DESPR Research Findings for the Director's Report to Council, Feb. 2018

Research Findings

Prevalence and Attitudes Regarding Marijuana Use Among Adolescents Over the Past Decade
Miech R, Johnston L, O'Malley PM. Pediatrics Nov 2017, e20170982; DOI: 10.1542/peds.2017-0982.
BACKGROUND: Adolescent marijuana prevalence has not increased since 2005 despite a substantial decrease in the percentage of adolescents who believe marijuana use leads to great risk of harm. This finding calls into question the long-standing, inverse connection between marijuana prevalence and perceived risk of use, a connection central to many arguments opposing marijuana legalization. We tested 2 hypotheses for why marijuana prevalence did not increase after 2005: (1) decreases in adolescent use of cigarettes and alcohol reduced risk for marijuana use and counteracted the expected risk in marijuana prevalence, and/or (2) perceived risk of harm now plays a smaller role in marijuana use. **METHODS:** Data came from the annual, nationally-representative Monitoring the Future study from 1991 to 2016, in which 1 100 000 US students in eighth, 10th, and 12th grade were surveyed. **RESULTS:** The entire sample was stratified into 3 mutually exclusive and exhaustive groups on the basis of cigarette and alcohol use. Within each of the 3 groups, marijuana prevalence increased from 2005 to 2016. Paradoxically, when the 3 groups were combined into 1 analysis pool, overall marijuana prevalence did not increase. The seeming paradox results from a decline in the percentage of adolescents who used cigarettes; as this group grew smaller, so too did its disproportionately large contribution to overall marijuana prevalence. Perceived risk of harm from marijuana remained a strong indicator of use throughout 2005 to 2016. **CONCLUSIONS:** Perceived risk of marijuana remains tightly associated with use, and adolescent marijuana prevalence today would be at or near record highs if cigarette use had not declined since 2005, according to study projections.

Injectable naltrexone, oral naltrexone, and buprenorphine utilization and discontinuation among individuals treated for opioid use disorder in a United States commercially insured population
Jake R. Morgan, Bruce R. Schackman, Jared A. Leff, Benjamin P. Linas, Alexander Y. Walley *Journal of Substance Abuse Treatment* 2017; 1-7, in press.
We investigated prescribing patterns for four opioid use disorder (OUD) medications: 1) injectable naltrexone, 2) oral naltrexone, 3) sublingual or oralmucosal buprenorphine/naloxone, and 4) sublingual buprenorphine as well as transdermal buprenorphine (which is approved for treating pain, but not OUD) in a nationally representative claims-based database (Truven Health MarketScan®) of commercially insured individuals in the United States. We calculated the prevalence of OUD in the database for each year from 2010 to 2014 and the proportion of diagnosed patient months on OUD medication. We compared characteristics of individuals diagnosed with

OUD who did and did not receive these medications with bivariate descriptive statistics. Finally, we fit a Cox proportional hazards model of time to discontinuation of therapy as a function of therapy type, controlling for relevant confounders. From 2010 to 2014, the proportion of commercially insured individuals diagnosed with OUD grew by fourfold (0.12% to 0.48%), but the proportion of diagnosed patient-months on medication decreased from 25% in 2010 (0.05% injectable naltrexone, 0.4% oral naltrexone, 23.1% sublingual or oral mucosal buprenorphine/naloxone, 1.5% sublingual buprenorphine, and 0% transdermal buprenorphine) to 16% in 2014 (0.2% injectable naltrexone, 0.4% oral naltrexone, 13.8% sublingual or oral mucosal buprenorphine/naloxone, 1.4% sublingual buprenorphine, and 0.3% transdermal buprenorphine). Individuals who received medication therapy were more likely to be male, younger, and have an additional substance use disorder compared with those diagnosed with OUD who did not receive medication therapy. Those prescribed injectable naltrexone were more often male, younger, and diagnosed with additional substance use disorders compared with those prescribed other medications for opioid use disorder (MOUDs). At 30 days after initiation, 52% for individuals treated with injectable naltrexone, 70% for individuals treated with oral naltrexone, 31% for individuals treated with sublingual or oral mucosal buprenorphine/naloxone, 58% for individuals treated with sublingual buprenorphine, and 51% for individuals treated with transdermal buprenorphine discontinued treatment. In the Cox proportional hazard model, use of injectable naltrexone, oral naltrexone, sublingual buprenorphine, and transdermal buprenorphine were all associated with significantly greater hazard of discontinuing therapy beginning N30 days after MOUD initiation (HR=2.17, 2.54, 1.15, and 2.21, respectively, 95% CIs 2.04–2.30, 2.45–2.64, 1.10–1.19, and 2.11–2.33), compared with the use of sublingual or oral mucosal buprenorphine/naloxone. This analysis demonstrates that the use of evidence-based medication therapies has not kept pace with increases in OUD diagnoses in commercially insured populations in the United States. Among those who have been treated, discontinuation rates N30 days after initiation are high. The proportion treated with injectable naltrexone, oral naltrexone, and transdermal buprenorphine grew over time but remains small, and the discontinuation rates are higher among those treated with these medications compared with those treated with sublingual or oral mucosal buprenorphine/naloxone. In the face of the opioid overdose and addiction crisis, new efforts are needed at the provider, health system, and policy levels so that MOUD availability and uptake keep pace with new OUD diagnoses and OUD treatment discontinuation is minimized.

Association Of Prescription Drug Monitoring Program Use With Opioid Prescribing And Health Outcomes: A Comparison Of Program Users And Non-Users.

Deyo, Richard A; Hallvik, Sara E; Hildebran, Christi; Marino, Miguel; Springer, Rachel; Irvine, Jessica M; O'Kane, Nicole; Van Otterloo, Joshua; Wright, Dagan A; Leichtling, Gillian; Millet, Lisa M; Carson, Jody; Wakeland, Wayne; McCarty, Dennis. J Pain. 2017; Oct. 17.

Prescription drug monitoring programs (PDMPs) are a response to the prescription opioid epidemic, but their impacts on prescribing and health outcomes remain unclear, with conflicting reports. We sought to determine if prescriber use of Oregon's prescription drug monitoring program (PDMP) led to fewer high-risk opioid prescriptions

or overdose events. We conducted a retrospective cohort study from October, 2011 through October, 2014, using statewide PDMP data, hospitalization registry, and vital records. Early PDMP registrants (n=927) were matched with clinicians who never registered during the study period, using baseline prescribing metrics in a propensity score. Generalized estimating equations were used to examine prescribing trends following PDMP registration, using 2-month intervals. We found a statewide decline in measures of per capita opioid prescribing. However, compared with non-registrants, PDMP registrants did not subsequently have significantly fewer patients receiving high-dose prescriptions; overlapping opioid and benzodiazepine prescriptions, inappropriate prescriptions, prescriptions from multiple prescribers, or overdose events. At baseline, frequent PDMP users wrote fewer high-risk opioid prescriptions than infrequent users; this persisted during follow-up with few significant group differences in trend. Thus, although opioid prescribing declined statewide after implementing the PDMP, registrants did not demonstrate greater declines than non-registrants. Factors other than PDMP use may have had greater influence on prescribing trends. Refinements in the PDMP program and related policies may be necessary to increase PDMP impact.

Cumulative Contextual Risk At Birth And Adolescent Substance Initiation: Peer Mediation Tests.

Mason, W Alex; Patwardhan, Irina; Smith, Gail L; Chmelka, Mary B; Savolainen, Jukka; January, Stacy-Ann A; Miettunen, Jouko; Järvelin, Marjo-Riitta. Drug Alcohol Depend. 2017; 177(8): 291-298.

Children who experience multiple adversities, such as prenatal exposure to drugs and poverty, early in development are at increased risk for the early initiation of alcohol and cigarette use. However, studies that examine potentially malleable processes associated with substance use initiation in the context of exposure to cumulative stressors are scant. This study examined associations between cumulative contextual risk at birth and initiation of alcohol and cigarette use in adolescence, testing childhood peer marginalization and peer aggression and behavior problems as mediating mechanisms. Analyses further adjusted for fearfulness/inhibition and hyperactivity/distractibility to determine if the hypothesized mediating mechanisms were significant after accounting for temperamental characteristics associated with substance initiation. Participants were 6190 adolescents from the Northern Finland Birth Cohort 1986 Study. Data were collected on cumulative contextual risk (parent reports), substance initiation (adolescent reports), childhood peer processes and behavior problems (teacher reports), and temperamental characteristics (teacher reports). Novel discrete-time survival mediation analysis was conducted to test the hypothesized mediating mechanisms. Initial analyses showed that the associations between cumulative contextual risk and both alcohol and cigarette initiation were mediated by childhood peer processes and behavior problems; however, the indirect effects became statistically non-significant after adding the temperament variables, which themselves predicted substance initiation. Targeting peer processes may not be an effective way to interrupt pathways leading from early contextual risk to substance initiation. Instead, early screening and intervention efforts to delay substance initiation may need to be tailored to the individual temperamental characteristics of targeted participants.

Time-specific And Cumulative Effects Of Exposure To Parental Externalizing Behavior On Risk For Young Adult Alcohol Use Disorder.
Edwards, Alexis C; Lönn, Sara L; Karriker-Jaffe, Katherine J; Sundquist, Jan; Kendler, Kenneth S; Sundquist, Kristina. Addict Behav. 2017; 72(9): 8-13.
Previous studies indicate that parental externalizing behavior (EB) is a robust risk factor for alcohol use disorder (AUD) in their children, and that this is due to both inherited genetic liability and environmental exposure. However, it remains unclear whether the effects of exposure to parental EB vary as a function of timing and/or chronicity. We identified biological parents with an alcohol use disorder, drug abuse, or criminal behavior, during different periods of their child's upbringing, using Swedish national registries. Logistic regression was used to determine whether the effect of parental EB exposure during different developmental periods differentially impacted children's risk for young adult AUD (ages 19-24). In addition, we tested how multiply affected parents and/or sustained exposure to affected parents impacted risk. While parental EB increased risk for young adult AUD, timing of exposure did not differentially impact risk. Having a second affected parent increased the risk of AUD additionally, and sustained exposure to parental EB across multiple periods resulted in a higher risk of young adult AUD than exposure in only one period. In this well-powered population study, there was no evidence of "sensitive periods" of exposure to national registry-ascertained parental EB with respect to impact on young adult AUD, but sustained exposure was more pathogenic than limited exposure. These findings suggest developmental timing does not meaningfully vary the impact, but rather there is a pervasive risk for development of young adult AUD for children and adolescents exposed to parental EB.

A Developmental Etiological Model For Drug Abuse In Men.
Kendler, Kenneth S; Ohlsson, Henrik; Edwards, Alexis C; Sundquist, Jan; Sundquist, Kristina. Drug Alcohol Depend. 2017; 179(10): 220-228.
We attempt to develop a relatively comprehensive structural model of risk factors for drug abuse (DA) in Swedish men that illustrates developmental and mediational processes. We examined 20 risk factors for DA in 48,369 men undergoing conscription examinations in 1969-70 followed until 2011 when 2.34% (n=1134) of them had DA ascertained in medical, criminal and pharmacy registries. Risk factors were organized into four developmental tiers reflecting i) birth, ii) childhood/early adolescence, iii) late adolescence, and iv) young adulthood. Structural equational model fitting was performed using Mplus. The best fitting model explained 47.8% of the variance in DA. The most prominent predictors, in order, were: early adolescent externalizing behavior, early adult criminal behavior, early adolescent internalizing behavior, early adult unemployment, early adult alcohol use disorder, and late adolescent drug use. Two major inter-connecting pathways emerged reflecting i) genetic/familial risk and ii) family dysfunction and psychosocial adversity. Generated on a first and tested on a second random half of the sample, a model from these variables predicted DA with an ROC area under the curve of 83.6%. Fifty-nine percent of DA cases arose from subjects in the top decile of risk. DA in men is a highly multifactorial syndrome with risk arising from familial-genetic, psychosocial, behavioral and psychological factors acting and interacting over development. Among the multiple predisposing factors for DA, a range

of psychosocial adversities, externalizing psychopathology and lack of social constraints in early adulthood are predominant.

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Children's Brain Activation During Risky Decision-making: A Contributor To Substance Problems?
Crowley, Thomas J; Dalwani, Manish S; Sakai, Joseph T; Raymond, Kristen M; McWilliams, Shannon K; Banich, Marie T; Mikulich-Gilbertson, Susan K. Drug Alcohol Depend. 2017; 178(): 57-65.
Among young children excessive externalizing behaviors often predict adolescent conduct and substance use disorders. Adolescents with those disorders show aberrant brain function when choosing between risky or cautious options. We therefore asked whether similarly aberrant brain function during risky decision-making accompanies excessive externalizing behaviors among children, hypothesizing an association between externalizing severity and regional intensity of brain activation during risky decision-making. Fifty-eight (58) 9-11 year-old children (both sexes), half community-recruited, half with substance-treated relatives, had parent-rated Child Behavior Checklist Externalizing scores. During fMRI, children repeatedly chose between doing a cautious behavior earning 1 point or a risky behavior that won 5 or lost 10 points. Conservative permutation-based whole-brain regression analyses sought brain regions where, during decision-making, activation significantly associated with externalizing score, with sex, and with their interaction. Before risky responses higher externalizing scores were significantly, negatively associated with neural activation (t's: 2.91-4.76) in

regions including medial prefrontal cortex (monitors environmental reward-punishment schedules), insula (monitors internal motivating states, e.g., hunger, anxiety), dopaminergic striatal and midbrain structures (anticipate and mediate reward), and cerebellum (where injuries actually induce externalizing behaviors). Before cautious responses there were no significant externalizing: activation associations (except in post hoc exploratory analyses), no significant sex differences in activation, and no significant sex-by-externalizing interactions. Among children displaying more externalizing behaviors extensive decision-critical brain regions were hypoactive before risky behaviors. Such neural hypoactivity may contribute to the excessive real-life risky decisions that often produce externalizing behaviors. Substance exposure, minimal here, was a very unlikely cause.

Initial Validation of a Proxy Indicator of Functioning as a Potential Tool for Establishing a Clinically Meaningful Cocaine Use Outcome
Kiluk, Brian D.; Babuscio, Theresa A., Nich, Charla; Carroll, Kathleen M. *Drug and Alcohol Dependence*. 2017; Available Online 14 August.
Background: Establishing a non-abstinence cocaine use outcome as clinically meaningful has been elusive, in part due to the lack of association between cocaine use outcomes and meaningful indicators of long-term functioning. Methods: Using data pooled across 7 clinical trials evaluating treatments for cocaine (N=718), a dichotomous indicator of functioning was created to represent a meaningful outcome ('problem-free functioning' – PFF), defined as the absence of problems across non-substance-related domains on the Addiction Severity Index. Its validity was evaluated at multiple time points (baseline, end-of-treatment, terminal follow-up) and used to explore associations with cocaine use. Results: The percentage of participants meeting PFF criteria increased over time (baseline =18%; end- of treatment =32%; terminal follow-up =37%). At each time point, ANOVAs indicated those who met PFF criteria reported significantly less distress on the Brief Symptom Inventory and less perceived stress on the Perceived Stress Scale. Generalized linear models indicated categorical indices of self-reported cocaine use at the end of treatment were predictive of the probability of meeting PFF criteria during follow-up ($\beta=-0.01$, $p < 0.01$; 95% CI: −0.008 to −0.003), with those reporting 0 days or 1–4 days ('occasional' use) in the final month of treatment showing an increased likelihood of achieving PFF. Conclusions: Initial validation of a proxy indicator of problem-free functioning demonstrated criterion validity and sensitivity to change over time. Frequency of cocaine use in the final month of treatment was associated with PFF during follow-up, with strongest associations between PFF and abstinence or 'occasional' use.

Public Health Benefit of Peer-Referral Strategies For Detecting Undiagnosed HIV Infection among High-Risk Heterosexuals In New York City.
Gwadz, Marya; Cleland, Charles M; Perlman, David C; Hagan, Holly; Jenness, Samuel M; Leonard, Noelle R; Ritchie, Amanda S; Kutnick, Alexandra. J Acquir Immune Defic Syndr. 2017; 74(5): 499-507.
Identifying undiagnosed HIV infection is necessary for the elimination of HIV transmission in the United States. The present study evaluated the efficacy of 3 community-based approaches for uncovering undiagnosed HIV among heterosexuals at

high-risk (HHR), who are mainly African American/Black and Hispanic. Heterosexuals comprise 24% of newly reported HIV infections in the United States, but experience complex multilevel barriers to HIV testing. We recruited African American/Black and Hispanic HHR in a discrete urban area with both elevated HIV prevalence and poverty rates. Approaches tested were (1) respondent-driven sampling (RDS) and confidential HIV testing in 2 sessions (n = 3116); (2) RDS and anonymous HIV testing in one session (n = 498); and (3) venue-based sampling (VBS) and HIV testing in a single session (n = 403). The main outcome was newly diagnosed HIV infection. RDS with anonymous testing and one session reached HHR with less HIV testing experience and more risk factors than the other approaches. Furthermore, RDS with anonymous (4.0%) and confidential (1.0%) testing yielded significantly higher rates of newly diagnosed HIV than VBS (0.3%). Thus peer-referral approaches were more efficacious than VBS for uncovering HHR with undiagnosed HIV, particularly a single-session/anonymous strategy, and have a vital role to play in efforts to eliminate HIV transmission.

Pathways To Preventing Substance Use Among Youth In Foster Care.
Kim, Hyoun K; Buchanan, Rohanna; Price, Joseph M. Prev Sci. 2017; 18(5): 567-576.
Substance use problems are highly prevalent among youth in foster care. Such problems in adolescence have long-lasting implications for subsequent adjustment throughout adulthood and even across generations. Although several programs have demonstrated positive results in reducing substance use in at-risk youth, few studies have systemically examined how such programs work for foster youth and whether they are effective for both genders. This study examined the efficacy of KEEP SAFE, a family-based and skill-focused program designed to prevent substance use and other related health risking behaviors among youth in foster care. We hypothesized that improving the caregiver-youth relationship would lead to later reductions in youth's; involvement with deviant peers, which subsequently would lead to less substance use, and that this mechanism would work comparably for both genders. A sample of 259 youth (154 girls, ages 11-17 years) in foster care and their caregivers participated in a randomized controlled trial and was followed for 18 months post-baseline. Results indicated that the intervention significantly reduced substance use in foster youth at 18 months post-baseline and that the intervention influenced substance use through two processes: youth's; improved quality of relationships with caregivers at 6 months post-baseline and fewer associations with deviant peers at 12 months post-baseline. This suggests that these two processes may be fruitful immediate targets in substance use prevention programs for foster youth. We also found little gender differences in direct and mediating effects of the intervention, suggesting KEEP SAFE may be effective for both genders in foster care.

Collaborative Care For Opioid And Alcohol Use Disorders In Primary Care: The SUMMIT Randomized Clinical Trial.
Watkins, Katherine E; Ober, Allison J; Lamp, Karen; Lind, Mimi; Setodji, Claude; Osilla, Karen Chan; Hunter, Sarah B; McCullough, Colleen M; Becker, Kirsten; Iyiewuare, Praise O; Diamant, Allison; Heinzerling, Keith; Pincus, Harold Alan. *JAMA Intern Med*. 2017; (): .

Primary care offers an important and underutilized setting to deliver treatment for opioid and/or alcohol use disorders (OAUD). Collaborative care (CC) is effective but has not been tested for OAUD.To determine whether CC for OAUD improves delivery of evidence-based treatments for OAUD and increases self-reported abstinence compared with usual primary care.A randomized clinical trial of 377 primary care patients with OAUD was conducted in 2 clinics in a federally qualified health center. Participants were recruited from June 3, 2014 to January 15, 2016 and followed for 6 months.Of the 377 participants, 187 were randomized to CC and 190 were randomized to usual care; 77 (20.4%) of the participants were female, of whom 39 (20.9%) were randomized to CC and 38 (20.0%) were randomized to UC. The mean (SD) age of all respondents at baseline was 42 (12.0) years, 41(11.7) years for the CC group, and 43 (12.2) yearsfor the UC group. Collaborative care was a system-level intervention, designed to increase the delivery of either a 6-session brief psychotherapy treatment and/or medication-assisted treatment with either sublingual buprenorphine/naloxone for opioid use disorders or long-acting injectable naltrexone for alcohol use disorders. Usual care participants were told that the clinic provided OAUD treatment and given a number for appointment scheduling and list of community referrals.The primary outcomes were use of any evidence-based treatment for OAUD and self-reported abstinence from opioids or alcohol at 6 months. The secondary outcomes included the Healthcare Effectiveness Data and Information Set (HEDIS) initiation and engagement measures, abstinence from other substances, heavy drinking, health-related quality of life, and consequences from OAUD.At 6 months, the proportion of participants who received any OAUD treatment was higher in the CC group compared with usual care (73 [39.0%] vs 32 [16.8%]; logistic model adjusted OR, 3.97; 95% CI, 2.32-6.79; P < .001). A higher proportion of CC participants reported abstinence from opioids or alcohol at 6 months (32.8% vs 22.3%); after linear probability model adjustment for covariates (β = 0.12; 95% CI, 0.01-0.23; P = .03). In secondary analyses, the proportion meeting the HEDIS initiation and engagement measures was also higher among CC participants (initiation, 31.6% vs 13.7%; adjusted OR, 3.54; 95% CI, 2.02-6.20; P < .001; engagement, 15.5% vs 4.2%; adjusted OR, 5.89; 95% CI, 2.43-14.32; P < .001) as was abstinence from opioids, cocaine, methamphetamines, marijuana, and any alcohol (26.3% vs 15.6%; effect estimate, β = 0.13; 95% CI, 0.03-0.23; P = .01).Among adults with OAUD in primary care, the SUMMIT collaborative care intervention resulted in significantly more access to treatment and abstinence from alcohol and drugs at 6 months, than usual care.clinicaltrials.gov Identifier: NCT01810159.

Major Depressive Disorder, Suicidal Thoughts And Behaviours, And Cannabis Involvement In Discordant Twins: A Retrospective Cohort Study.

Agrawal, Arpana; Nelson, Elliot C; Bucholz, Kathleen K; Tillman, Rebecca; Grucza, Richard A; Statham, Dixie J; Madden, Pamela Af; Martin, Nicholas G; Heath, Andrew C; Lynskey, Michael T. Lancet Psychiatry. 2017; 4(9): 706-714.

Early and frequent cannabis use are associated with an increased likelihood of major depressive disorder (MDD) as well as suicidal thoughts and behaviours. We identify associations between aspects of cannabis use, MDD, and suicidal thoughts and behaviours and examine whether such associations persist after accounting for those predisposing factors, including genetic liability and early family environment, that are

shared by identical twins who are discordant for cannabis exposure. Any residual association in such identical pairs might be indicative of individual-specific pathways that might be of a causal nature. We did a logistic regression analysis of cannabis use from retrospective data on same-sex male and female twin pairs drawn from 3 studies that had recruited twins from the Australian Twin Registry, 1992-93 (sample 1), 1996-2000 (sample 2), and 2005-09 (sample 3). We studied associations between early use and frequent use of cannabis and MDD, suicidal ideation (ever and persistent), and suicide plan and attempt in the full sample as well as in pairs of monozygotic and dizygotic twins that were discordant for each measure of cannabis involvement at a single timepoint. Significant monozygotic associations were further adjusted for covariates, such as early alcohol or nicotine use, early dysphoric or anhedonic mood, conduct disorder, and childhood sexual abuse. Interactions between each cannabis measure and sex, sample or study effects, and birth year category were also examined as covariates. In 13 986 twins (6181 monozygotic and 7805 dizygotic), cannabis use ranged from 1345 (30·4%) of 4432 people in sample 1 to 2275 (69·0%) of 3299 in sample 3. Mean age of first cannabis use ranged from 17·9 years (SD 3·3) in sample 3 to 21·1 years (5·2) in sample 1, and frequent use (≥100 times) was reported by 214 (15·9%) of 1345 users in sample 1 and 499 (21·9%) of 2275 in sample 3. The prevalence of suicidal ideation ranged from 1102 (24·9%) of 4432 people in sample 1 to 1644 (26·3%) of 6255 people in sample 2 and 865 (26·2%) of 3299 people in sample 3. Prevalence of MDD ranged from 901 (20·3%) people in sample 1 to 1773 (28·3%) in sample 2. The monozygotic twin who used cannabis frequently was more likely to report MDD (odds ratio 1·98, 95% CI 1·11-3·53) and suicidal ideation (2·47, 1·19-5·10) compared with their identical twin who had used cannabis less frequently, even after adjustment for covariates. For early cannabis use, the monozygotic point estimate was not significant but could be equated to the significant dizygotic estimate, suggesting a possible association with suicidal ideation. The increased likelihood of MDD and suicidal ideation in frequent cannabis users cannot be solely attributed to common predisposing factors

Trends In Receipt Of Buprenorphine And Naltrexone For Opioid Use Disorder Among Adolescents And Young Adults, 2001-2014.
Hadland, Scott E; Wharam, J Frank; Schuster, Mark A; Zhang, Fang; Samet, Jeffrey H; Larochelle, Marc R. JAMA Pediatr. 2017; 171(8): 747-755.
Opioid use disorder (OUD) frequently begins in adolescence and young adulthood. Intervening early with pharmacotherapy is recommended by major professional organizations. No prior national studies have examined the extent to which adolescents and young adults (collectively termed youth) with OUD receive pharmacotherapy. To identify time trends and disparities in receipt of buprenorphine and naltrexone among youth with OUD in the United States. A retrospective cohort study was conducted using deidentified data from a national commercial insurance database. Enrollment and complete health insurance claims of 9.7 million youth, aged 13 to 25 years were analyzed, identifying individuals who received a diagnosis of OUD between January 1, 2001, and June 30, 2014, with final follow-up date December 31, 2014. Analysis was conducted from April 25 to December 31, 2016. Time trends were identified and multivariable logistic regression was used to determine sociodemographic factors

associated with medication receipt. Sex, age, race/ethnicity, neighborhood education and poverty levels, geographic region, census region, and year of diagnosis. Dispensing of a medication (buprenorphine or naltrexone) within 6 months of first receiving an OUD diagnosis. Among 20 822 youth diagnosed with OUD (0.2% of the 9.7 million sample), 13 698 (65.8%) were male and 17 119 (82.2%) were non-Hispanic white. Mean (SD) age was 21.0 (2.5) years at the first observed diagnosis. The diagnosis rate of OUD increased nearly 6-fold from 2001 to 2014 (from 0.26 per 100 000 person-years to 1.51 per 100 000 person-years). Overall, 5580 (26.8%) youth were dispensed a medication within 6 months of diagnosis, with 4976 (89.2%) of medication-treated youth receiving buprenorphine and 604 (10.8%) receiving naltrexone. Medication receipt increased more than 10-fold, from 3.0% in 2002 (when buprenorphine was introduced) to 31.8% in 2009, but declined in subsequent years (27.5% in 2014). In multivariable analyses, younger individuals were less likely to receive medications, with adjusted probability for age 13 to 15 years, 1.4% (95% CI, 0.4%-2.3%); 16 to 17 years, 9.7% (95% CI, 8.4%-11.1%); 18 to 20 years, 22.0% (95% CI, 21.0%-23.0%); and 21 to 25 years, 30.5% (95% CI, 30.0%-31.5%) (P < .001 for difference). Females (7124 [20.3%]) were less likely than males (13 698 [24.4%]) to receive medications (P < .001), as were non-Hispanic black (105 [14.8%]) and Hispanic (1165 [20.0%]) youth compared with non-Hispanic white (17 119 [23.1%]) youth (P < .001).In this first national study of buprenorphine and naltrexone receipt among youth, dispensing increased over time. Nonetheless, only 1 in 4 commercially insured youth with OUD received pharmacotherapy, and disparities based on sex, age, and race/ethnicity were observed.

Staff Publications

Crump, A.D., Etz, K., Arroyo, J.A. Hemberger, N. and Srinivasan, S. Accelerating and Strengthening Native American Health Research Through a Collaborative NIH Initiative. Prev Sci (2017). https://doi.org/10.1007/s11121-017-0854-5.

Meredith S. Shiels, Neal D. Freedman, David Thomas, Amy Berrington de Gonzalez. Trends in U.S. Drug Overdose Deaths in non-Hispanic Blacks, Hispanics, and non-Hispanic Whites: 2000-2015. *Annals of Internal Medicine*, 2017.

STAFF HIGHLIGHTS

Staff Awards

Staff Changes

Grantee Honors

K99 awardee Karsten Lunze, MD, DrPH, MPH, assistant professor at Boston Medical Center, was honored along with his wife Dr. Fatima Lunze with the American Public Health Association's Victor Sidel and Barry Levy Award for Peace for service to victims of war and terrorism. See: https://www.apha.org/news-and-media/news-releases/apha-news-releases/2017/2017-awards