−20.5±1.7	−9.7±2.1	−13.8 to −5.6
Change in score on PHQ-9 depression scale§	−4.8±0.7	−3.3±0.3	−4.4±0.6	−3.7±0.4	−1.1±0.4	−1.9 to −0.2
Change in score on Treatment Effectiveness Assessment§¶	6.5±1.5	2.2±1.0	6.2±1.5	2.5±1.1	4.0±0.9	2.3 to 5.7



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Bricker, JAMA Internal Medicine, 2021

8. mHealth for smoking: Efficacy of Smartphone Applications for Smoking Cessation: A Randomized Clinical Trial

- 2-group stratified, double-blind, individually randomized clinical trial
- Comparing efficacy of iCanQuit, based on Acceptance and Commitment Therapy (ACT) and QuitGuide, based on US Clinical Practice Guidelines (USCPG)
- 2415 adult cigarette smokers, QuitGuide n=1201, iCanQuit n=1214
- For primary 30-day PPA at 12-month follow up, iCanQuit participants had 1.49 times higher odds of quitting compared to QuitGuide participants (28.2% [293 of 1040] vs 21.1% [225 of 1067]; OR, 1.49; 95% CI, 1.22-1.83; P<.001)
- Compared with a USCPG-based smartphone app, an ACT-based smartphone app is more efficacious for quitting cigarette smoking

Table 3. Smoking Cessation Outcomes by Follow-up Time Point[a]

Outcome variable	No. (%) Overall (N = 2415)	No. (%) QuitGuide (n = 1201)	No. (%) iCanQuit (n = 1214)	Odds ratio (95% CI)[b]	P value
12-mo Outcomes					
30-d PPA	518/2107 (24.6)	225/1067 (21.1)	293/1040 (28.2)	1.49 (1.22-1.83)	<.001
7-d PPA	658/2107 (31.2)	302/1067 (28.3)	356/1040 (34.2)	1.35 (1.12-1.63)	.002
Prolonged abstinence	181/1710 (10.6)	65/871 (7.5)	116/839 (13.8)	2.00 (1.45-2.76)	<.001
30-d PPA of all tobacco products (including e-cigarettes)	420/2107 (19.9)	175/1068 (16.4)	245/1039 (23.6)	1.60 (1.28-1.99)	<.001
6-mo Outcomes					
30-d PPA	423/2136 (19.8)	158/1078 (14.7)	265/1058 (25.0)	2.03 (1.63-2.54)	<.001
7-d PPA	618/2136 (28.9)	259/1078 (24.0)	359/1058 (33.9)	1.73 (1.42-2.10)	<.001
3-mo Outcomes					
30-d PPA	269/2093 (12.9)	94/1050 (9.0)	175/1043 (16.8)	2.20 (1.68-2.89)	<.001
7-d PPA	453/2093 (21.6)	168/1050 (16.0)	285/1043 (27.3)	2.04 (1.64-2.54)	<.001

Park, JAMA, 2020

8. Behavioral Interventions and More Counseling: Effect of Sustained Smoking Cessation Counseling and Provision of Medication vs Shorter-term Counseling and Medication Advice on Smoking Abstinence in Patients Recently Diagnosed With Cancer: A Randomized Clinical Trial

- Standard treatment (n=150) received 4 weekly telephone counseling sessions and medication advice.
- Intensive treatment (n = 153): 4 biweekly and 3 monthly telephone counseling sessions + choice of FDA approved cessation medication (nicotine replacement therapy, bupropion, or varenicline).
- Primary outcome: biochemically confirmed 7-day point prevalence tobacco abstinence at 6-month follow-up
- Six-month biochemically confirmed quit rates were 34.5% (n = 51 in the intensive treatment group) vs 21.5% (n = 29 in the standard treatment group) (difference, 13.0% [95% CI, 3.0%-23.3%]; odds ratio, 1.92 [95% CI, 1.13-3.27]; P < .02).

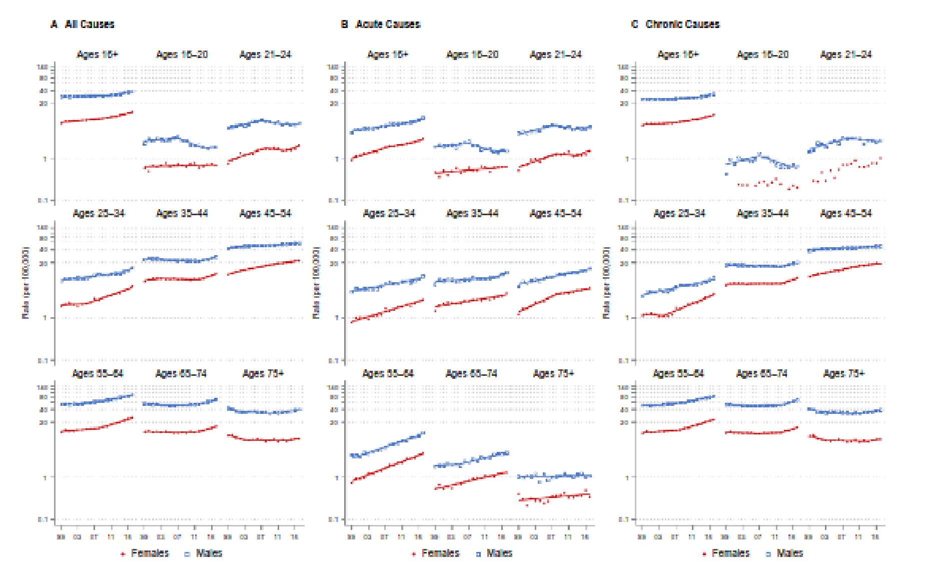
Table 3. Primary and Secondary Smoking Outcome Comparisons Between Treatment Groups

	No. (%)				
	Intensive treatment (n = 148)	Standard treatment (n = 135)	Absolute difference, % (95% CI)	Odds ratio (95% CI)	P value[a]
Primary outcome					
Biochemically confirmed 7-d point prevalence abstinence at 6 mo	51 (34.5)	29 (21.5)	13.0 (3.0 to 23.3)	1.92 (1.13 to 3.27)	.02
Secondary outcomes					
Biochemically confirmed 7-d point prevalence abstinence at 3 mo	46 (31.1)	28 (20.7)	10.3 (0.2 to 20.5)	1.72 (1.00 to 2.96)	.048
Self-reported 7-d point prevalence abstinence					
At 3 mo	57 (38.5)	38 (28.1)	10.4 (−0.5 to 21.3)	1.60 (0.97 to 2.64)	.07
At 6 mo	54 (36.5)	42 (31.1)	5.4 (−5.6 to 16.4)	1.27 (0.78-2.09)	.34
24-h Intentional quit attempt					
At 3 mo	91 (61.5)	80 (59.3)	2.2 (−9.2 to 13.6)	1.10 (0.68 to 1.77)	.70
At 6 mo	98 (66.2)	82 (60.7)	5.5 (−5.8 to 16.7)	1.27 (0.78 to 2.06)	.34
Continuous abstinence[b]					
At 3 mo	29 (19.6)	23 (17.0)	2.6 (−6.5 to 11.6)	1.19 (0.65 to 2.17)	.58
At 6 mo	39 (26.4)	28 (20.7)	5.6 (−4.3 to 15.5)	1.37 (0.79 to 2.38)	.27
Sustained abstinence at 6 mo[c]	35 (23.7)	17 (12.6)	11.1 (2.2 to 19.9)	2.15 (1.14 to 4.05)	.02

White, AC&E, 2020

10. Medical Harms: Using Death Certificates to Explore Changes in Alcohol-Related Mortality in the United States, 1999 to 2017

- The number of alcohol-related deaths per year among people aged 16+ doubled from 35,914 to 72,558
- Rate of alcohol-related deaths increased 50.9% from 16.9 to 25.5 per 100,000.
- Nearly half of alcohol-related deaths resulted from liver disease (30.7%; 22,245) or overdoses on alcohol alone or with other drugs (17.9%; 12,954).
- Rates of alcohol-related deaths were highest among males, people in age-groups spanning 45 to 74 years, and among non-Hispanic (NH) American Indians or Alaska Natives.



Spillane, JAMA Network Open, 2020

10. Medical Harms: Trends in Alcohol-Induced Deaths in the United States, 2000-2016

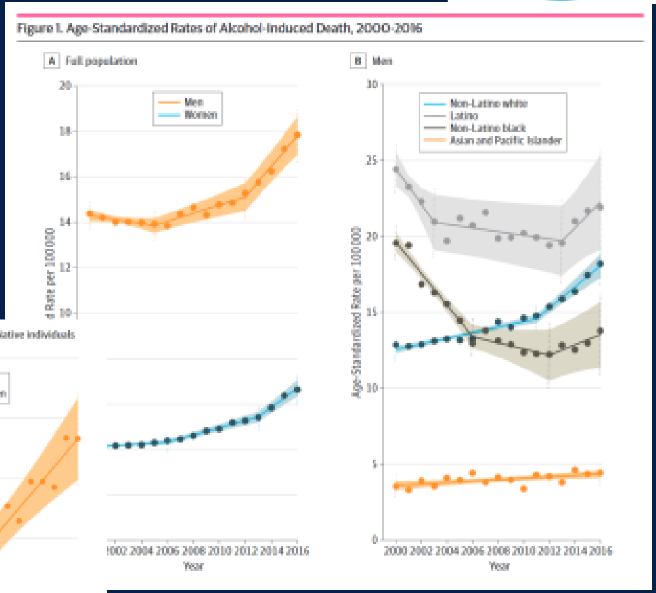
serial cross-sectional study used US national vital statistics data for years 2000 to 2016 for all US residents older than 15 years.

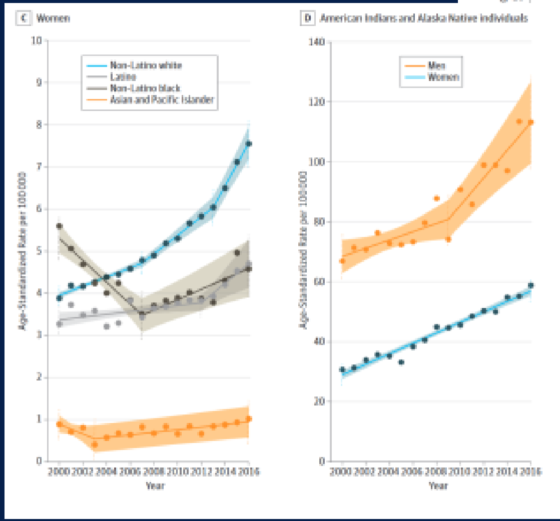
Main outcome: alcohol-induced mortality; mortality trends measured as average annual percentage changes

425 045 alcohol-induced deaths were identified from 2000 to 2016

Among white individuals, large absolute increases occurred in midlife (aged 55-59 years)

Among American Indian and Alaska Native individuals, increases throughout the age range were observed with the largest absolute increase occurring for ages 45 to 49 years among men





#ASAM2020

10. Medical Disorders: Drinking Less w AFib

Blagev, NEJM, 2020

Alcohol Abstinence in Drinkers with Atrial Fibrillation

- RCT in AUS
- Adults w Afib in NSR at baseline: Alcohol Abstinence vs. Usual Alcohol Intake
  - abstinence group: 17 to 2 standard drinks per week (-88%)
- control group: 16 to 13 (-20%)
- The atrial fibrillation burden was significantly lower in the abstinence group

Table 2. Alcohol Intake at Baseline.

Variable	Abstinence Group (N=70)	Control Group (N=70)
Alcohol intake — no. of standard drinks/wk	16.8±7.7	16.4±6.9
Beverages consumed — no. (%)		
Wine	48 (69)	47 (67)
Beer	34 (49)	34 (49)
Spirits	13 (19)	9 (13)
Binge drinking — no. (%)*	20 (29)	16 (23)

* Binge drinking was defined as consumption of 5 or more drinks on a single occasion at least once a month.

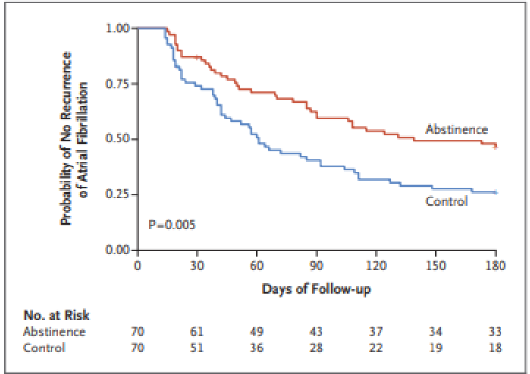


Figure 2. Time to Recurrence of Atrial Fibrillation.

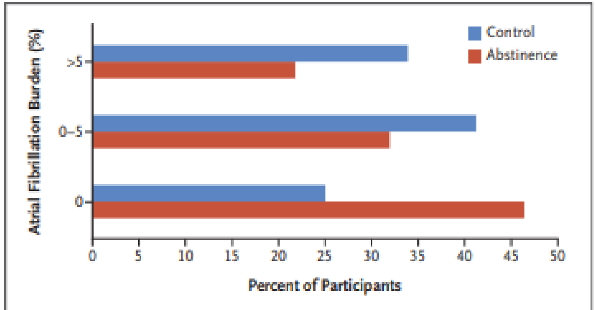
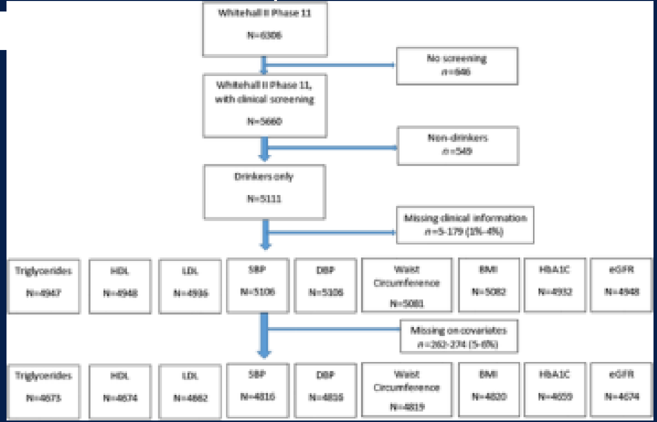


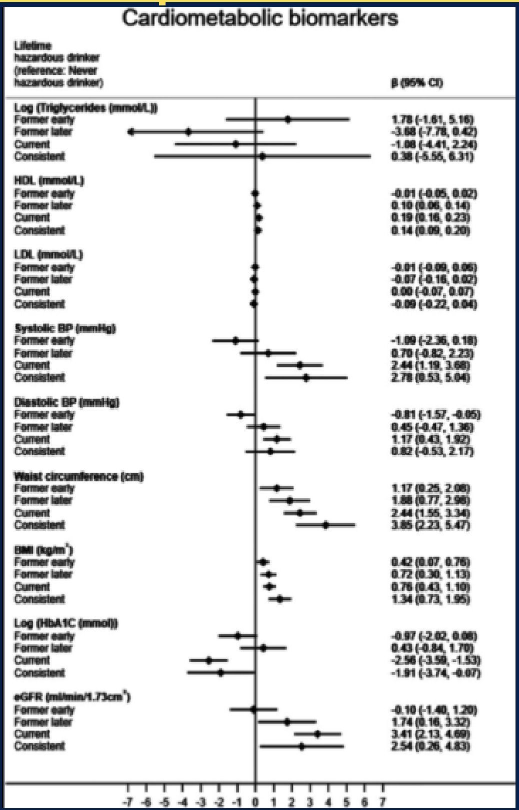
Figure 3. Atrial Fibrillation Burden in the Abstinence and Control Groups.
Atrial fibrillation burden is the percentage of time the patient was in atrial fibrillation during the entire 6-month follow-up period.

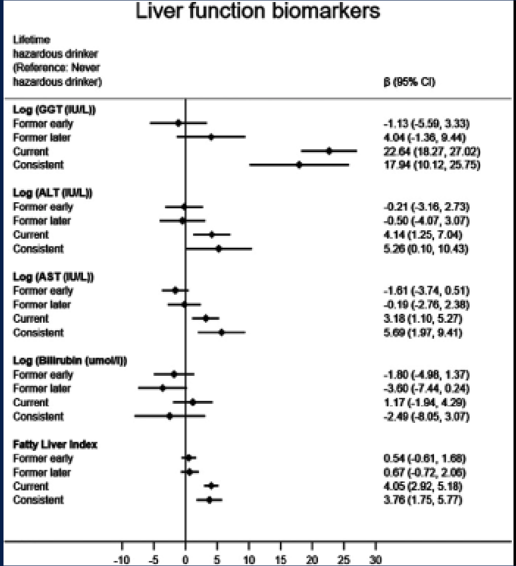
Ng Fat, Addiction, 2020

10. Medical Harms: A Life-time of Hazardous Drinking and Harm to Health Among Older Adults: Findings from the Whitehall II Prospective cohort study

Prospective cohort study with median follow-up time to CVD incidence of 4.5 years
4820 drinkers aged 59-83 with biological measurements during the 2011-2012 study
Current drinkers had higher systolic blood pressure (2.44mHg, CI- 1.50-3.34) and fatty liver index scores (4.95 mmHg, CI=2.92-5.18) then never hazardous drinkers
Lifetime binge drinking was associated with larger waist circumferences and poor liver function







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Dellazizzo, AJP, 2020

10/11. Harms and Co-Occurring DOs: Association Between the Use of Cannabis and Physical Violence in Youths: A Meta-Analytical Investigation

- All studies that examined both cannabis use and the perpetration of physical violence in a sample of youths and young adults ,30 years old were included.
- After screening 11,348 potential studies, 30 study arms were included, yielding a total of 296,815 adolescents and young adults Preliminary evidence suggests that the risk of violence was higher for persistent heavy users (odds ratio=2.81, 95% CI=1.68, 4.74) compared with past-year users (odds ratio=2.05, 95% CI=1.5, 2.8) and lifetime users (odds ratio=1.94, 95% CI=1.29, 2.93).

FIGURE 1. Flowchart of the meta-analysis search strategy yielding 30 study arms

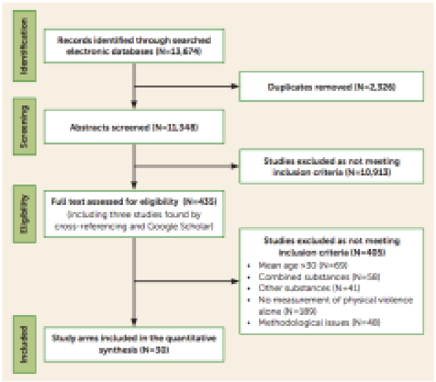
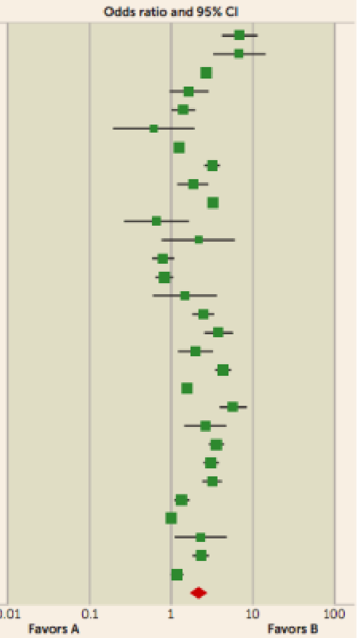


FIGURE 2. Forest plot of the association between cannabis use and physical violence in adolescents and young adults

Study name	Odds ratio	Lower limit	Upper limit	Z	p
Arsenault et al. (22)	6.900	4.138	11.506	7.404	0.000
Brook et al. (26)	6.800	3.220	14.362	5.025	0.000
Dukarm et al. (42)	2.700	2.300	3.170	12.141	0.000
Epstein-Ngo et al. (43)	1.660	0.952	2.895	1.786	0.074
Foshee et al. (59)	1.410	1.000	1.989	1.957	0.050
Liakoni et al. (21)	0.610	0.191	1.944	−0.836	0.403
McNaughton-Reyes et al. (60)	1.250	1.083	1.443	3.041	0.002
Mercado-Crespo et al. (23)	3.180	2.529	3.998	9.900	0.000
Reingle et al. (27)	1.840	1.182	2.865	2.700	0.007
Salas-Wright et al. (44)	3.240	3.110	3.375	56.265	0.000
Shorey et al. (61) (females)	0.660	0.264	1.653	−0.887	0.375
Shorey et al. (45) (males)	2.150	0.760	6.081	1.443	0.149
Stoddard et al. (30)	0.800	0.584	1.097	−1.386	0.166
Temple et al. (20)	0.820	0.632	1.064	−1.495	0.135
Tinklenberg et al. (46)	1.470	0.590	3.661	0.827	0.408
Walton et al. (62)	2.460	1.795	3.371	5.600	0.000
Scholes-Balog et al. (47)	3.800	2.517	5.738	6.350	0.000
Hughes et al. (48)	1.980	1.206	3.250	2.702	0.007
Lowry et al. (49)	4.300	3.400	5.438	12.174	0.000
Forman-Hoffman et al. (50)	1.570	1.387	1.777	7.150	0.000
Lukash and Killias (51)	5.740	3.909	8.428	8.916	0.000
Herrenkohl et al. (52)	2.620	1.437	4.778	3.141	0.002
Schepis et al. (53)	3.580	2.857	4.486	11.084	0.000
Schepis et al. (53)	3.090	2.469	3.868	9.849	0.000
Grunbaum et al. (54)	3.160	2.389	4.180	8.059	0.000
Nabors (55)	1.350	1.084	1.681	2.682	0.007
Malik et al. (31)	1.010	0.971	1.051	0.492	0.623
Wei et al. (56)	2.300	1.092	4.842	2.193	0.028
Tucker et al. (57)	2.300	1.807	2.928	6.767	0.000
Grest et al. (58)	1.180	0.984	1.415	1.783	0.075
	2.112	1.639	2.722	5.775	0.000



[a] Young adults were <30 years old. One study (53) estimated the effect for boys and girls separately. Favors A=favors non-perpetration of violence, favors B=favors perpetration of violence.

Pacek, Addiction, 2020

11. Co-Occurring Psyche: Rapid increase in the prevalence of cannabis use among people with depression in the United States, 2005-17: the role of differentially changing risk perceptions

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- Self-report of any, daily and non-daily past 30-day cannabis use and perceived great risk associated with regular cannabis use
- National Survey on Drug Use and Health, an annual cross-sectional survey
- The prevalence of any, daily and non-daily cannabis use in the past month was higher among those with depression versus those without [e.g. 2017 for any use: 18.94 versus 8.67%; adjusted odds ratio (aOR) = 2.17 (95% confidence interval (CI) = 1.92, 2.45)]

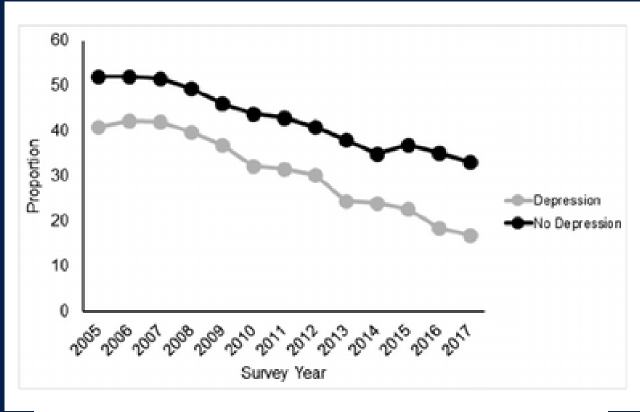

Figure 1 Prevalence of perceived great risk of regular cannabis use, stratified by past-year depression

- Prevalence of cannabis use in the United States increased from 2005 to 2017 among people with and without depression
- Usage ~2x as common among those with depression.

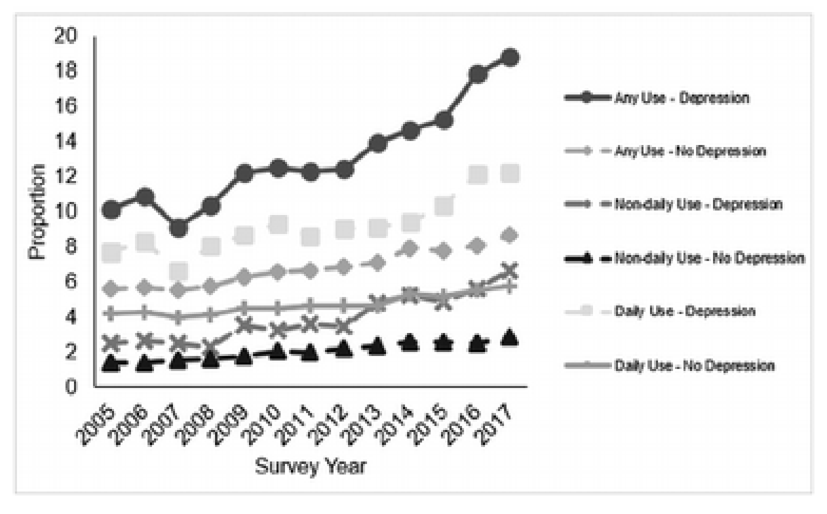

Figure 2 Prevalence of past 30-day any, daily and non-daily cannabis use, stratified by past-year depression

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Dumas, Journal of Adolescent Health, 2020

13. Kids and Adolescents: What Does Adolescent Substance Use Look Like During the COVID-19 Pandemic? Examining Changes in Frequency, Social Contexts, and Pandemic-Related Predictors

- Canadian adolescents (n = 1,054, *Mage* = 16.68, standard deviation = .78) completed an online survey, in which they reported on their frequency of alcohol use, binge drinking, cannabis use, and vaping in the 3 weeks before and directly after social distancing practices had taken effect.
- The frequency of both alcohol and cannabis use increased. Although the greatest percentage of adolescents was engaging in solitary substance use (49.3%), many were still using substances with peers via technology (31.6%) and, shockingly, even face to face (23.6%).

Table 2
Percentage of substance using adolescents and mean number of substance-using days in the 3 weeks before versus 3 weeks into the COVID-19 pandemic

	Total sample (n = 1,054)			Females (n = 805)			Male (n = 231)		
	Pre-COVID-19	During COVID-19	p-value	Pre-COVID-19	During COVID-19	p-value	Pre-COVID-19	During COVID-19	p-value
Substance users, % (n)									
Alcohol	28.6 (301)	30.4 (320)	.23	29.2 (235)	30.1 (242)	.65	25.5 (59)	30.7 (71)	.13
Binge drinking	**15.7 (165)**	**9.8 (103)**	.00	**15.3 (123)**	**10.3 (83)**	.00	**16.9 (39)**	**7.8 (18)**	.00
Cannabis	**17.0 (179)**	**13.8 (145)**	.00	**16.4 (132)**	**13.4 (108)**	.00	18.6 (43)	15.2 (35)	.17
Vaping	**16.6 (175)**	**11.5 (121)**	.00	**15.9 (128)**	**10.7 (86)**	.00	**19.0 (44)**	**14.7 (34)**	.03
Number of substance-using days, M(SD)									
Alcohol	**.76 (1.77)**	**.96 (2.14)**	.02	**.77 (1.82)**	**.96 (2.17)**	.03	.73 (1.64)	.92 (2.06)	.34
Binge drinking	.41 (1.41)	.33 (1.34)	.25	.41 (1.46)	.36 (1.43)	.27	.45 (1.30)	.25 (1.02)	.75
Cannabis	**.94 (3.28)**	**1.10 (3.76)**	.01	**.89 (3.19)**	**1.07 (3.70)**	.01	1.14 (3.62)	1.17 (3.85)	.88
Vaping	1.59 (4.81)	1.30 (4.48)	.49	1.52 (4.67)	1.27 (4.49)	.92	1.86 (5.34)	1.45 (4.60)	.31

Bolded % (n) indicates significant differences in percentage of substance use before and during the COVID-19 pandemic, as indicated by McNemar's tests; Bolded M (SD) indicates significant differences in frequency of substance use before and during the COVID-19 pandemic, as indicated by repeated measures ANOVAs.
ANOVA = analysis of variance.

Lees, AJP, 2020

13. Kids: Prenatal Exposures and Child Development: Association of Prenatal Alcohol Exposure With Psychological, Behavioral, and Neurodevelopmental Outcomes in Children From the Adolescent Brain Cognitive Development Study

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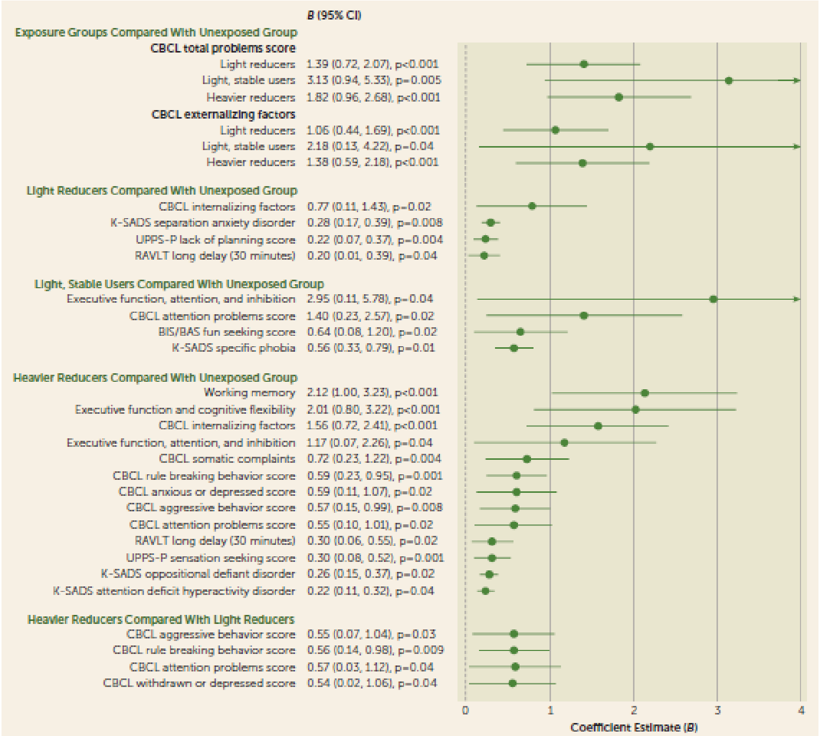
- 2,518 (25.9%) of 9,719 youths (ages 9.0 to 10.9 years) from the Adolescent Brain Cognitive Development Study exposed to alcohol in utero.
- Was prenatal alcohol exposure associated with psychological, behavioral, and cognitive outcomes?
- Prenatal alcohol exposure was associated with greater psychopathology, attention deficits, and impulsiveness, with some effects showing a dose-dependent response.
- Children with prenatal alcohol exposure displayed greater cerebral and regional volume and greater regional surface area.

FIGURE 4. Association of prenatal alcohol exposure patterns with varying psychological and behavioral problems among children[a]



Easey, ACER, 2020

13. Kids: Association of Prenatal Alcohol Exposure and Offspring Depression: A Negative Control Analysis of Maternal and Partner Consumption

- Data from Avon Longitudinal Study of Parents and Children (ALSPAC)
- Associations of maternal drinking in pregnancy with offspring depression at age 18 and 24 (n+13,480), with partner drinking as a negative control for intrauterine exposure for comparison
- Offspring of mothers that consumed any alcohol at 18 weeks gestation were at increased risk of depression (OR 1.17 95% CI 1.02 to 1.34), with no evidence of association between partners' consumption (OR 0.87, 95% CI 0.74 to 1.01)
- Confirmed maternal alcohol use is associated stronger with offspring depression than partner paternal alcohol use (OR 1.41, CI 1.07 to 1.84)

Supplementary Table 2: Depression at age 18 and maternal alcohol amount at 18 weeks gestation, full sample

	Unadjusted n = 4191		Adjusted[1] n = 3203		Adjusted[2] n = 3027		Adjusted[3] n = 2566	
	OR (CI)	P	OR (CI)	P	OR (CI)	P	OR (CI)	P
Never	1.00 (ref)	0.060[b]	1.00 (ref)	0.640[b]	1.00 (ref)	0.742[b]	1.00 (ref)	0.734[b]
<1 glass per week	1.16 (0.91-1.49)		1.01 (0.76-1.36)		0.92 (0.68-1.25)		0.89 (0.64-1.25)	
1+ glass per week	1.12 (0.79-1.60)		1.09 (0.73-1.65)		0.97 (0.63-1.49)		0.96 (0.59-1.56)	
1-2 glasses per day	1.86 (0.87-3.98)		1.57 (0.64-3.86)		1.45 (0.57-3.67)		1.82 (0.56-5.86)	
3+ glasses per day	5.78 (1.76-19.02)		3.21(0.63-16.44)		2.33 (0.44-12.49)		2.19 (0.23-20.84)	
Linear trend	1.16 (1.01-1.34)	0.035	1.09 (0.92-1.30)	0.297	1.03 (0.86-1.23)	0.742	1.01 (0.82-1.25)	0.895

Model[1] adjusted initially for socioeconomic position, income, home ownership, marital status, maternal education, gender and parity.
Model[2] further adjusted for tobacco use during 1-3 months of pregnancy, illicit drug use during 1-3 months of pregnancy and maternal depression at 18 weeks gestation.
Model[3] further adjusted for partner alcohol consumption during pregnancy.
[b]Omnibus p-value

Supplementary Table 5: Depression at age 18 and partners alcohol amount at 18 weeks gestation, full sample

	Unadjusted n = 3416		Adjusted[1] n = 2708		Adjusted[2] n = 2572		Adjusted[3] n = 2566	
	OR (CI)	P	OR (CI)	P	OR (CI)	P	OR (CI)	P
Never	1.00 (ref)	0.057[b]	1.00 (ref)	0.398[b]	1.00 (ref)	0.338[b]	1.00 (ref)	0.339[b]
<1 glass per week	1.41 (0.69-2.90)		1.42 (0.59-3.43)		1.63 (0.62-4.27)		1.64 (0.62-4.30)	
1+ glass per week	0.96 (0.48-1.94)		1.06 (0.45-2.53)		1.27 (0.49-3.27)		1.26 (0.49-3.26)	
1-2 glasses per day	0.80 (0.37-1.71)		0.91 (0.36-2.31)		0.97 (0.35-2.68)		0.95 (0.34-2.67)	
3+ glasses per day	1.10 (0.45-2.65)		1.24 (0.43-3.55)		1.24 (0.39-3.89)		1.20 (0.38-3.82)	
Linear trend	0.86 (0.74-1.00)	0.045	0.90 (0.75-1.07)	0.245	0.88 (0.73-1.05)	0.163	0.88 (0.73-1.06)	0.172

Model[1] adjusted initially for socioeconomic position, income, home ownership, marital status, maternal education, gender and parity.
Model[2] further adjusted for tobacco use during 1-3 months of pregnancy, illicit drug use during 1-3 months of pregnancy and maternal depression at 18 weeks gestation.
Model[3] further adjusted for partner alcohol consumption during pregnancy.
[b]Omnibus p-value

Paul, JAMA Psychiatry, 2021

13. Kids: Associations Between Prenatal Cannabis Exposure and Childhood Outcomes: Results From the ABCD Study

- 11,875 children aged 9 to 11, as well as a parent or caregiver from 22 sites across the US between June 2016 and October 2018
- Among 11489 children with nonmissing prenatal cannabis exposure data, 655 (5.7%) were exposed to cannabis pretatally.
- Relative to no exposure, cannabis exposure only before (413[3.6%]) and after (242 [2.1%]) maternal knowledge of pregnancy of associated with greater psychopathology characteristics, sleep problems, as well as lower cognition and gray matter volume.
- Study suggests that prenatal cannabis exposure and its correlated factors are associated with greater risk for psychopathology during middle childhood.

Table 3. Associations With Prenatal Cannabis Exposure When Including Potentially Confounding Covariates[a]

	Cannabis exposure after knowledge of pregnancy vs no exposure					Cannabis exposure before knowledge of pregnancy vs no exposure					Cannabis exposure after knowledge of pregnancy vs before knowledge				
Outcome	b (95% CI)	β	ΔR^2	P value	FDR-corrected P value	b (95% CI)	β	ΔR^2	P value	FDR-corrected P value	b (95% CI)	β	ΔR^2	P value	FDR-corrected P value
Psychotic-like experiences (n = 8165)	0.851 (0.23 to 1.5)[b,c]	0.030	0.001	<.001	.02	−0.095 (−0.49 to 0.30)[c]	−0.005	3×10^{-5}	.64	.75	0.945 (0.25 to 1.6)[b,c]	0.033	0.001	<.001	.03
Internalizing per CBCL (n = 8168)	1.09 (0.14 to 2.0)[b,c]	0.025	0.001	.03	.05	−0.088 (−0.69 to 0.52)[c]	−0.003	1×10^{-5}	.78	.81	1.18 (0.10 to 2.3)[b,c]	0.027	0.001	.03	.06
Externalizing per CBCL (n = 8168)	2.05 (1.1 to 3.0)[b,c]	0.047	0.002	<.001	<.001	0.146 (−0.45 to 0.74)[c]	0.005	3×10^{-5}	.63	.75	1.90 (0.84 to 3.0)[b,c]	0.044	0.002	<.001	<.001
Attention per CBCL (n = 8168)	1.34 (0.72 to 2.0)[b,c]	0.047	0.002	<.001	<.001	0.183 (−0.21 to 0.58)[c]	0.010	1×10^{-4}	.36	.72	1.16 (0.45 to 1.9)[b,c]	0.041	0.002	<.001	<.001
Thought per CBCL (n = 8168)	0.646 (0.28 to 1.0)[b,c]	0.039	0.002	<.001	<.001	0.110 (−0.12 to 0.34)[c]	0.011	1×10^{-4}	.36	.72	0.537 (0.12 to 0.95)[b,c]	0.032	0.001	.01	.03
Social per CBCL (n = 8168)	1.01 (0.63 to 1.4)[b,c]	0.058	0.003	<.001	<.001	0.066 (−0.17 to 0.31)[c]	0.006	4×10^{-5}	.60	.75	0.944 (0.51 to 1.4)[b,c]	0.054	0.003	<.001	<.001
Body mass index (n = 8151)	0.430 (−0.30 to 1.2)[b]	0.013	2×10^{-4}	.25	.32	−0.056 (−0.52 to 0.41)	−0.003	7×10^{-6}	.81	.81	0.486 (−0.34 to 1.3)[b]	0.014	2×10^{-4}	.25	.36
Cognition composite (n = 8000)	−0.817 (−2.3 to 0.65)[c]	−0.011	1×10^{-4}	.28	.33	0.907 (−0.02 to 1.8)[c]	0.019	4×10^{-4}	.06	.72	−1.72 (−3.4 to −0.06)	−0.023	0.001	.04	.07
Total sleep problems (n = 8169)	1.24 (−0.20 to 2.7)	0.019	4×10^{-4}	.09	.15	0.403 (−0.51 to 1.3)[c]	0.010	1×10^{-4}	.39	.72	0.833 (−0.80 to 2.5)[c]	0.013	2×10^{-4}	.32	.42
Birth weight (n = 8169)	−2.56 (−5.3 to 0.14)[b,c]	−0.018	3×10^{-4}	.06	.12	0.906 (−0.81 to 2.6)[c]	0.010	1×10^{-4}	.30	.72	−3.47 (−6.5 to −0.41)[b,c]	−0.024	0.001	.03	.06
Intracranial volume (n = 7846)	0.040 (−0.11 to 0.19)[b]	0.005	2×10^{-5}	.60	.65	0.032 (−0.06 to 0.13)	0.006	4×10^{-5}	.51	.75	0.008 (−0.16 to 0.18)[b]	0.001	9×10^{-7}	.93	.93
White matter volume (n = 7431)	−0.066 (−0.17 to 0.04)[b]	−0.007	6×10^{-5}	.23	.32	−0.037 (−0.10 to 0.03)	−0.007	5×10^{-5}	.29	.72	−0.029 (−0.15 to 0.09)[b]	−0.003	1×10^{-5}	.64	.76
Gray matter volume (n = 7842)	0.017 (−0.08 to 0.11)[b]	0.002	4×10^{-6}	.72	.72	0.035 (−0.02 to 0.09)	0.007	4×10^{-5}	.24	.72	−0.018 (−0.12 to 0.09)[b]	−0.002	5×10^{-6}	.73	.79

Hines, JAMA Psychiatry, 2020

13. More on the Kids!: Association of High-Potency Cannabis Use wit Mental Health and Substance Use in Adolescence

- Data collected between June 2015 and October 2017 from 1087 24-year-old participants who reported recent cannabis use
- 141 participants (13%) reported use of high-potency cannabis
- Use of high-potency cannabis was associated with increased frequency of cannabis use (AOR, 4.38;95% CI, 2.89 -6.63),cannabis problems (AOR,1.92;95% CI, 1.41-11.81), increased likelihood of anxiety disorder (AOR, 1.92;95% CI, 1.11-3.32), tobacco dependence (AOR, 1.42 95% CI, 0.89-2.27) and other illicit drug use (AOR 1.29; 95% CI,O.77-2.17)
- First general population evidence suggesting that high potency cannabis use is associated with mental health and addiction

Table 1. Association Between Type of Cannabis and Demographic, Substance Abuse, and Mental Health Outcomes in 1087 Participants Who Reported Recent Cannabis Use

Characteristic	Cannabis use, %[a] High potency (n = 141)	Cannabis use, %[a] Lower potency (n = 946)	P value[b]
Regular cannabis use	56.8	17.6	≤.001
Cannabis use problems	10.1	0.8	≤.001
Use of other illicit drugs	82.9	66.5	≤.001
Tobacco dependence	37.0	15.1	≤.001
Alcohol use disorder	15.1	10.0	≤.001
Major depression (moderate or severe symptoms)	11.7	9.7	≤.001
Generalized anxiety disorder	19.1	11.6	≤.001
Psychotic-like experiences	12.4	7.1	≤.001
Male sex	71.6	43.4	≤.001
Low maternal educational level	19.2	13.1	≤.001
Lower parental occupational class	32.2	29.2	≤.001
Black or minority ethnic group	5.3	5.3	.94
Age at onset of cannabis use, mean (95% CI), y	14.7 (14.3-15.1)	16.9 (16.8-17.2)	NA
MFQ score at 13 y, mean (95% CI)	5.6 (4.65-6.49)	5.6 (5.26-5.95)	NA
No. PEs at 12 y, mean (95% CI)	0.33 (0.18-0.48)	0.20 (0.16-0.24)	NA

Lees, AJP, 2020

13. Kids: Association of Prenatal Alcohol Exposure With Psychological, Behavioral, and Neurodevelopmental Outcomes in Children From the Adolescent Brain Cognitive Development Study (cont.)

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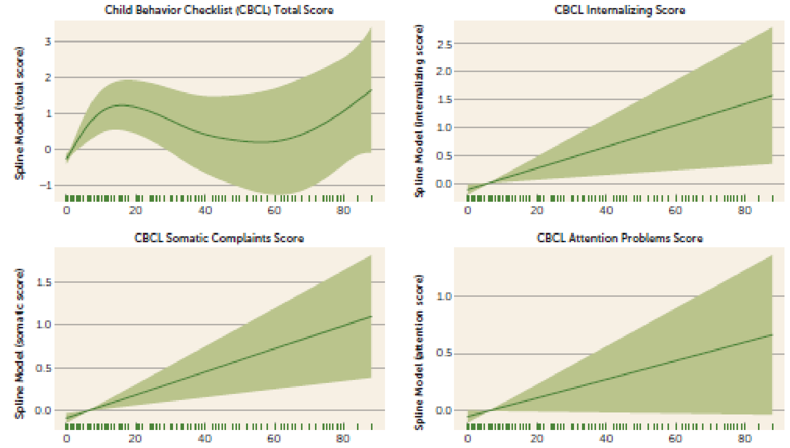
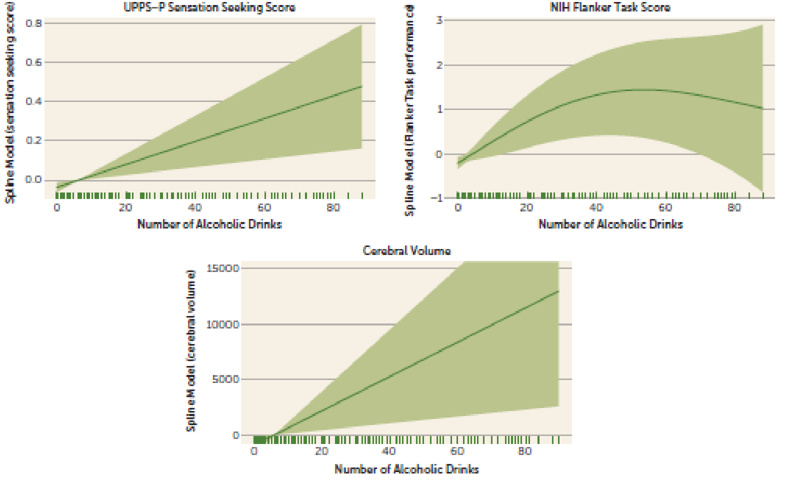
FIGURE 3. Spline models demonstrating a significant dose-dependent relationship between the estimated total number of alcoholic drinks consumed during pregnancy and offspring psychopathology, cognitive functioning, and brain volume, adjusted for fixed and random effects[a]





[a] NIH=National Institutes of Health; UPPS-P=Urgency, Premeditation, Perseverance, Sensation Seeking, Positive Urgency, Impulsive Behavior Scale for Children–Short Form.

- The total number of drinks was linearly associated with greater cerebral volume
- Flanker Task measures attention and inhibitorycontrol

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Williams, AJP, 2020

14. Ethics, Legal and Liability: Acute Care, Prescription Opioid Use, and Overdose Following Discontinuation of Long-Term Buprenorphine Treatment for Opioid Use Disorder

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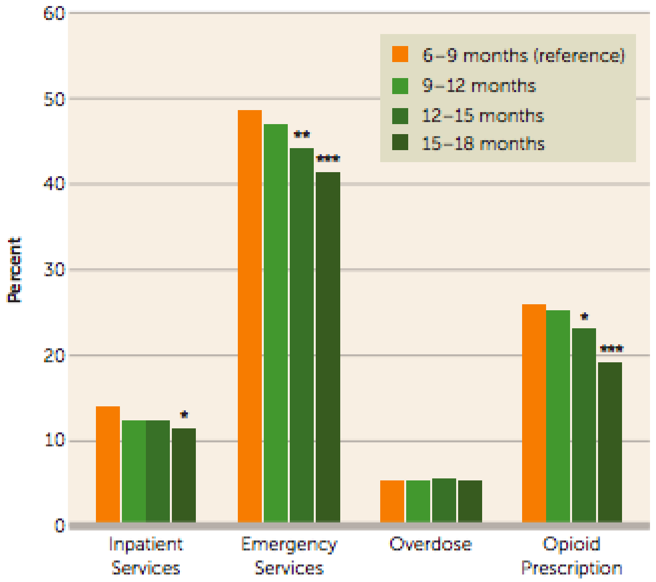
- ❖ Retrospective longitudinal cohort analysis comparing adverse health outcomes following buprenorphine discontinuation with patients who were successfully retained beyond 6 months of continuous treatment
- ❖ Compared with patients retained on buprenorphine for 6–9 months (N=4,126), those retained for 15–18 months (N=931) had significantly lower odds of emergency department visits (odds ratio=0.75, 95% CI=0.65–0.86), inpatient hospitalizations (odds ratio=0.79, 95% CI=0.64–0.99), and filling opioid prescriptions (odds ratio=0.67, 95% CI=0.56–0.80) in the 6 months following discontinuation

TABLE 1. Baseline characteristics of Medicaid beneficiaries ages 18–64 who were retained on buprenorphine for ≥180 days, by treatment duration cohort[a]

Characteristic	Total	Treatment Duration Cohort: 6–9 months		9–12 months		12–15 months		15–18 months	
	N	N	%	N	%	N	%	N	%
	8,996	4,126	45.9	2,440	27.1	1,499	16.7	931	10.3
Sex									
Male	3,512	1,641	39.8	934	38.3	583	38.9	354	38.0
Female	5,484	2,485	60.2	1,506	61.7	916	61.1	577	62.0
Age group (years)									
18–24	966	462	11.2	258	10.6	157	10.5	89	9.6
25–34	4,473	2,072	50.2	1,210	49.6	718	47.9	473	50.8
35–44	2,400	1,079	26.2	654	26.8	418	27.9	249	26.7
45–54	856	375	9.1	241	9.9	151	10.1	89	9.6
55–64	301	138	3.3	77	3.2	55	3.7	31	3.3
Race/ethnicity									
White	8,234	3,772	91.4	2,220	91.0	1,372	91.5	870*	93.4
Nonwhite	762	354	8.6	220	9.0	127	8.5	61*	6.6
Medicaid plan type									
Fee for service	2,681	1,237	30.0	762	31.2	409*	27.3	273	29.3
Capitation	6,315	2,889	70.0	1,678	68.8	1,090*	72.7	658	70.7
Psychiatric diagnosis	2,777	1,273	30.9	764	31.3	454	30.3	286	30.7
Substance use diagnosis									
Alcohol use disorder	430	205	5.0	107	4.4	77	5.1	41	4.4
Nonopioid drug use disorder	1,951	931	22.6	517	21.2	308	20.5	195	20.9
	Mean	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Initial buprenorphine dosage (mg/day)	8.0	7.9	2.3	8.0	2.3	8.2**	2.4	8.2**	2.4

[a] Data are from the multistate MarketScan database of Medicaid claims, 2013–2017.
*p<0.05. **p<0.01.

FIGURE 3. Unadjusted 6-month outcomes following discontinuation among Medicaid beneficiaries ages 18–64 retained on buprenorphine for ≥180 days, by treatment duration cohort (2013–2017)[a]



[a] All comparisons are with the reference group (the 6- to 9-month cohort).
*p<0.05. **p<0.01. ***p<0.001.

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Final Takeaways/Summary (Suggested)

References (Required)