Director's Report

to the

NATIONAL ADVISORY COUNCIL ON DRUG ABUSE

February 2015

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Director
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TABLE OF CONTENTS

* *These sections contain select information. More comprehensive information will be posted in the February 2015 Staff Report to the Director.*

RESEARCH HIGHLIGHTS

DIVISION OF BASIC NEUROSCIENCE AND BEHAVIORAL RESEARCH (DBNBR)

AT-1001: A High Affinity α3β4 nAChR Ligand with Novel Nicotine-Suppressive Pharmacology Cippitelli A, Wu J, Gaiolini KA, Mercatelli D, Schoch J, Gorman M, Ramirez A, Ciccocioppo R, Khroyan TV, Tasuda D, Zaveri NT, Pascual C, Xie XS, Toll L. Br J Pharmacol. 2014 Dec 2 [Epub ahead of print].

The α3β4 subtype of nicotinic acetylcholine receptors (nAChR) has been implicated in mediating nicotine reinforcement processes. AT-1001 has been recently described as a high affinity and selective α3β4 nAChR antagonist that blocks nicotine self-administration in rats. The aim of this study was to investigate the mechanism of action underlying the nicotine suppressive effects of AT-1001. Effects of AT-1001 were determined using in vitro assays and rat models of nicotine addiction, and compared to varenicline. AT-1001 and its analog AT-1012 were functionally selective as antagonists for α3β4 over α4β2 nAChR, but not to the same extent as the binding selectivity, and had partial agonist activity at α3β4 nAChR. In contrast, varenicline was a partial agonist at α4β2, a weak agonist at α3β4 and inhibited α4β2 at a much lower concentration than it inhibited α3β4 nAChR. AT-1001 and varenicline also had very different in vivo properties. First, AT-1001 did not exhibit reinforcing properties per se while varenicline was self-administered. Secondly, systemic treatment with AT-1001 did not induce reinstatement of nicotine seeking but rather attenuated reinstatement induced by varenicline, as well as nicotine. Finally, unlike varenicline, AT-1001 selectively blocked nicotine self-administration without altering alcohol lever pressing as assessed in an operant co-administration paradigm. These findings describe a more complex AT-1001 in vitro profile than previously appreciated and provide further support for the potential of AT-1001 and congeners as clinically useful compounds for smoking cessation, with a mechanism of action distinct from currently available medications.

Bidirectional Modulation Of Incubation Of Cocaine Craving By Silent Synapse-Based Remodeling Of Prefrontal Cortex To Accumbens Projections Ma Y-Y, Lee BR, Wang X, Guo C, Liu L, Cui R, Lan Y, Balcita-Pedicino JJ, Wolf ME, Sesack SR, Shaham Y, Schluter OM, Huang YH, Dong Y. Neuron (2014): 83(6), 1453-1467.

Glutamatergic projections from the medial prefrontal cortex (mPFC) to nucleus accumbens (NAc) contribute to cocaine relapse. Here the authors show that silent synapse-based remodeling of the two major mPFC-to-NAc projections differentially regulated the progressive increase in cue-induced cocaine seeking after withdrawal (incubation of cocaine craving). Specifically, cocaine self-administration in rats generated AMPA receptor-silent glutamatergic synapses within both infralimbic (IL) and prelimbic mPFC (PrL) to NAc projections, measured after 1 day of withdrawal. After 45 days of withdrawal, IL-to-NAc silent synapses became unsilenced/
matured by recruiting calcium-permeable (CP) AMPARs, whereas PrL-to-NAc silent synapses matured by recruiting non-CP-AMPARs, resulting in differential remodeling of these projections. Optogenetic reversal of silent synapse-based remodeling of IL-to-NAc and PrL-to-NAc projections potentiated and inhibited, respectively, incubation of cocaine craving on withdrawal day 45. Thus, pro- and antirelapse circuitry remodeling is induced in parallel after cocaine self-administration. These results may provide substrates for utilizing endogenous antirelapse mechanisms to reduce cocaine relapse.

Locus-Specific Epigenetic Remodeling Controls Addiction- And Depression-Related Behaviors Heller EA, Cates HM, Pena CJ, Sun H, Shao N, Feng J, Golden SA, Herman JP, Walsh JJ, Mazei-Robison M, Ferguson D, Knight S, Gerber MA, Nievera C, Han M-H, Russo SJ, Tamminga CS, Neve RL, Shen L, Zhang HS, Zhang F, Nestler EJ. Nat Neurosci 2014: 17(12), 1720-1727.

Chronic exposure to drugs of abuse or stress regulates transcription factors, chromatin-modifying enzymes and histone post-translational modifications in discrete brain regions. Given the promiscuity of the enzymes involved, it has not yet been possible to obtain direct causal evidence to implicate the regulation of transcription and consequent behavioral plasticity by chromatin remodeling that occurs at a single gene. The authors investigated the mechanism linking chromatin dynamics to neurobiological phenomena by applying engineered transcription factors to selectively modify chromatin at a specific mouse gene in vivo. They found that histone methylation or acetylation at the Fosb locus in nucleus accumbens, a brain reward region, was sufficient to control drug- and stress-evoked transcriptional and behavioral responses via interactions with the endogenous transcriptional machinery. This approach allowed the authors to relate the epigenetic landscape at a given gene directly to regulation of its expression and to its subsequent effects on reward behavior.

Reactivation Of Cocaine Reward Memory Engages the Akt/GSK3/Mtor Signaling Pathway and Can Be Disrupted By GSK3 Inhibition Shi X, Miller JS, Harper LJ, Poole RL, Gould TJ, Unterwald EM. Psychopharmacology (Berl). 2014 Aug;231(16):3109-3118.

Memories return to a labile state following their retrieval and must undergo a process of reconsolidation to be maintained. Thus, disruption of cocaine reward memories by interference with reconsolidation may be therapeutically beneficial in the treatment of cocaine addiction. The objectives of thia study were to elucidate the signaling pathway involved in reconsolidation of cocaine reward memory and to test whether targeting this pathway could disrupt cocaine-associated contextual memory. Using a mouse model of conditioned place preference, regulation of the activity of glycogen synthase kinase-3 (GSK3), mammalian target of Rapamycin complex 1 (mTORC1), P70S6K, β-catenin, and the upstream signaling molecule Akt, was studied in cortico-limbic-striatal circuitry after re-exposure to an environment previously paired with cocaine. Levels of phosporylated Akt-Thr308, GSK3α-Ser21, GSK3β-Ser9, mTORC1, and P70S6K were reduced in the nucleus accumbens and hippocampus 10 min after the reactivation of cocaine cue memories. Levels of pAkt and pGSK3 were also reduced in the prefrontal cortex. Since reduced phosphorylation of GSK3 indicates heightened enzyme activity, the effect of a selective GSK3 inhibitor, SB216763, on reconsolidation was tested. Administration of SB216763 immediately after exposure to an environment previously paired with cocaine abrogated a previously established place preference, suggesting that GSK3 inhibition interfered with reconsolidation of cocaine-associated reward memories. These findings suggest that the Akt/GSK3/mTORC1 signaling pathway in the nucleus accumbens, hippocampus, and/or prefrontal cortex is critically involved in the reconsolidation of cocaine contextual reward memory. Inhibition of GSK3 activity during memory retrieval can erase an established cocaine place preference.

Chronic Pain. Decreased Motivation During Chronic Pain Requires Long-Term Depression In The Nucleus Accumbens Schwartz N, Temkin P, Jurado S, Lim BK, Heifets BD, Polepalli JS, Malenka RC. Science 2014; 345(6196): 535-542.

Several symptoms associated with chronic pain, including fatigue and depression, are characterized by reduced motivation to initiate or complete goal-directed tasks. However, it is unknown whether maladaptive modifications in neural circuits that regulate motivation occur during chronic pain. Here, the authors demonstrate that the decreased motivation elicited in mice by two different models of chronic pain requires a galanin receptor 1-triggered depression of excitatory synaptic transmission in indirect pathway nucleus accumbens medium spiny neurons. These results demonstrate a previously unknown pathological adaption in a key node of motivational neural circuitry that is required for one of the major sequela of chronic pain states and syndromes.

DIVISION OF CLINICAL NEUROSCIENCE AND BEHAVIORAL RESEARCH (DCNBR)

In Search of Rare Variants: Preliminary Results from Whole Genome Sequencing of 1,325 Individuals with Psychophysiological Endophenotypes Vrieze SI, Malone SM, Vaidyanathan U, Kwong A, Kang HM, Zhan X, Flickinger M, Irons D, Jun G, Locke AE, Pistis G, Porcu E, Levy S, Myers RM, Oetting W, McGue M, Abecasis G, Iacono WG. Psychophysiology. 2014 Dec; 51(12):1309-1320.

Whole genome sequencing was completed on 1,325 individuals from 602 families, identifying 27 million autosomal variants. Genetic association tests were conducted for those individuals who had been assessed for one or more of 17 endophenotypes (N range=802-1,185). No significant associations were found. These 27 million variants were then imputed into the full sample of individuals with psychophysiological data (N range=3,088-4,469) and again tested for associations with the 17 endophenotypes. No association was significant. Using a gene-based variable threshold burden test of nonsynonymous variants, the authors obtained five significant associations. These findings are preliminary and call for additional analysis of this rich sample. The authors argue that larger samples, alternative study designs, and additional bioinformatics approaches will be necessary to discover associations between these endophenotypes and genomic variation.

Genetic Variation in GABRA2 Moderates Peer Influence on Externalizing Behavior in Adolescents Villafuerte S, Trucco EM, Heitzeg MM, Burmeister M, Zucker RA. Drug Alcohol Depend. 2014 Aug 1;141:51-57.

Genetic predisposition and environmental influences are both important factors in the development of problematic behavior leading to substance use in adolescence. Involvement with delinquent peers also strongly predicts adolescent externalizing behavior. Several lines of evidence support a role of *GABRA2* on externalizing behavior related to disinhibition. However, whether this genetic association is influenced by the environment such as peer behavior remains unknown. The authors examined the moderating role of *GABRA2* genetic variation on the socialization model of delinquent peer affiliation (at ages 12-14 years) on externalizing behavior (at ages 15-17 years) in the Michigan Longitudinal Study (MLS) adolescent sample. The sample consisted of 244 adolescents (75 females and 152 with at least one parent with a *DSM-IV* lifetime alcohol dependence/abuse diagnosis). Peer delinquent activity reported by the participant and teacher-reported adolescent externalizing behavior (Teacher Report Form (TRF) were assessed. No main effect of the *GABRA2* SNP rs279826, which tags a large haplotype, on externalizing behavior was observed. However, there was a statistically reliable *GABRA2* × peer delinquency interaction. The effect of peer delinquent involvement on externalizing scores and the rule breaking subscale is significantly stronger for those with the GG genotype compared to A-carriers, whereas there was no

effect of genotype on externalizing in the absence of peer delinquent involvement. No interaction was observed for the aggression subscale. These results suggest that the genetic effect of *GABRA2* on externalizing behavior, more specifically on rule breaking is, at least in part, due to its effect on susceptibility to environmental exposure (i.e., peer delinquency).

Experimentation versus Progression in Adolescent Drug Use: A Test of an Emerging Neurobehavioral Imbalance Model. Khurana A, Romer D, Betancourt LM, Brodsky NL, Giannetta JM, Hurt H. Dev Psychopathol. 2014 Aug 26:1-13. [Epub ahead of print].
Based on an emerging neuroscience model of addiction, this study examines how an imbalance between two neurobehavioral systems (reward motivation and executive control) can distinguish between early adolescent progressive drug use and mere experimentation with drugs. Data from four annual assessments of a community cohort (N = 382) of 11- to 13-year-olds were analyzed to model heterogeneity in patterns of early drug use. Baseline assessments of working memory (an indicator of the functional integrity of the executive control system) and three dimensions of impulsivity (characterizing the balance between reward seeking and executive control systems) were used to predict heterogeneous latent classes of drug use trajectories from early to midadolescence. Findings revealed that an imbalance resulting from weak executive control and heightened reward seeking was predictive of early progression in drug use, while heightened reward seeking balanced by a strong control system was predictive of occasional experimentation only. Implications of these results are discussed in terms of preventive interventions that can target underlying weaknesses in executive control during younger years, and potentially enable at-risk adolescents to exercise greater self-restraint in the context of rewarding drug-related cues.

Randomized Trial of Telephone-Delivered Acceptance and Commitment Therapy versus Cognitive Behavioral Therapy for Smoking Cessation: A Pilot Study Bricker JB, Bush T, Zbikowski SM, Mercer LD, Heffner JL. Nicotine Tob Res. 2014 Nov;16(11):1446-1454.
The authors conducted a pilot randomized trial of telephone-delivered acceptance and commitment therapy (ACT) versus cognitive behavioral therapy (CBT) for smoking cessation. Participants were 121 uninsured South Carolina State Quitline callers who were adult smokers (at least 10 cigarettes/day) and who wanted to quit within the next 30 days. Participants were randomized to 5 sessions of either ACT or CBT telephone counseling and were offered 2 weeks of nicotine replacement therapy (NRT). ACT participants completed more calls than CBT participants (M = 3.25 in ACT vs. 2.23 in CBT; p = .001). Regarding satisfaction, 100% of ACT participants reported their treatment was useful for quitting smoking (vs. 87% for CBT; p = .03), and 97% of ACT participants would recommend their treatment to a friend (vs. 83% for CBT; p = .06). On the primary outcome of intent-to-treat 30-day point prevalence abstinence at 6 months postrandomization, the quit rates were 31% in ACT versus he authors conclude that ACT is feasible to deliver by phone, is highly acceptable to quitline callers, and shows highly promising quit rates compared with standard CBT quitline counseling. As results were limited by the pilot design (e.g., small sample), a full-scale efficacy trial is now needed.

Substance Use Recovery Outcomes among a Cohort of Youth Participating in a Mobile-Based Texting Aftercare Pilot Program Gonzales R, Ang A, Murphy DA, Glik DC, Anglin MD. J Subst Abuse Treat. 2014 Jul;47(1):20-26.
Project ESQYIR (Educating & Supporting Inquisitive Youth in Recovery) is a pilot study examining the feasibility of a 12-week mobile-based aftercare intervention for youth (ages 12 to 24)

transitioning out of community-based substance abuse treatment programs. From January 2012 through July 2013, a total of 80 youth were recruited from outpatient and residential treatment programs, geographically dispersed throughout Los Angeles County, California. Results revealed that youth who participated in the texting mobile pilot intervention were significantly less likely to relapse to their primary compared to the aftercare as usual control condition (OR=0.52, p=0.002) over time (from baseline throughout the 12-week aftercare pilot program to a 90-day follow-up). Participants in the texting aftercare pilot program also reported significantly less substance use problem severity (β=-0.46, p=0.03) and were more likely to participate in extracurricular recovery behaviors (β=1.63, p=0.03) compared to participants in the standard aftercare group. Collectively, findings from this pilot aftercare study suggest that mobile texting could provide a feasible way to engage youth in recovery after substance abuse treatment to aid with reducing relapse and promoting lifestyle behavior change.

Real-Time Mobile Detection of Drug Use with Wearable Biosensors: A Pilot Study Carreiro S, Smelson D, Ranney M, Horvath KJ, Picard RW, Boudreaux ED, Hayes R, Boyer EW. J Med Toxicol. 2014 Oct 21. [Epub ahead of print].
While reliable detection of illicit drug use is paramount to the field of addiction, current methods involving self-report and urine drug screens have substantial limitations that hinder their utility. Wearable biosensors may fill a void by providing valuable objective data regarding the timing and contexts of drug use. This is a preliminary observational study of four emergency department patients receiving parenteral opioids and one individual using cocaine in a natural environment. A portable biosensor was placed on the inner wrist of each subject, to continuously measure electrodermal activity (EDA), skin temperature, and acceleration. Data were continuously recorded for at least 5 min prior to drug administration, during administration, and for at least 30 min afterward. Overall trends in biophysiometric parameters were assessed. Injection of opioids and cocaine use were associated with rises in EDA. Cocaine injection was also associated with a decrease in skin temperature. Opioid tolerance appeared to be associated with a blunted physiologic response as measured by the biosensor. Laterality may be an important factor, as magnitude of response varied between dominant and nondominant wrists in a single patient with bilateral wrist measurements. Changes in EDA and skin temperature are temporally associated with intravenous administration of opioids and cocaine; the intensity of response, however, may vary depending on history and extent of prior use.

Value-Driven Attentional Priority Signals in Human Basal Ganglia and Visual Cortex. Anderson BA, Laurent PA, Yantis S. Brain Res. 2014; 1587: 88–96.
Goal-directed and stimulus-driven factors determine attentional priority through a well-defined dorsal frontal-parietal and ventral temporal-parietal network of brain regions, respectively. Recent evidence demonstrates that reward-related stimuli also have high attentional priority, independent of their physical salience and goal-relevance. The neural mechanisms underlying such value-driven attentional control are unknown. Using human functional magnetic resonance imaging, the authors demonstrate that the tail of the caudate nucleus and extrastriate visual cortex respond preferentially to task-irrelevant but previously reward-associated objects, providing an attentional priority signal that is sensitive to reward history. The caudate tail has not been implicated in the control of goal-directed or stimulus-driven attention, but is well suited to mediate the value-driven control of attention. These findings reveal the neural basis of value-based attentional priority.

Long-term Effects of Marijuana Use on the Brain. Filbey FM, Aslan S, Calhoun VD, Spence JS, Damaraju E, Caprihan A, Segall J. Proc Natl Acad Sci U S A. 2014 Nov 10 [Epub ahead of print]. 111(47):16913-16918.
Questions surrounding the effects of chronic marijuana use on brain structure continue to increase. To date, however, findings remain inconclusive. In this comprehensive study that aimed to characterize brain alterations associated with chronic marijuana use, we measured gray matter (GM) volume via structural MRI across the whole brain by using voxel-based morphology, synchrony among abnormal GM regions during resting state via functional connectivity MRI, and white matter integrity (i.e., structural connectivity) between the abnormal GM regions via diffusion tensor imaging in 48 marijuana users and 62 age- and sex-matched nonusing controls. The results showed that compared with controls, marijuana users had significantly less bilateral orbitofrontal gyri volume, higher functional connectivity in the orbitofrontal cortex (OFC) network, and higher structural connectivity in tracts that innervate the OFC (forceps minor) as measured by fractional anisotropy (FA). Increased OFC functional connectivity in marijuana users was associated with earlier age of onset. Lastly, a quadratic trend was observed suggesting that the FA of the forceps minor tract initially increased following regular marijuana use but decreased with protracted regular use. This pattern may indicate differential effects of initial and chronic marijuana use that may reflect complex neuroadaptive processes in response to marijuana use. Despite the observed age of onset effects, longitudinal studies are needed to determine causality of these effects.

Perceived Control Influences Neural Responses to Setbacks and Promotes Persistence Bhanji JP, Delgado MR. Neuron. 2014 Sep 17; 83(6): 1369-1375.
How do people cope with setbacks and persist with their goals? The authors examine how perceiving control over setbacks alters neural processing in ways that increase persistence through adversity. For example, a student might retake a class if initial failure was due to controllable factors (e.g., studying) but give up if failure was uncontrollable (e.g., unfair exam questions). Participants persisted more when they perceived control over setbacks, and when they experienced increased negative affect to setbacks. Consistent with previous observations involving negative outcomes, ventral striatum and ventromedial prefrontal (VMPFC) activity was decreased in response to setbacks. Critically, these structures represented distinct neural mechanisms for persistence through adversity. Ventral striatum signal change to controllable setbacks correlated with greater persistence, whereas VMPFC signal change to uncontrollable setbacks mediated the relationship between increased negative affect and persistence. Taken together, the findings highlight how people process setbacks and adapt their behavior for future goal pursuit.

DIVISION OF EPIDEMIOLOGY, SERVICES AND PREVENTION RESEARCH (DESPR)

The Association Between Cannabis Abuse and Subsequent Schizophrenia: A Swedish National Co-relative Control Study Giordano GN, Ohlsson H, Sundquist K, Sundquist J, Kendler KS. Psychol Med. 2014: 1-8.
Although cannabis abuse (CA) is known to be associated with schizophrenia, the causal nature of this association is unclear, with prodromal effects complicating its interpretation. From Swedish national registry databases, the authors used a co-relative case-control design with full-sibling, half-sibling and first-cousin comparisons, alongside a general Swedish population sample. Using ICD codes, 5456 individuals with an initial diagnosis of schizophrenia (2000-2010) were matched with

five schizophrenia-free controls. They further identified first-cousin, half-sibling and full-sibling pairs discordant for CA and statistically extrapolated results for discordant monozygotic (MZ) twins. Within the general Swedish population, CA was strongly associated with later schizophrenia [odds ratio (OR) 10.44, 95% confidence interval (CI) 8.99-12.11]. This association was substantially attenuated both by increasing temporal delays between CA exposure and schizophrenia diagnosis and by controlling for increasing degrees of familial confounding. Extrapolated discordant MZ pairs suggested that fully controlling for confounding familial factors reduced the association between CA and later schizophrenia to more modest levels (ORs of approximately 3.3 and 1.6 with 3- and 7-year temporal delays respectively). Opiate, sedative, cocaine/stimulant and hallucinogen abuse were also strongly associated with subsequent schizophrenia in the general population. After controlling for familial confounding, only cocaine/stimulant exposure remained associated. CA has an appreciable causal impact on future risk for schizophrenia. However, population-based estimates of cannabis-schizophrenia co-morbidity substantially overestimate their causal association. Predictions of the cases of schizophrenia that might be prevented by reduced cannabis consumption based on population associations are therefore likely to be considerably overestimated.

Polygenic Risk Scores For Smoking: Predictors For Alcohol and Cannabis Use?
Vink JM, Hottenga JJ, de Geus EJC, Willemsen G, Neale MC, Furberg H, Boomsma DI. Addiction. 2014; 109(7): 1141-1151.
A strong correlation exists between smoking and the use of alcohol and cannabis. This paper uses polygenic risk scores to explore the possibility of overlapping genetic factors. Those scores reflect a combined effect of selected risk alleles for smoking. Summary-level P-values were available for smoking initiation, age at onset of smoking, cigarettes per day and smoking cessation from the Tobacco and Genetics Consortium (n between 22,000 and 70,000 subjects). Using different P-value thresholds (0.1, 0.2 and 0.5) from the meta-analysis, sets of risk alleles; were defined and used to generate a polygenic risk score (weighted sum of the alleles) for each subject in an independent target sample from the Netherlands Twin Register (n=1583). The association between polygenic smoking scores and alcohol/cannabis use was investigated with regression analysis. The polygenic scores for; cigarettes per day; were associated significantly with the number of glasses alcohol per week (P=0.005, R2 =0.4-0.5%) and cannabis initiation (P=0.004, R2 =0.6-0.9%). The polygenic scores for age at onset of smoking; were associated significantly with age at regular drinking; (P=0.001, R2 =1.1-1.5%), while the scores for smoking initiation; and smoking cessation; did not significantly predict alcohol or cannabis use. Smoking, alcohol and cannabis use are influenced by aggregated genetic risk factors shared between these substances. The many common genetic variants each have a very small individual effect size.

Preventing Weight Gain and Obesity: Indirect Effects of the Family Check-Up in Early Childhood Smith JD, Montano Z, Dishion TJ, Shaw DS, Wilson MN. Prev Sci. 2014.
The early signs of obesity are observable in early childhood. Although the most promising prevention approaches are family-centered, few relevant early prevention programs exist. This study evaluated the effects of an evidence-based, home-visiting intervention, the Family Check-Up (FCU), on the trajectory of children weight gain. The FCU was designed to prevent the development of behavior problems by improving family management practices; children weight has not been an explicit target. On the basis of previous research and conceptual models, the authors hypothesized that intervention effects on parenting practices, specifically caregivers' use of positive

behavior support (PBS) strategies in toddlerhood, would mediate improvements in children weight trajectories. A total of 731 indigent caregiver-child dyads from a multisite randomized intervention trial were examined. Observational assessment of parenting and mealtime behaviors occurred from age 2-5 years. The child body mass index (BMI) was assessed yearly from age 5-9.5 years. Path analysis with a latent growth model revealed a significant indirect effect of the FCU on the trajectory of BMI in later childhood. Improvements in caregivers; PBS in toddlerhood, which was related to the nutritional quality of the meals caregivers served to the child during the mealtime task, served as the intervening process. Furthermore, findings indicate that the FCU prevents progression to overweight and obese status amongst at-risk children. These study results add to existing evidence that has demonstrated that family-based interventions aimed at improving general family management skills are effective at preventing weight gain. Future directions are discussed.

Screening and Brief Intervention for Drug Use in Primary Care: The ASPIRE Randomized Clinical Trial Saitz R, Palfai TPA, Cheng DM, Alford DP, Bernstein JA, Lloyd-Travaglini CA, Meli SM, Chaisson CE, Samet JH. JAMA. 2014; 312(5): 502-513.
The United States has invested substantially in screening and brief intervention for illicit drug use and prescription drug misuse, based in part on evidence of efficacy for unhealthy alcohol use. However, it is not a recommended universal preventive service in primary care because of lack of evidence of efficacy. To test the efficacy of 2 brief counseling interventions for unhealthy drug use (any illicit drug use or prescription drug misuse)-a brief negotiated interview (BNI) and an adaptation of motivational interviewing (MOTIV)-compared with no brief intervention. This 3-group randomized trial took place at an urban hospital-based primary care internal medicine practice; 528 adult primary care patients with drug use (Alcohol, Smoking, and Substance Involvement Screening Test [ASSIST] substance-specific scores of 4) were identified by screening between June 2009 and January 2012 in Boston, Massachusetts. Two interventions were tested: the BNI is a 10- to 15-minute structured interview conducted by health educators; the MOTIV is a 30- to 45-minute intervention based on motivational interviewing with a 20- to 30-minute booster conducted by master's-level counselors. All study participants received a written list of substance use disorder treatment and mutual help resources. Primary outcome was number of days of use in the past 30 days of the self-identified main drug as determined by a validated calendar method at 6 months. Secondary outcomes included other self-reported measures of drug use, drug use according to hair testing, ASSIST scores (severity), drug use consequences, unsafe sex, mutual help meeting attendance, and health care utilization. At baseline, 63% of participants reported their main drug was marijuana, 19% cocaine, and 17% opioids. At 6 months, 98% completed follow-up. Mean adjusted number of days using the main drug at 6 months was 12 for no brief intervention vs 11 for the BNI group (incidence rate ratio [IRR], 0.97; 95% CI, 0.77-1.22) and 12 for the MOTIV group (IRR, 1.05; 95% CI, 0.84-1.32; P=.81 for both comparisons vs no brief intervention). There were also no significant effects of BNI or MOTIV on any other outcome or in analyses stratified by main drug or drug use severity. Brief intervention did not have efficacy for decreasing unhealthy drug use in primary care patients identified by screening. These results do not support widespread implementation of illicit drug use and prescription drug misuse screening and brief intervention.clinicaltrials.gov Identifier: NCT00876941.

Brief Intervention for Problem Drug Use In Safety-net Primary Care Settings: A Randomized Clinical Trial Roy-Byrne P, Bumgardner K, Krupski A, Dunn C, Ries R, Donovan D, West II, Maynard C, Atkins DC, Graves MC, Joesch JM, Zarkin GA. JAMA. 2014; 312(5): 492-501.

Although brief intervention is effective for reducing problem alcohol use, few data exist on its effectiveness for reducing problem drug use, a common issue in disadvantaged populations seeking care in safety-net medical settings (hospitals and community health clinics serving low-income patients with limited or no insurance). The purpose of this study was to determine whether brief intervention improves drug use outcomes compared with enhanced care as usual. A randomized clinical trial with blinded assessments at baseline and at 3, 6, 9, and 12 months conducted in 7 safety-net primary care clinics in Washington State. Of 1621 eligible patients reporting any problem drug use in the past 90 days, 868 consented and were randomized between April 2009 and September 2012. Follow-up participation was more than 87% at all points. Participants received a single brief intervention using motivational interviewing, a handout and list of substance abuse resources, and an attempted 10-minute telephone booster within 2 weeks (n=435) or enhanced care as usual, which included a handout and list of substance abuse resources (n=433).The primary outcomes were self-reported days of problem drug use in the past 30 days and Addiction Severity Index-Lite (ASI) Drug Use composite score. Secondary outcomes were admission to substance abuse treatment; ASI composite scores for medical, psychiatric, social, and legal domains; emergency department and inpatient hospital admissions, arrests, mortality, and human immunodeficiency virus risk behavior. Mean days used of the most common problem drug at baseline were 14.40 (SD, 11.29) (brief intervention) and 13.25 (SD, 10.69) (enhanced care as usual); at 3 months post-intervention, means were 11.87 (SD, 12.13) (brief intervention) and 9.84 (SD, 10.64) (enhanced care as usual) and not significantly different (difference in differences, *= 0.89 [95% CI, -0.49 to 2.26]). Mean ASI Drug Use composite score at baseline was 0.11 (SD, 0.10) (brief intervention) and 0.11 (SD, 0.10) (enhanced care as usual) and at 3 months was 0.10 (SD, 0.09) (brief intervention) and 0.09 (SD, 0.09) (enhanced care as usual) and not significantly different (difference in differences, *= 0.008 [95% CI, -0.006 to 0.021]). During the 12 months following intervention, no significant treatment differences were found for either variable. No significant differences were found for secondary outcomes. A one-time brief intervention with attempted telephone booster had no effect on drug use in patients seen in safety-net primary care settings. This finding suggests a need for caution in promoting widespread adoption of this intervention for drug use in primary care.clinicaltrials.gov Identifier: NCT00877331.

Toward A Comprehensive Developmental Model Of Smoking Initiation and Nicotine Dependence Garcia-Rodriguez O, Blanco C, Wall MM, Wang S, Jin CJ, Kendler KS. Drug Alcohol Depend. 2014.

This study aims to identify predictors of smoking initiation and nicotine dependence (ND) to develop a comprehensive risk-factor model based on Kendlers development model for major depression. Data were drawn from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), Wave 2 (n=34,653). Risk factors were divided into five developmental tiers according to Kendler model (childhood, early adolescence, late adolescence, adulthood, past-year). Hierarchical logistic regression models were built to predict the risk of smoking initiation and the risk of ND, given initiation. The continuation ratio (CR) was tested by ordinal logistic regression to examine whether the impact of the predictors was the same on smoking initiation or ND. The final models highlighted the importance of different tiers for each outcome. The CR identified substantial differences in the predictors of smoking initiation versus ND. Childhood tier appears to be more determinant for smoking initiation while the effect of more distal tiers (i.e. childhood and early adolescence) was tempered by more proximal ones (i.e. late adolescence, adulthood and past-year) in ND, with few sex differences. The differential effect of some predictors on each outcome shows

the complexity of pathways from smoking initiation to ND. While some risk factors may be shared, others impact only at one stage or have even an inverse effect. An adaptation of Kendler developmental model for major depression showed high predictive power for smoking initiation and ND.

The Causal Nature Of the Association Between Neighborhood Deprivation and Drug Abuse: A Prospective National Swedish Co-relative Control Study Kendler KS, Ohlsso H, Sundquist K, Sundquist J. Psychol Med. 2014; 44(12): 2537-2546.
Risk for drug abuse (DA) is strongly associated with neighborhood social deprivation (SD). However, the causal nature of this relationship is unclear. Three Swedish population-based cohorts were followed up over 5 years for incident registration of DA in medical, legal or pharmacy records. In each cohort, we examined the SD-DA association, controlling carefully for individual socio-economic status (SES) with multiple measures, in the entire sample and among pairs of first cousins, paternal and maternal half-siblings, full siblings and monozygotic (MZ) twins discordant for SD exposure. The number of informative relative pairs ranged from 6366 to 166,208.In all cohorts, SD was prospectively related to risk for incident DA. In relative pairs discordant for SD exposure, the SD-DA association was similar to that seen in the entire population in cousins, half-siblings, full siblings and MZ twins. Eliminating subjects who were residentially unstable or had DA in the first two follow-up years did not alter this pattern. When divided by age, in the youngest groups, the SD-DA association was weaker in siblings than in the entire population. Across three cohorts, controlling for individual SES and confounding familial factors, SD prospectively predicted risk for incident DA registration. These results support the hypothesis that the SD-DA association is in part causal and unlikely to result entirely from personal attributes, which both increase risk for DA and cause selection into high SD environments. At least part of the SD-DA association arises because exposure to SD causes an increased risk of DA.

Catecholamine Levels and Delay Discounting Forecast Drug Use Among African American Youths Brody GH, Yu T, MacKillop J, Miller GE, Chen E, Obasi EM, Beach SRH. Addiction.2014; 109(7): 1112-1118.
To test hypotheses about the contributions of the catecholamine's epinephrine and norepinephrine [which serve as biological markers of life stress through sympathetic nervous system (SNS) activation], delay discounting and their interaction to the prediction of drug use among young African American adults. This was a 1-year prospective study that involved assessment of SNS activity and collection of self-report data involving delay discounting and drug use conducted in rural communities in the southeastern United States. Participants were a total of 456 African Americans who were 19 years of age at the beginning of the study. At age 19, participants provided overnight urine voids that were assayed for epinephrine and norepinephrine. Participants were also assessed for hyperbolic temporal discounting functions (k) and drug use. At age 20, the participants again reported their drug use. Linear regression analyses revealed that (i) catecholamine levels at age 19 forecast increases in drug use [B = 0.087, P < 0.01, 95% confidence interval (CI)0.025, 0.148] and (ii) among young men, catecholamine levels interacted positively with delay discounting to forecast increases in drug use (simple slope = 0.113, P < 0.001, 95% CI = 0.074, 0.152). Higher urinary catecholamine concentrations in their adulthood predict higher levels of drug use a year later among young African American men in the United States who engage in high, but not low, levels of delay discounting.

Sexual Risk Behavior In Young Adulthood: Broadening the Scope Beyond Early Sexual Initiation Epstein M, Bailey JA, Manhart LE, Hill KG, Hawkins JD. J Sex Res. 2014; 51(7): 721-730.
A robust link between early sexual initiation and sexual risk-taking behavior is reported in previous studies. The relationship may not be causal, however, as the effect of common risk factors are often not considered. The current study examined whether early initiation was a key predictor of risky sexual behavior in the 20s and 30s, over and above co-occurring individual and environmental factors. Data were drawn from the Seattle Social Development Project, a longitudinal panel of 808 youth. Early predictors (ages 10 to 15) and sexual risk taking (ages 21 to 24 and 30 to 33) were assessed prospectively. Early sexual initiation (before age 15) was entered into a series of profit regressions that also included family, neighborhood, peer, and individual risk factors. Although a positive bivariate relation between early sexual initiation and sexual risk taking was observed at both ages, the link did not persist when co-occurring risk factors were included. Behavioral disinhibition and antisocial peer influences emerged as the strongest predictors of sexual risk over and above early sexual initiation. These results suggest that early sexual initiation must be considered in the context of common antecedents; public health policy aimed at delaying sexual intercourse alone is unlikely to substantially reduce sexual risk behavior in young adulthood.

Youth Tobacco Use Type And Associations With Substance Use Disorders Cavazos-Rehg PA, Krauss MJ, Spitznagel EL, Grucza RA, Bierut LJ. Addiction. 2014; 109(8): 1371-1380.
The objective of this study was to examine the associations between youth poly-tobacco use and substance use disorders and involved analysis of data from the 2007-11 US National Survey on Drug Use and Health. Randomly selected, household-dwelling adolescents from the non-institutionalized, civilian population of the United States. A total of 91152 adolescents (aged 12-17years).Logistic regression models were used to examine the associations between type of tobacco user (non-user, users of alternative tobacco products only, users of cigarettes only and users of cigarettes plus alternative tobacco products) with past year alcohol, marijuana or other illicit drug use disorders, adjusting for demographic and social variables. Compared with non-users of tobacco, the greatest risk for substance use disorders was among users of cigarettes plus alternative tobacco products [alcohol disorder adjusted odds ratio (aOR)=18.3, 95% confidence interval (CI)=16.2-20.6; marijuana disorder aOR=37.2, 95% CI=32.5-42.7; other drug disorder aOR=18.4, 95% CI=15.4-21.8], followed by users of cigarettes only (alcohol disorder aOR=9.6, 95% CI=8.8-10.6; marijuana disorder a OR=20.4, 95% CI=18.1-23.0; other drug disorder aOR=9.4, 95% CI=7.8-11.4), then users of alternative tobacco products only (alcohol disorder aOR=8.1, 95% CI=6.7-9.6; marijuana disorder aOR=9.2, 95% CI=7.5-11.4; other drug disorder aOR=3.2, 95% CI=2.4-4.3).Tobacco use in adolescence is associated with higher rates of substance use disorders across all tobacco users, especially among those who use cigarettes plus other tobacco products.

DIVISION OF PHARMACOTHERAPIES AND MEDICAL CONSEQUENCES OF DRUG ABUSE (DPMCDA)

First Human Study Of A Chimeric Anti-Methamphetamine Monoclonal Antibody In Healthy Volunteers Stevens MW, Henry RL, Owens SM, Schutz R, Gentry WB. MAbs. 2014 Nov; 6(6):1649-1656.

This first-in-human study examined the safety and pharmacokinetics of ch-mAb7F9, an anti-methamphetamine monoclonal antibody, in healthy volunteers. Single, escalating doses of ch-mAb7F9 over the range of 0. 2 to 20 mg/kg were administered to 42 subjects who were followed for 147 d. Safety was measured by physical examinations, adverse events, vital signs, electrocardiograms, and clinical laboratory testing. Serum ch-mAb7F9 concentration and immunogenicity analyses were performed. There were no serious adverse reactions or discontinuations from the study due to adverse events. No trends emerged in the frequency, relatedness, or severity of adverse events with increased dose or between active and placebo treated subjects. Ch-mAb7F9 displayed expected IgG pharmacokinetic parameters, including a half-life of 17-19 d in the 3 highest dose groups and volume of distribution of 5-6 L, suggesting the antibody is confined primarily to the vascular compartment. Four (12. 5%) of the 32 subjects receiving ch-mAb7F9 were confirmed to have developed a human anti-chimeric antibody response by the end of the study; however, this response did not appear to be dose related. Overall, no apparent safety or tolerability concerns were identified; a maximum tolerated dose was not reached in this Phase 1 study. Ch-mAb7F9 therefore appears safe for human administration.

Primary Care-Based Buprenorphine Taper vs Maintenance Therapy for Prescription Opioid Dependence: A Randomized Clinical Trial Fiellin DA, Schottenfeld RS, Cutter CJ, Moore BA, Barry DT, O'Connor PG. JAMA Intern Med. 2014 Dec 1;174(12): 1947-1954. Prescription opioid dependence is increasing and creates a significant public health burden, but primary care physicians lack evidence-based guidelines to decide between tapering doses followed by discontinuation of buprenorphine hydrochloride and naloxone hydrochloride therapy (hereinafter referred to as buprenorphine therapy) or ongoing maintenance therapy. The objective of this study was to determine the efficacy of buprenorphine taper vs ongoing maintenance therapy in primary care-based treatment for prescription opioid dependence. The authors conducted a 14-week randomized clinical trial that enrolled 113 patients with prescription opioid dependence from February 17, 2009, through February 1, 2013, in a single primary care site. Patients were randomized to buprenorphine taper (taper condition) or ongoing buprenorphine maintenance therapy (maintenance condition). The buprenorphine taper was initiated after 6 weeks of stabilization, lasted for 3 weeks, and included medications for opioid withdrawal, after which patients were offered naltrexone treatment. The maintenance group received ongoing buprenorphine therapy. All patients received physician and nurse support and drug counseling. Main outcomes and measures were illicit opioid use via results of urinanalysis and patient report, treatment retention, and reinitiation of buprenorphine therapy (taper group only). During the trial, the mean percentage of urine samples negative for opioids was lower for patients in the taper group (35.2% [95% CI, 26.2%-44.2%]) compared with those in the maintenance group (53.2% [95% CI, 44.3%-62.0%]). Patients in the taper group reported more days per week of illicit opioid use than those in the maintenance group once they were no longer receiving buprenorphine (mean use, 1.27 [95% CI, 0.60-1.94] vs 0.47 [95% CI, 0.19-0.74] days). Patients in the taper group had fewer maximum consecutive weeks of opioid abstinence compared with those in the maintenance group (mean abstinence, 2.70 [95% CI, 1.72-3.75] vs 5.20 [95% CI, 4.16-6.20] weeks). Patients in the taper group were less likely to complete the trial (6 of 57 [11%] vs 37 of 56 [66%]; P<.001). Sixteen patients in the taper group reinitiated buprenorphine treatment after the taper owing to relapse. The authors conclude that tapering is less efficacious than ongoing maintenance treatment in patients with prescription opioid dependence who receive buprenorphine therapy in primary care.

Association Of Opioid Agonist Therapy With Lower Incidence Of Hepatitis C Virus Infection In Young Adult Injection Drug Users Tsui JI, Evans JL, Lum PJ, Hahn JA, Page K. JAMA Intern Med. 2014 Dec 1;174(12):1974-1981.

Injection drug use is the primary mode of transmission for hepatitis C virus (HCV) infection. Prior studies suggest opioid agonist therapy may reduce the incidence of HCV infection among injection drug users; however, little is known about the effects of this therapy in younger users. The objective of this study was to evaluate whether opioid agonist therapy was associated with a lower incidence of HCV infection in a cohort of young adult injection drug users. This was an observational cohort study conducted from January 3, 2000, through August 21, 2013, with quarterly interviews and blood sampling. The authors recruited young adult (younger than 30 years) injection drug users who were negative for anti-HCV antibody and/or HCV RNA. Exposures included substance use treatment within the past 3 months, including non-opioid agonist forms of treatment, opioid agonist (methadone hydrochloride or buprenorphine hydrochloride) detoxification or maintenance therapy, or no treatment. Main outcomes and measures included incident HCV infection documented with a new positive result for HCV RNA and/or HCV antibodies. Cumulative incidence rates (95% CI) of HCV infection were calculated assuming a Poisson distribution. Cox proportional hazards regression models were fit adjusting for age, sex, race, years of injection drug use, homelessness, and incarceration. Baseline characteristics of the sample (n=552) included median age of 23 (interquartile range, 20-26) years; 31.9% female; 73.1% white; 39.7% who did not graduate from high school; and 69.2% who were homeless. During the observation period of 680 person-years, 171 incident cases of HCV infection occurred (incidence rate, 25.1 [95% CI, 21.6-29.2] per 100 person-years). The rate ratio was significantly lower for participants who reported recent maintenance opioid agonist therapy (0.31 [95% CI, 0.14-0.65]; P=.001) but not for those who reported recent non-opioid agonist forms of treatment (0.63 [95% CI, 0.37-1.08]; P=.09) or opioid agonist detoxification (1.45 [95% CI, 0.80-2.69]; P=.23). After adjustment for other covariates, maintenance opioid agonist therapy was associated with lower relative hazards for acquiring HCV infection over time (adjusted hazard ratio, 0.39 [95% CI, 0.18-0.87]; P=.02). The authors conclude that in this cohort of young adult injection drug users, recent maintenance opioid agonist therapy was associated with a lower incidence of HCV infection. Maintenance treatment with methadone or buprenorphine for opioid use disorders may be an important strategy to prevent the spread of HCV infection among young injection drug users.

Alpha 2A Adrenergic Receptor Agonist, Guanfacine, Attenuates Cocaine-Related Impairments Of Inhibitory Response Control And Working Memory In Animal Models Terry AV Jr., Callahan PM, Schade R, Kille NJ, Plagenhoef M. Pharmacol Biochem Behav. 2014 Nov;126: 63-72.

There is considerable evidence that centrally acting α2A adrenergic receptor agonists can attenuate impairments in executive function that result from dysfunction of the prefrontal cortex. Such positive effects resulted in the recent approval by the United States Food and Drug Administration (FDA) of the α2A agonists clonidine and guanfacine for the treatment of Attention-Deficit/Hyperactivity Disorder (ADHD), but also suggest that they could have beneficial effects in substance abuse disorders and other neuropsychiatric conditions. The purpose of this study was to evaluate guanfacine for its ability to attenuate behavioral alterations associated with acute cocaine exposure in rats trained to perform a task of sustained attention, the five choice serial reaction time task (5C-SRTT) and monkeys trained to perform a task of working/short term memory, the delayed match to sample (DMTS) task. In the rodent 5C-SRTT acute intraperitoneal (i.p.) administration of cocaine (3.5-15.0mg/kg) did not affect accuracy, but was associated with dose-dependent increases

in premature responses and timeout responses. Guanfacine (0.1-1.0mg/kg i.p.) dose-dependently decreased premature responses and timeout responses associated with cocaine and it attenuated similar deficits in inhibitory response control observed in a variable ITI version of the 5C-SRTT. In the DMTS task in monkeys, acute intramuscular (i.m.) administration of cocaine (4.0mg/kg) was associated with impairments in accuracy at long delay intervals, an effect that was attenuated by guanfacine (0.4mg/kg). These animal studies suggest that guanfacine may have therapeutic potential for treating impairments of executive function that are associated with the abuse of cocaine.

The Effects Of a Humanized Recombinant Anti-Cocaine Monoclonal Antibody On the Disposition Of Cocaethylene In Mice Wetzel HN, Tabet MR, Ball WJ, Norman AB. Int Immunopharmacol. 2014 Nov; 23(2): 387-390.
The chimeric human/mouse anti-cocaine monoclonal antibody (mAb) 2E2 and its further humanized variant h2E2 have been reported to sequester a significant portion of cocaine in plasma and decrease cocaine concentrations in the brain in mice and rats. However, many cocaine users co-abuse alcohol, leading to the formation of the centrally active metabolite cocaethylene. This potentially compromises the efficacy of a cocaine-specific immunotherapy. Because h2E2 has high affinity for cocaethylene as well as cocaine, the ability of h2E2 to prevent cocaethylene entry into the brain was investigated. Mice were infused with h2E2 (1. 6μmol/kg i.v.) or vehicle and after one hour were injected with cocaethylene fumarate (1. 2μmol/kg i.v.). At times from 45s to 60min, brain and plasma were collected and cocaethylene concentrations were measured using GC/MS. In control mice, a two-compartment pharmacokinetic model generated values for cocaethylene distribution and terminal elimination half-lives of 0 5 and 8. 1 min respectively. Initial plasma cocaethylene concentrations increased 13-fold from controls in the presence of h2E2. In brain, h2E2 produced a 92% decrease in the area under the time-concentration curve for cocaethylene. The pharmacokinetics of h2E2 was also characterized in detail. A three-compartment model resolved an initial distribution half-life of 4. 4min and a second distribution half-life of 4. 2h, and a terminal elimination half-life of 7. 8days. The ability of h2E2 to protect the brain from both cocaine and cocaethylene predicts that the clinical efficacy of h2E2 will be retained in cocaine users who co-abuse alcohol.

AIDS RESEARCH PROGRAM (ARP)

Chronic Administration of Δ9-Tetrahydrocannabinol Induces intestinal Anti-inflammatory MicroRNA Expression During Acute SIV Infection of Rhesus Macaques Chandra LC, Kumar V, Torben W, Vande Stouwe C, Winsauer P, Amedee A, Molina PE, Mohana M. J. Virol. published online ahead of print 5 November 2014.
Recreational and medical use of cannabis among HIV-infected individuals has increased in 30 recent years. In SIV-infected macaques, chronic administration of Δ9-tetrahydrocannabinol (Δ9-THC), inhibited viral replication, intestinal inflammation and slowed disease progression. Persistent gastrointestinal disease/inflammation has been proposed to facilitate microbial translocation, systemic immune activation and promote disease progression. Cannabinoids including Δ9-THC attenuated intestinal inflammation in mouse colitis models and SIV-infected rhesus macaques. To determine if the anti-inflammatory effects of Δ9-THC involved differential microRNA (miRNA) modulation, the authors profiled miRNA expression at 14, 30 and 60 days postinfection (DPI) in the intestine of uninfected macaques receiving Δ9-THC (n=3) and SIV-

nfectedmacaques administered either vehicle (VEH/SIV; n=4) or THC (THC/SIV; n=4). Chronic Δ9-THC administration to uninfected macaques significantly and positively modulated intestinal miRNA expression by increasing the total number of differentially expressed miRNAs from 14 to 60DPI. At 60DPI, ~28% of miRNAs showed decreased expression in VEH/SIV compared to none in the THC/SIV group. Furthermore, compared to the VEH/SIV group, THC selectively upregulated the expression of miR-10a, miR-24, miR-99b, miR-145, miR-149 and miR-187 previously been shown to target proinflammatory molecules. NOX4, a potent reactive oxygen species generato was confirmed as a direct miR-99b target. A significant increase in NOX4+ crypt epithelial cells was detected in VEH/SIV compared to the THC/SIV group. The authors speculate that miR-99b mediated NOX4 downregulation may protect the intestinal epithelium from oxidative stress induced damage. These results support a role for differential miRNA induction in THC-mediated suppression of intestinal inflammation. Whether similar miRNA modulation occurs in other tissues requires further investigation.

CENTER FOR CLINICAL TRIALS NETWORK (CCTN)

Brief Intervention for Patients With Problematic Drug Use Presenting in Emergency Departments: A Randomized Clinical Trial. Bogenschutz MP, Donovan DM, Mandler RN, Perl HI, Forcehimes AA, Crandall C, Lindblad R, Oden NL, Sharma G, Metsch L, Lyons MS, McCormack R, Konstantopoulos WM, Douaihy A. JAMA Intern Med. 2014 Nov 1;174(11):1736-1745.

Medical treatment settings such as emergency departments (EDs) present important opportunities to address problematic substance use. Currently, EDs do not typically intervene beyond acute medical stabilization. The objective of this study was to contrast the effects of a brief intervention with telephone boosters (BI-B) with those of screening, assessment, and referral to treatment (SAR) and minimal screening only (MSO) among drug-using ED patients. Between October 2010 and February 2012, 1285 adult ED patients from 6 US academic hospitals, who scored 3 or greater on the 10-item Drug Abuse Screening Test (indicating moderate to severe problems related to drug use) and who were currently using drugs, were randomized to MSO (n=431), SAR (n=427), or BI-B (n=427). Follow-up assessments were conducted at 3, 6, and 12 months by blinded interviewers. Following screening, MSO participants received only an informational pamphlet. The SAR participants received assessment plus referral to addiction treatment if indicated, and the BI-B participants received assessment and referral as in SAR, plus a manual-guided counseling session based on motivational interviewing principles and up to 2 "booster" sessions by telephone during the month following the ED visit. Outcomes evaluated at follow-up visits included self-reported days using the patient-defined primary problem drug, days using any drug, days of heavy drinking, and drug use based on analysis of hair samples. The primary outcome was self-reported days of use of the patient-defined primary problem drug during the 30-day period preceding the 3-month follow-up. Follow-up rates were 89%, 86%, and 81% at 3, 6, and 12 months, respectively. For the primary outcome, estimated differences in number of days of use (95% CI) were as follows: MSO vs BI-B, 0.72 (-0.80 to 2.24), P (adjusted)=.57; SAR vs BI-B, 0.70 (-0.83 to 2.23), P (adjusted).57; SAR vs MSO, -0.02 (-1.53 to 1.50), P (adjusted)=.98. There were no significant differences between groups in self-reported days using the primary drug, days using any drug, or heavy drinking days at 3, 6, or 12 months. At the 3-month follow-up, participants in the SAR group had a higher rate of hair samples positive for their primary drug of abuse (265 of 280 [95%]) than did

participants in the MSO group (253 of 287 [88%]) or the BI-B group (244 of 275 [89%]). Hair analysis differences between groups at other time points were not significant. In this sample of drug users seeking emergency medical treatment, a relatively robust brief intervention did not improve substance use outcomes. More work is needed to determine how drug use disorders may be addressed effectively in the ED. Trial Registration: clinicaltrials.gov Identifier: NCT01207791.

The Multi-site Prescription Opioid Addiction Treatment Study: 18-month Outcomes Potter JS, Dreifuss JA, Marino EN, Provost SE, Dodd DR, Rice LS, Fitzmaurice GM, Griffin ML, Weiss RD. J Subst Abuse Treat. 2015 Jan;48(1):62-69. Epub 2014 Aug 2.
Despite the high prevalence of prescription opioid dependence in the U.S., little is known about the course of this disorder and long-term response to treatment. The authors therefore examined 18-month post-randomization outcomes of participants in the Prescription Opioid Addiction Treatment Study, a multi-site, randomized controlled trial examining varying durations of buprenorphine-naloxone treatment and different intensities of counseling for prescription opioid dependence. Thus the current follow-up study provides a unique contribution to the field by reporting longer-term outcomes of a well-characterized population of treatment-seeking prescription opioid dependent patients. Participants from the treatment trial (N=252/653) completed an 18-month follow-up telephone assessment. Multivariable analyses examined associations between participant characteristics and key indicators of month-18 status: opioid abstinence, DSM-IV opioid dependence, and opioid agonist treatment. Overall, participants showed improvement from baseline to month 18: 49.6% were abstinent in the previous 30days, with only 16.3% opioid-dependent. Some participants, however, had initiated past-year heroin use (n=9) or opioid injection (n=17). Most participants (65.9%) engaged in substance use disorder treatment during the past year, most commonly opioid agonist therapy (48.8%). Of particular interest in this population, multivariable analysis showed that greater pain severity at baseline was associated with opioid dependence at 18months. In conclusion, although opioid use outcomes during the treatment trial were poor immediately following a buprenorphine-naloxone taper compared to those during 12 weeks of buprenorphine-naloxone stabilization, opioid use outcomes at 18-month follow-up showed substantial improvement over baseline and were comparable to the rate of successful outcomes during buprenorphine-naloxone stabilization in the treatment trial.

Cost-effectiveness of Rapid HCV Testing and Simultaneous Rapid HCV and HIV Testing in Substance Abuse Treatment Programs Schackman BR, Leff JA, Barter DM, DiLorenzo MA, Feaster DJ, Metsch LR, Freedberg KA, Linas BP. Addiction. 2014 Oct 8. [Epub ahead of print].
He ais of this study were to evaluate the cost-effectiveness of rapid hepatitis C virus (HCV) and simultaneous HCV/HIV antibody testing in substance abuse treatment programs. The authors used a decision analytic model to compare the cost-effectiveness of no HCV testing referral or offer, off-site HCV testing referral, on-site rapid HCV testing offer, and on-site rapid HCV and HIV testing offer. Base case inputs included 11% undetected chronic HCV, 0.4% undetected HIV, 35% HCV co-infection among HIV-infected, 53% linked to HCV care after testing antibody positive, and 67% linked to HIV care. Disease outcomes were estimated from established computer simulation models of HCV (HEP-CE) and HIV (CEPAC). Data on test acceptance and costs were from a national randomized trial of HIV testing strategies conducted at 12 substance abuse treatment programs in the USA. Mearures obtained included lifetime costs (2011 US dollars) and quality-adjusted life years (QALYs) discounted at 3% annually; incremental cost-effectiveness ratios (ICERs) On-site rapid HCV testing had an ICER of $18,300/QALY compared with no testing, and was more

efficient than (dominated) off-site HCV testing referral. On-site rapid HCV and HIV testing had an ICER of $64,500/QALY compared with on-site rapid HCV testing alone. In one and two-way sensitivity analyses, the ICER of on-site rapid HCV and HIV testing remained <$100,000/QALY, except when undetected HIV prevalence was <0.1% or when we assumed frequent HIV testing elsewhere. The ICER remained <$100,000/QALY in approximately 90% of probabilistic sensitivity analyses. On-site rapid hepatitis C virus and HIV testing in substance abuse treatment programs is cost-effective at a <$100,000/ quality-adjusted life years threshold.

Uptake of HIV Testing in Substance Use Disorder Treatment Programs That Offer On-Site Testing. Kyle TL, Horigian VE, Tross S, Gruber VA, Pereyra M, Mandler RN, Feaster DJ, Metsch LR. AIDS Behav. 2014 Jul 30. [Epub ahead of print].
Increasing rates of HIV testing within substance use disorder (SUD) treatment clients is an important public health strategy for reducing HIV transmission rates. The present study examined uptake of HIV testing among 1,224 clients in five SUD treatment units that offered on-site testing in Florida, New York, and California. Nearly one-third (30 %) of the participants, who had not previously tested positive, reported not having been tested for HIV within the past 12 months. Women, African Americans, and injection drug users had a higher likelihood of having been tested within the past 12 months. The SUD treatment program was the most frequently identified location of participants' last HIV test. Despite the availability of free, on-site testing, a substantial proportion of clients were not tested, suggesting that strategies to increase uptake of testing should include addressing barriers not limited to location and cost.

A 'Missing Not at Random' (MNAR) and 'Missing at Random' (MAR) Growth Model Comparison with a Buprenorphine/Naloxone Clinical Trial McPherson S, Barbosa-Leiker C, Mamey MR, McDonell M, Enders CK, Roll J. Addiction. 2015 Jan;110(1):51-8. Epub 2014 Oct 16.
The aims of this study were to compare three missing data strategies: 1) Latent growth model that assumes the data are missing at random (MAR) model, 2) Diggle-Kenward missing not at random (MNAR) model where dropout is a function of previous/concurrent urinalysis (UA) submissions, and 3) Wu-Carroll MNAR model where dropout is a function of the growth factors.
This was a secondary data analysis of a National Drug Abuse Treatment Clinical Trials Network trial that examined a 7-day versus 28-day taper (i.e., stepwise decrease in buprenorphine/ naloxone) on the likelihood of submitting an opioid-positive UA during treatment, The study setting comprised 11 outpatient treatment settings in 10 US cities and examined 516 opioid dependent participants. Measurements taken were opioid UAs provided across the 4-week treatment period. The MAR model showed a significant effect (B=-0.45, p <0.05) of trial arm on the opioid-positive UA slope (i.e., 28-day taper participants were less likely to submit a positive UA over time) with a small effect size (d=0.20). The MNAR Diggle-Kenward model demonstrated a significant (B=-0.64, p<0.01) effect of trial arm on the slope with a large effect size (d=0.82). The MNAR Wu-Carroll model evidenced a significant (B=-0.41, p<0.05) effect of trial arm on the UA slope that was relatively small (d=0.31). This performance comparison of three missing data strategies (latent growth model, Diggle-Kenward selection model, Wu-Carrol selection model) on sample data indicates a need for increased use of sensitivity analyses in clinical trial research. Given the potential sensitivity of the trial arm effect to missing data assumptions, it is critical for researchers to consider whether the assumptions associated with each model are defensible.

WOMEN AND GENDER

Gender Differences in Clinical Outcomes for Cocaine Dependence: Randomized Clinical Trials of Behavioral Therapy and Disulfiram DeVito EE, Babuscio TA, Nich C, Ball SA, Carroll KM. Drug and Alcohol Dependence. 2014; 145, 156-167.

Despite extensive research on gender differences in addiction, there are relatively few published reports comparing treatment outcomes for women versus men based on evidence-based treatments evaluated in randomized clinical trials. An aggregate sample comprised of data from five randomized clinical trials of treatment for cocaine dependence (N = 434) was evaluated for gender differences in clinical outcomes. Secondary analyses compared gender differences in outcome by medication condition (disulfiram versus no medication) and across multiple behavioral treatment conditions. Women, compared with men, had poorer treatment outcomes on multiple measures of cocaine use during treatment and at post-treatment follow-up. These results appear to be primarily accounted for by disulfiram being less effective in women compared with men. There was no evidence of meaningful gender differences in outcome as a function of the behavioral therapies evaluated. Conclusions: These findings suggest that women and men may benefit to similar degrees from some empirically validated behavioral treatments for addiction. Conversely, some addiction pharmacotherapies, such as disulfiram, may be associated with poorer outcomes among women relative to men and point to the need for careful assessment of pharmacological treatments in both sexes prior to widespread clinical implementation.

The Effect of Combination Oral Contraceptives on Smoking-related Symptomatology during Short-term Smoking Abstinence Hinderaker K, Allen AM, Tosun N, al'Absi M, Hatsukami D, Allen SS. Addict Behav. 2014 Oct 23;41C:148-151.

Although an estimated 25% of premenopausal smokers report using oral contraceptives (OC), little is known about how OC use may influence smoking cessation. The purpose of this study was to examine the difference in smoking-related symptomatology during acute smoking abstinence between women on a standardized combination OC (Tri-Sprintec™) compared to women not on OCs (no-OC). Participants were women aged 18–40 who smoked ≥ 5 cigarettes/day and reported regular menstrual cycles. Using a controlled cross-over design, participants completed two six-day testing weeks: Low Progesterone Week (LPW; Follicular (F) phase in no-OC or 1st week of pills in OC) and High Progesterone Week (HPW; Luteal (L) phase in no-OC or 3rd week of pills in OC). Each testing week included daily assessment of symptomatology and biochemical confirmation of smoking status. During smoking abstinence, the OC group (n = 14) reported significantly lower levels of positive affect (21.56 ± 7.12 vs. 24.57 ± 6.46; $\beta = 3.63$, $p = 0.0323$) than the no-OC group (n = 28). Further significant interactions between group and testing week were observed as follows: Smoking satisfaction was higher during LPW in the OC group (LPW: 4.29 ± 1.30 vs. HPW: 4.10 ± 1.37) but higher during HPW in the no-OC group (LPW: 3.91 ± 1.30 vs. HPW: 4.23 ± 1.30; $\beta = -0.5499$, $p < 0.0001$). Similar interactions were noted in negative affect and psychological reward of smoking. These results suggest that women on OCs may have different patterns of smoking-related symptomatology during short-term smoking abstinence as compared to women not on OCs. Additional work is needed to examine how this may affect smoking cessation efforts.

Sexual Orientation, Adult Connectedness, Substance Use, and Mental Health Outcomes Among Adolescents: Findings From the 2009 New York City Youth Risk Behavior Survey
Seil KS, Desai MM, Smith MV. Am J Public Health. 2014 Oct; 104(10):1950-1956.
The authors examined associations between identifying as lesbian, gay, or bisexual (LGB) and lacking a connection with an adult at school on adolescent substance use and mental health outcomes including suicidality. They analyzed data from the 2009 New York City Youth Risk Behavior Survey (n=8910). Outcomes of interest included alcohol use, marijuana use, illicit drug use, depressive symptomatology, suicide ideation, and suicide attempt. Results: The prevalence of each outcome was significantly higher among LGB adolescents than heterosexual adolescents and among those who lacked an adult connection at school than among those who did have such a connection. Even when LGB adolescents had an adult connection at school, their odds of most outcomes were significantly higher than for heterosexual adolescents. Those LGB adolescents who lacked a school adult connection had the poorest outcomes (about 45% reported suicide ideation; 31% suicide attempt). Adolescents who are LGB, particularly those who lack a connection with school adults, are at high risk for substance use and poorer mental health outcomes. Interventions should focus on boosting social support and improving outcomes for this vulnerable group.

INTRAMURAL RESEARCH PROGRAM (IRP)

Synthesis and Immunological Effects Of Heroin Vaccines Li F, Cheng K, Antoline JF, Iyer MR, Matyas GR, Torres OB, Jalah R, Beck Z, Alving CR, Parrish DA, Deschamps JR, Jacobson AE, Rice KC. Org Biomol Chem, 2014, 12(37), 7211-7232.
Three haptens have been synthesized with linkers for attachment to carrier macromolecules at either the piperidino-nitrogen or via an introduced 3-amino group. Two of the haptens, with a 2-oxopropyl functionality at either C6, or at both the C3 and C6 positions on the 4,5-epoxymorphinan framework, as well as the third hapten (DiAmHap) with diamido moieties at both the C3 and C6 positions, should be much more stable in solution, or in vivo in a vaccine, than a hapten with an ester in one of those positions, as found in many heroin-based haptens. A "classical" opioid synthetic scheme enabled the formation of a 3-amino-4,5-epoxymorphinan which could not be obtained using palladium chemistry. Our vaccines are aimed at the reduction of the abuse of heroin and, as well, at the reduction of the effects of its predominant metabolites, 6-acetylmorphine and morphine. One of the haptens, DiAmHap, has given interesting results in a heroin vaccine and is clearly more suited for the purpose than the other two haptens.

SERCaMP: A Carboxy-Terminal Protein Modification That Enables Monitoring Of ER Calcium Homeostasis Henderson MJ, Wires ES, Trychta KA, Richie CT, Harvey BK..Mol Biol Cell. 2014 Sep 15;25(18): 2828-2839
Endoplasmic reticulum (ER) calcium homeostasis is disrupted in diverse pathologies, including neurodegeneration, cardiovascular diseases, and diabetes. Temporally defining calcium dysregulation during disease progression, however, has been challenging. Here the authors describe secreted ER calcium-monitoring proteins (SERCaMPs), which allow for longitudinal monitoring of ER calcium homeostasis. They identified a carboxy-terminal modification that is sufficient to confer release of a protein specifically in response to ER calcium depletion. A Gaussia luciferase (GLuc)-based SERCaMP provides a simple and sensitive method to monitor ER calcium homeostasis in vitro or in vivo by analyzing culture medium or blood. GLuc-SERCaMPs revealed ER calcium

depletion in rat primary neurons exposed to various ER stressors. In vivo, ER calcium disruption in rat liver was monitored over several days by repeated sampling of blood. These results suggest that SERCaMPs will have broad applications for the long-term monitoring of ER calcium homeostasis and the development of therapeutic approaches to counteract ER calcium dysregulation.

Single Rodent Mesohabenular Axons Release Glutamate and GABA Root DH, Mejias-Aponte CA, Zhang S, Wang HL, Hoffman AF, Lupica CR, Morales M. Nat Neurosci. 2014 Nov;17(11):1543-1551.
The lateral habenula (LHb) is involved in reward, aversion, addiction and depression through descending interactions with several brain structures, including the ventral tegmental area (VTA). The VTA provides reciprocal inputs to LHb, but their actions are unclear. Here the authors show that the majority of rat and mouse VTA neurons innervating LHb coexpress markers for both glutamate signaling (vesicular glutamate transporter 2; VGluT2) and GABA signaling (glutamic acid decarboxylase; GAD, and vesicular GABA transporter; VGaT). A single axon from these mesohabenular neurons coexpresses VGluT2 protein and VGaT protein and, surprisingly, establishes symmetric and asymmetric synapses on LHb neurons. In LHb slices, light activation of mesohabenular fibers expressing channelrhodopsin2 driven by VGluT2 (Slc17a6) or VGaT (Slc32a1) promoters elicits release of both glutamate and GABA onto single LHb neurons. In vivo light activation of mesohabenular terminals inhibits or excites LHb neurons. These findings reveal an unanticipated type of VTA neuron that cotransmits glutamate and GABA and provides the majority of mesohabenular inputs.

A Glutamatergic Reward Input From the Dorsal Raphe To Ventral Tegmental Area Dopamine Neurons Qi J, Zhang S, Wang HL, Wang H, de Jesus Aceves Buendia J, Hoffman AF, Lupica CR, Seal RP, Morales M. Nat Commun. 2014 Nov 12; 5:5390.
Electrical stimulation of the dorsal raphe (DR) and ventral tegmental area (VTA) activates the fibres of the same reward pathway but the phenotype of this pathway and the direction of the reward-relevant fibres have not been determined. Here the authors report rewarding effects following activation of a DR-originating pathway consisting of vesicular glutamate transporter 3 (VGluT3) containing neurons that form asymmetric synapses onto VTA dopamine neurons that project to nucleus accumbens. Optogenetic VTA activation of this projection elicits AMPA-mediated synaptic excitatory currents in VTA mesoaccumbens dopaminergic neurons and causes dopamine release in nucleus accumbens. Activation also reinforces instrumental behaviour and establishes conditioned place preferences. These findings indicate that the DR-VGluT3 pathway to VTA utilizes glutamate as a neurotransmitter and is a substrate linking the DR-one of the most sensitive reward sites in the brain-to VTA dopaminergic neurons.

Orbitofrontal Inactivation Restores Insight Lost After Cocaine Use Lucantonio F, Takahashi YK, Hoffman AF, Chang CY, Bali-Chaudhary S, Shaham Y, Lupica CR, Schoenbaum G. Nature Neuroscience. 2014 Aug;17(8):1092-1099.
Addiction is characterized by a lack of insight into the likely outcomes of one's behavior. Insight, or the ability to imagine outcomes, is evident when outcomes have not been directly experienced. Using this concept, work in both rats and humans has recently identified neural correlates of insight in the medial and orbital prefrontal cortices. The authors found that these correlates were selectively abolished in rats by cocaine self-administration. Their abolition was associated with behavioral deficits and reduced synaptic efficacy in orbitofrontal cortex, the reversal of which by optogenetic

activation restored normal behavior. These results provide a link between cocaine use and problems with insight. Deficits in these functions are likely to be particularly important for problems such as drug relapse, in which behavior fails to account for likely adverse outcomes. As such, these data provide a neural target for therapeutic approaches to address these defining long-term effects of drug use.

NIH/HHS POLICY UPDATES

For a complete list see http://grants.nih.gov/grants/policy/policy.htm

2015

January 12	Notice of NIH's Interest in Diversity
January 12	Notice of Legislative Mandates in Effect for FY 2015
January 8	Notice of NIH Requirement for Federal Recognition of Same-Sex Spouses/Marriages by Grant and Research and Development Contract Recipients

2014

December 30	NIH Fiscal Policy for Grant Awards - FY2015
December 30	Notice on Salary Limitation on Grants, Cooperative Agreements, and Contracts
December 30	Ruth L. Kirschstein National Research Service Award (NRSA) Stipends, Tuition/Fees and Other Budgetary Levels Effective for Fiscal Year 2015
December 19	Publication of Interim Final Rule Adopting OMB's Final Guidance in 2 CFR Part 200 into HHS' Implementing Regulations at 45 CFR Part 75
December 17	ASSIST To Become an Option for Submission of Applications for Most Competing Grant Programs in 2015
December 17	HHS Changes Standard Due Dates for SBIR/STTR Grant Applications
December 17	Simplifying the NIH Policy for Late Application Submission
December 17	NIH Regional Seminar on Program Funding & Grants Administration in Baltimore, MD - Save the Date - May 6-8, 2015
December 5	Update: New Biographical Sketch Format Required for NIH and AHRQ Grant Applications Submitted for Due Dates on or After May 25, 2015
December 4	NIH Modification to Guidance on Marking Changes in Resubmission Applications
December 4	Reminder for the Extramural Scientific Community: Implementation of the Genomic Data Sharing Policy Begins January 25, 2015
December 3	Request for Comments on the Draft NIH Policy on the Use of a Single Institutional Review Board for Multi-Site Research
December 1	Notice of Office of Laboratory Animal Welfare Policy on Shared Animal Welfare Concerns
November 19	Publication of Notice of Proposed Rulemaking for Clinical Trials Registration and Results Submission under FDAAA
November 19	NIH Request for Public Comments on the Draft NIH Policy on Dissemination of NIH-Funded Clinical Trial Information
November 21	Reminder: Annual Reports to the Office of Laboratory Animal Welfare due January 31, 2015
November 21	NIH Implementation of the US Government Policy on Institutional Oversight of

	Life Sciences Dual Use Research of Concern
November 26	New Biographical Sketch Format Required for NIH and AHRQ Grant Applications Submitted for Due Dates on or After January 25, 2015
October 1	NIH Operates Under a Continuing Resolution
October 2	Reminder Notice Regarding Requirements of the Bayh-Dole Act and the NIH's Implementing Regulations
October 2	Use of New Inclusion Management System Required as of October 17, 2014
October 10	OMB Clarifies Guidance on the Dual Role of Student and Postdoctoral Researchers
October 16	Notice of Special Accommodations for Submission and Reporting Requirements for Program Directors/Principal Investigators Responding to the West Africa Ebola Outbreak
October 16	Reminder: NIH Requires the Research Performance Progress Report (RPPR) for All Type 5 Progress Reports
October 17	Funding Pause for Certain Types of Gain-of-Function Research Projects
October 23	Notice of Revised NIH Definition of "Clinical Trial"
August 29	eRA Commons Username Required for Sponsor in Individual Fellowship Grant Applications to NIH and AHRQ
August 27	Notice of National Biosafety Stewardship Month and Health and Safety Requirements for NIH Grantees
August 27	NIH Genomic Data Sharing Policy
August 27	Implementation of the NIH Genomic Data Sharing Policy for NIH Grant Applications and Awards

CONGRESSIONAL AFFAIRS SECTION
(Prepared January 15, 2015)

APPROPRIATIONS

Congress wrapped up its appropriation work in December of last year, passing H.R. 83. NIH received $30.311 billion (excluding special Ebola funding), a 0.5% increase over FY 2014 Enacted levels. NIDA received an appropriation of $1.029 billion, a .31% increase over Enacted FY 2014 levels.

114th CONGRESS

The most relevant committee-related information for NIDA is listed below.
Senate: In the Senate, primary focus is on the

- Committee on Appropriations (Subcommittee on Labor, Health and Human Services, and Education; Financial Services; and Commerce, Justice, Science;
- Committee on Health, Education, Labor, and Pensions (HELP);
- Committee on the Judiciary; and the
- Caucus on International Narcotics Control (this is an officially recognized Caucus, established by law in 1985).
- **House:** In the House, primary focus is on the
- Committee on Appropriations (Subcommittee on Labor, Health and Human Services, Education, and Related Agencies; Financial Services; and Commerce, Justice, Science and Related Agencies);
- Committee on Energy and Commerce (Subcommittee on Health); and the
- Committee on Oversight and Government Reform (Subcommittee on Government Operations OR Subcommittee on Health Care, Benefits, and Administrative Rules[1]).

In both the House and Senate, committee and subcommittee rosters are still being finalized. To present a complete picture, details will be provided in the May Report to Council.

LEGISLATION OF INTEREST

The 114th Congress is in its very early days. We expect to see the reintroduction of legislation proposed in the 113th Congress, focused on issues such as marijuana law reform, prescription drug abuse prevention and treatment, and juvenile and criminal justice system reform. In subsequent reports to Council, we will report on those bills if/when they are introduced.

H.R. 203 – On January 12, 2015, the House passed the Clay Hunt SAV Act, to direct the Secretary of Veterans Affairs to provide for the conduct of annual evaluations of mental health care and suicide prevention programs of Department of Veterans Affairs, to require a pilot program on loan repayment for psychiatrists who agree to serve in the Veterans Health Administration, and for other purposes. The bill was referred to the Senate, which is expected to pass the legislation.

[1] Jurisdictions still under review

PROGRAM ACTIVITIES/FOAS

New NIDA RFAs

On January 16, 2015, NIDA issued an RFA entitled **NIDA Translational Avant-Garde Award for Development of Medication to Treat Substance Use Disorders (UH2/UH3) RFA-DA-15-017.** The purpose of this RFA is to support outstanding basic and/or clinical researchers with the vision and expertise to translate research discoveries into medications for the treatment of Substance Use Disorders (SUDs) stemming from tobacco, cannabis, cocaine, methamphetamine, heroin, or prescription opiate use. Eligible applicants must demonstrate the ability to develop molecules with the potential to treat SUDs and advance them in the drug development continuum. The ultimate goal of this FOA is to bring molecules closer to FDA approval. Open date: March 15, 2015. Application due date(s): April 15, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): April 15, 2015, by 5:00 PM local time of applicant organization.

On January 7, 2015, NIDA issued an RFA entitled **Integration of Infectious Diseases and Substance Abuse Intervention Services for Individuals Living with HIV (R01) RFA-DA-15-013.** The goal of this FOA is to develop and test organizational and systems level interventions to determine how best to provide comprehensive, high quality, integrated, sustainable, cost-effective interventions to improve the health outcomes of people living with HIV (PLWH) with substance use disorders and other comorbid conditions. This FOA will support: 1) multidisciplinary research to enhance the adoption and integration of evidence-based screening and treatment of substance abuse in HIV centers and closely related medical settings; and 2) multidisciplinary research to increase the adoption and integration of HIV testing and linkage to HIV care in addiction treatment settings. In both HIV and addiction treatment settings, research to enhance the adoption and integration of treatment services for comorbid conditions (e.g. coinfections, psychiatric disorders) is encouraged. Open date: March 14, 2015. Application due date(s): April 14, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): April 14, 2015, by 5:00 PM local time of applicant organization.

On January 8, 2015, NIDA issued an RFA entitled **Seek, Test, Treat and Retain For Youth and Young Adults Living with or at High Risk for Acquiring HIV (R01) RFA-DA-15-019.** The purpose of this Funding Opportunity Announcement (FOA) is to examine delivery models of HIV-focused services (testing, linkage, engagement and retention in care) for high risk or already HIV+ infected youth and young adults. Applications should incorporate substance use into study aims and service delivery objectives should address access to substance use prevention, screening, and treatment. Applications examining interventions that focus only on individual-level behavior and outcomes will be considered non-responsive, given the systemic and structural determinants of serostatus screening, treatment retention and viral suppression, which are the most striking areas of deficit among youth in the Seek, Test, Treat, and Retain continuum of care. The developmental, structural, and systemic factors related to serving youth need to be clearly incorporated into study aims, rather than simple incremental refocusing of existing interventions to younger people. Open date: March 15, 2015. Application due date(s): April 14, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): April 14, 2015, by 5:00 PM local time of applicant organization.

New NIDA Program Announcements

On January 23, 2015, NIDA issued a PA entitled **Reductions in Illicit Drug Use and Functional Outcomes (R21/R33) PA-15-099**. The purpose of this Funding Opportunity Announcement (FOA) is to encourage applications for Phased Innovation (R21/R33) projects to determine whether reductions in illicit drug use are associated with positive changes in health-related and other functional outcomes in individuals with substance use disorders (SUDs). Functional outcomes include, for example, reductions in morbidity, mortality, criminal justice involvement, overall healthcare expenditures. This FOA provides support for up to two years (R21 phase) for research planning activities and feasibility studies, followed by possible transition to expanded research support (R33 phase). The transition to the R33 phase will be determined by NIH program evaluation of successful achievement of the milestones set for the R21 phase. The ultimate goal of this FOA is to provide evidence that will enable regulatory authorities to accept reductions in illicit drug use as a valid outcome measure in clinical trials of pharmacotherapies for the treatment of SUDs. Open date: May 16, 2015. Application due date(s): Standard dates apply, by 5:00 PM local time of applicant organization. AIDS application due date(s): Standard AIDS dates apply, by 5:00 PM local time of applicant organization.

On January 9, 2015, NIDA issued a PA entitled **Drug Abuse Prevention Intervention Research (R21) PA-15-080, (R03) PA-15-081, (R01) PA-15-082.** This Funding Opportunity Announcement (FOA) encourages grant applications for research that will employ rigorous scientific methods to test theoretically derived hypotheses to increase understanding of the science of drug use prevention within diverse populations and settings and across the lifespan. The FOA seeks applications that encompass investigations of cognitive, behavioral, and social processes as they relate to: 1) development of novel prevention approaches; 2) efficacy and effectiveness of prevention interventions or programs; 3) processes that optimize the selection, integration, implementation and sustainability of science-based prevention, including systems-level and health economic factors; and 4) methodologies appropriate for studying complex aspects of prevention science. Open date: May 16, 2015 (R21 and R03), May 5, 2015 (R01). Application due date(s): Standard dates apply, by 5:00 PM local time of applicant organization. AIDS application due date(s): Standard AIDS dates apply, by 5:00 PM local time of applicant organization.

On January 8, 2015, NIDA issued a PAR entitled **Cutting-Edge Basic Research Awards (CEBRA) (R21) PAR-15-079.** The National Institute on Drug Abuse (NIDA) Cutting-Edge Basic Research Award (CEBRA) is designed to foster highly innovative or conceptually creative research related to drug abuse and addiction and how to prevent and treat them. It supports research that is high-risk and potentially high-impact that is underrepresented or not included in NIDA's current portfolio. The proposed research should: (1) test a highly novel and significant hypothesis for which there are scant precedent or preliminary data and which, if confirmed, would have a substantial impact on current thinking; and/or (2) develop or adapt innovative techniques or methods for addiction research, or that have promising future applicability to drug abuse research. Open date: July 20, 2015. Application due date(s): August 20, 2015; December 18, 2015; August 19, 2016; December 20, 2016; August 18, 2017; and December 20, 2017, by 5:00 PM local time of applicant organization. AIDS application due date(s): August 20, 2015; December 18, 2015; August 19, 2016; December 20, 2016; August 18, 2017; and December 20, 2017, by 5:00 PM local time of applicant organization.

On October 3, 2014, NIDA issued a PA entitled **Epidemiology of Drug Abuse (R01) PA-15-003, (R21) PA-15-001, (R03) PA-15-002 .** This Funding Opportunity Announcement (FOA) is intended to support research projects to enhance our understanding of the nature, extent, distribution, etiology, comorbidities, and consequences of drug use, abuse, and addiction across individuals, families, communities, and diverse population groups. This FOA strongly encourages applications that reflect the breadth of epidemiology research by addressing multiple levels of risk, resilience, and causation across scientific disciplines; by applying novel methods to advance knowledge of the interplay among genetic, environmental, and developmental factors and between social environments and associated health and disease outcomes; and by building on the research investments of NIH and sister HHS agencies to harness existing data on the epidemiology and etiology of drug abuse to improve public health prevention and treatment programs. Open date(s): January 5, 2015 (R01), January 16, 2015 (R21 and R03). Application due date(s) Standard dates apply, by 5:00 PM local time of applicant organization. AIDS application due date(s): Standard AIDS dates apply.

New FOAs Issued by NIH Collaborative Research On Addiction (CRAN)

On November 18, 2014, NIDA, in conjunction with NCI and NIAAA, issued a PA entitled **Research Aimed at Novel Behavioral Targets to Improve Adolescent Substance Abuse Treatment and Prevention Interventions (R34) PA-15-035, (R01) PA-15-036.** This Funding Opportunity Announcement (FOA) is part of a trans-NIH initiative known as Collaborative Research on Addiction at NIH (CRAN). Areas supported by this FOA include research to inform the generation and refinement of novel targets for substance abuse treatment and prevention interventions, modules or adjuncts to existing treatments and prevention interventions that seek to target and modulate behavioral or neurobehavioral processes (e.g., impulsivity, risk-taking propensity, sensation and novelty seeking, distress tolerance, delay discounting, self-regulation, stress reactivity) in adolescents. Additionally, this FOA will encourage studies to include theoretical links that explore the relationship(s) between neural circuitry and treatment and prevention effects, and in particular, how behavioral targets might be affected by treatment and prevention interventions, and how that might be used to improve targeted treatment and prevention development, that translate to reduced morbidity and mortality. Open date(s): January 5, 2015 (R01) and January 16, 2015 (R34). Application due date(s): Standard dates apply, by 5:00 PM local time of applicant organization. AIDS application due date(s): Standard AIDS dates apply, by 5:00 PM local time of applicant organization.

New FOAs Issued by the NIH Roadmap

On January 21, 2015, the NIH Common Fund issued a Roadmap RFA entitled **Metabolomics Core for the Undiagnosed Diseases Network (UDN) (U01) RFA-RM-15-001.** This Funding Opportunity Announcement (FOA) is to establish a Metabolomics Core to augment clinical and laboratory findings of the Undiagnosed Diseases Network (UDN) and to assist the Network in the diagnosis of patients with undiagnosed diseases. Responsive applications will describe a plan to provide comprehensive analytical methods, analyses, technologies, and metabolomics expertise to the UDN to aid in clinical diagnosis and investigate potential mechanisms underlying phenotypic

changes in patients. Due to the rare, even unique, disorders of UDN patients, the application should describe the need to develop specialized, "boutique" assays and methods of measurement in analyses of both normal and abnormal compounds of the diseased metabolome. Open date: March 15, 2015. Application due date(s): April 15, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): Not Applicable.

On January 8, 2015, the NIH Common Fund issued a **Science of Behavior Change: Assay Development and Validation for Stress Reactivity and Stress Resilience Targets (UH2/UH3) RFA-RM-14-019, Science of Behavior Change: Assay Development and Validation for Interpersonal and Social Processes Targets (UH2/UH3) RFA-RM-14-018, Science of Behavior Change: Assay Development and Validation for Self-Regulation Targets (UH2/UH3) RFA-RM-14-020.** This Phased Innovation Awards Cooperative Agreement Funding Opportunity Announcement (FOA) solicits applications to support a collaborative research infrastructure involving an interdisciplinary team of basic and clinical scientists to develop the foundation for an experimental medicine approach to behavior change. Research supported by this FOA is meant to support activities focused on behavior change targets in the domain of stress reactivity and stress resilience. Open date: February 20, 2015. Application due date(s): March 20, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): Not Applicable.

On January 8, 2015, the NIH Common Fund issued a Roadmap RFA entitled **NIH Science of Behavior Change Resource and Coordinating Center (U24) RFA-RM-14-017.** This U24 Cooperative Agreement Funding Opportunity Announcement (FOA) will support the NIH Science of Behavior Change (SOBC) Resource and Coordinating Center (RCC), which will coordinate the activities of between five and nine UH2/UH3 Target Validation Projects. The initial UH2/UH3 awards will be made in response to three companion FOAs (RFA-RM-14-018, RFA-RM-14-019, RFA-RM-14-020) that will focus on identifying and validating targets in the three specific behavioral domains of self-regulation, stress reactivity and stress resilience, and interpersonal and social processes. The overall goal of the SOBC Program is to transform behavioral intervention designs by implementing the experimental medicine approach to behavior change research. The overall goal of the RCC will be to provide national leadership for the coordinated efforts of projects and initiatives of SOBC to validate assays for behavior change, with five specific objectives described in this FOA. The RCC will also serve as the central resource for the organization of the meetings and other activities of the SOBC program, including the support of its Steering Committee and External Scientific Panel, and any SOBC steering committee subcommittees that are established. Open date: February 20, 2015. Application due date(s): March 20, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): Not Applicable.

On December 22, 2014, the NIH Common Fund issued a **Nuclear Organization and Function Interdisciplinary Consortium (NOFIC)(U54) RFA-RM-14-030.** This FOA seeks to establish technology-development and data-production centers whose mission will be to develop, benchmark, standardize, and validate the next generation of high-throughput technologies that can produce three dimensional physical and functional maps of mammalian genomes, develop predictive models of mammalian genome structure-function relationships, and test the relevance of new nuclear organizational principles within the context of specific biological paradigms and systems. Open date: January 23, 2015. Application due date(s): February 23, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): Not Applicable.

On November 5, 2014, the NIH Common Fund issued a **Collaborative Activities to Promote Metabolomics Research (Admin Supp) PA-15-030.** This Administrative Supplement funding opportunity is part of the Common Fund Metabolomics Program created to increase and improve the nation's ability to undertake metabolomics analyses in translational and clinical research. Metabolomics has great potential to advance our understanding of human diseases, but requires specialized expertise in metabolomics study design, technology, and data analysis and interpretation. This FOA supports supplemental funds to current NIH-funded research projects for new interactive collaborations between basic or clinical researchers and metabolomics experts to add a metabolomics approach to the existing Research Strategy for the project. In addition to enhancing the parent grant by adding metabolomics analyses, collaborative projects must include activities to increase the expertise of the biomedical research group in key aspects of metabolomics study design, analysis, and data interpretation. Open date: January 13, 2015. Application due date(s): February 13, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): Not Applicable.

On October 21, 2014, the NIH Common Fund issued a **NIH Director's Early Independence Awards (DP5) RFA-RM-14-004.** The NIH Director's Early Independence Award Program supports exceptional investigators who wish to pursue independent research directly after completion of their terminal doctoral/research degree or clinical residency, thereby forgoing the traditional post-doctoral training period and accelerating their entry into an independent research career. Open date: December 30, 2014. Application due date(s): January 30, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): January 30, 2015, by 5:00 PM local time of applicant organization.

On September 24, 2014, the NIH Common Fund issued a **4D Nucleome Imaging Tools (U01) RFA-RM-14-009.** The purpose of this FOA is to solicit applications that will accelerate the development and validation of imaging technologies for visualizing the structural and functional organization of the mammalian genome and its spatiotemporal dynamics. Projects must propose innovative, high resolution, high throughput, quantitative technologies that can be used to study a statistically significant number of single cells to address critical unmet needs in our understanding of nuclear organization. Open date: January 2, 2015. Application due date(s): February 2, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): Not Applicable.

On September 24, 2014, the NIH Common Fund issued a **Study of Nuclear Bodies and Compartments (U01) RFA-RM-14-008.** The purpose of this FOA is to support projects to develop tools and strategies for studying: 1. the three dimensional architecture of the nucleus in relationship to the topography of nuclear bodies and transcriptional machineries, 2. the structure and function of poorly characterized nuclear structures, or 3. the role of specialized proteins and RNAs in the assembly, organization, and function of nuclear bodies, nuclear structures, and specialized subnuclear domains. Open date: January 2, 2015. Application due date(s): February 2, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): Not Applicable.

On September 24, 2014, the NIH Common Fund issued a **Nucleomics Tools (U01) RFA-RM-14-007.** The purpose of this Funding Opportunity Announcement (FOA) is to solicit applications that propose to develop and validate physical, chemical and biochemical approaches for measuring properties and dynamics of the three-dimensional organization of the genome that cannot be

measured adequately using existing methodologies. Open date: January 2, 2015. Application due date(s): February 2, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): Not Applicable.

New FOAs Issued by the NIH Blueprint for Neuroscience Research

Connectomes Related to Human Disease (U01) PAR-14-281

New FOAs Issued by the BRAIN INITIATIVE

BRAIN Initiative: Development, Optimization, and Validation of Novel Tools and Technologies for Neuroscience Research (SBIR)(R43/R44) PAR-15-091

BRAIN Initiative: Development, Optimization, and Validation of Novel Tools and Technologies for Neuroscience Research (STTR)(R41/R42) PAR-15-090

BRAIN Initiative: Short Courses in Research Tools and Methods (R25) RFA-MH-15-220

BRAIN Initiative: Short Courses in Computational Neuroscience (R25) RFA-MH-15-215

BRAIN Initiative: Development and Validation of Novel Tools to Analyze Cell-Specific and Circuit Specific Processes in the Brain (U01) RFA-MH-15-225

BRAIN Initiative: Planning for Next Generation Human Brain Imaging (R24) RFA-MH-15-200

BRAIN Initiative: Integrated Approaches to Understanding Circuit Function in the Nervous System (U01) RFA-NS-15-005

BRAIN Initiative: Optimization of Transformative Technologies for Large Scale Recording and Modulation in the Nervous System (U01) RFA-NS-15-004

BRAIN Initiative: New Technologies and Novel Approaches for Large-Scale Recording and Modulation in the Nervous System (U01) RFA-NS-15-003

New RFAs Issued by Other NIH/HHS Components in which NIDA is a participant

NIH Big Data to Knowledge (BD2K) Enhancing Diversity in Biomedical Data Science (R25) RFA-MD-15-005
Biomedical Data Science Training Coordination Center (U24) RFA-ES-15-004

NIH Big Data to Knowledge (BD2K) Initiative Research Education: Open Educational Resources for Sharing, Annotating and Curating Biomedical Big Data (R25) RFA-LM-15-002

NIH Big Data to Knowledge (BD2K) Initiative Research Education: Massive Open Online Course (MOOC) on Data Management for Biomedical Big Data (R25) RFA-LM-15-001

4D Nucleome Imaging Tools (U01) RFA-RM-14-009

Study of Nuclear Bodies and Compartments (U01) RFA-RM-14-008

New PAs Issued by Other NIH/HHS Components in which NIDA is a participant

NIH Pathway to Independence Award (Parent K99/R00) PA-15-083

Predictive Multiscale Models for Biomedical, Biological, Behavioral, Environmental and Clinical Research (U01) PAR-15-085

Building on High Impact Basic Neurobiology Through Assay Development: Advancing Tools for Therapeutic Discovery (R01) PAR-15-066

Promoting Research in Basic Neuroscience (R01) PAS-15-029

Mechanistic Studies of Pain and Alcohol Dependence (R01) PA-15-026

Global Brain and Nervous System Disorders Research Across the Lifespan (R01) PAR-14-332

Global Brain and Nervous System Disorders Research Across the Lifespan (R21) PAR-14-331

Advancing Interventions to Improve Medication Adherence (R01) PA-14-334

Developing Interventions for Health-Enhancing Physical Activity (R21/R33) PAR-14-321

Testing Interventions for Health-Enhancing Physical Activity (R01) PAR-14-315

New NIH FOAs Issued in Collaboration with the FDA Center for Tobacco Products

On November 20, 2014, NIDA, in collaboration with numerous other NIH components and with the FDA Center for Tobacco Products issued **Administrative Supplements for Tobacco Regulatory Research on the Public Display of Harmful and Potentially Harmful Constituents (HPHC) Information (Admin Supp) PA-15-046.** The purpose of this FOA is to generate data to support the implementation of public displays of HPHC information. The NIH and the FDA have formed an interagency partnership to foster research relevant to FDA's tobacco regulatory authorities. The award under this FOA will be administered by NIH using designated funds from the FDA CTP for tobacco regulatory science mandated by the Family Smoking Prevention and Tobacco Control Act (FSPTCA), Public Law 111-31. Open date: December 12, 2014. Application due date(s): January 12, 2015, by 5:00 PM local time of applicant organization. AIDS application due date(s): Not Applicable.

Other Program Activities

CTN Update

A total of 56 protocols have been initiated since 2001, including multi-site clinical trials (40), multi-site surveys (3), studies in special populations (8), and secondary analyses of data across various trials (5). In addition, 28 ancillary studies have been supported by CTN and non-CTN funds. Nearly 17,000 participants have been enrolled in CTN studies.

Information on protocols can be found at:
http://www.drugabuse.gov/about-nida/organization/cctn/ctn/research-studies

NIDA's Blending Initiative

Accelerating the dissemination of research-based drug abuse treatment into clinical practice is a priority for the National Institute on Drug Abuse (NIDA) and represents the core mission of the Blending Initiative (http://www.drugabuse.gov/blending-initiative).

In October 2014 the Blending Initiative launched a new educational effort − *Talking to Patients about Health Risk Behaviors*. The two programs comprising this unique educational opportunity provide a unique forum where the CME course and the Patient Simulation jointly provide practical guidance for physicians and other clinicians in effective Motivational Interviewing techniques that will facilitate conversations with patients to address Health Risk Behaviors. The CME Course guides physicians and other clinicians through practical skills building and technique development using videos to model effective communication, while the Patient Simulation allows for real time testing and reinforcement of these skills in the clinical setting. Links to the education are found at http://www.drugabuse.gov/blending-initiative/cme-ce-simulation.

Through the Blending Initiative, NIDA partners with professional organizations and other institutions dedicated to the training and education of junior fellows/residents to support the development of expertise in substance use disorders (SUDs) within medical and clinical settings. These training awards aim: 1) to promote knowledge of evidence-based SUD treatment within medical specialties, 2) to advance medical care for patients with substance use disorders, and 3) to facilitate the academic growth, advanced education, and development of future researchers and clinicians in SUDs and medicine and thereby invest in the future of the field. As of the end of 2014, the Blending Initiative has partnered with four organizations to fulfill these goals. These organizations are:

- Society of Teachers of Family Medicine
- American Academy of Child and Adolescent Psychiatry
- Society for Adolescent Health and Medicine
- American College of Emergency Physicians/Emergency Medicine Foundation
- During this period the Blending Initiative supported seminars and exhibits at the following national meetings:
- Addiction Health Services Research (AHSR) Boston, MA October 15-17, 2014
- American Academy of Family Physicians (AAFP) Washington, DC October 21-15, 2014

NIDA Language Access Implementation Plan
In accordance with Executive Order 13166 (PDF, 256kb), *Improving Access to Services for Persons with Limited English Proficiency*, the NIH Language Access Plan provides a blueprint for ensuring that individuals with Limited English Proficiency (LEP) have meaningful access to all of NIH's programs and activities. The NIDA Language Access Implementation Plan, lays out how NIDA intends to implement this plan. NIDA welcomes feedback on how to best serve the needs of its stakeholders and the LEP community. Please visit www.drugabuse.gov for more information.

Office of the Scientific Director, Office of Education and Career Development
From June to August 2014, the IRP hosted 53 summer interns from the NIH Summer Internship Program and the Research Training for Under-represented Populations Program. Activities included Science Skills Boot Camp; seminars by IRP scientists on their research and the major neurotransmitter systems; workshops on creating and presenting a poster; giving a scientific talk, and applying to graduate and medical school; and two Poster Days, one at the IRP and one at NIH.

On December 1, 2014, the NIDA and NIA intramural programs held the 6th annual Fellows Symposium. The day-long event honored Fellows who were 2015 FARE (Fellows Award for Research Excellence) winners. Events included Skill Blitzes, oral presentations by the FARE winners, and a poster session. The keynote address was given by Dr. Alan Leshner, CEO of the American Association for the Advancement of Science and former NIDA Director. The title of his presentation was "The Current Climate for Careers in Science."

From July to November 2014, the NIDA IRP Office of Education and Career Development, together with the NIH Office of Intramural Training and Education and NIH Library, have offered the following workshops or seminars: Interviewing for Professional School, Interviewing for Industry Jobs, Introduction to Data Management, EndNote Training, Impact Assessment for Authors, Graduate School Planning and Applying, Scientists Teaching Science (9-week online course), Negotiating an Industry Position, Eat That Frog: Time Management, Finding and Reusing Scientific Data, Improving Spoken English, Assertiveness Workshop, and Protein Structural Analysis Training.

COMMUNICATIONS

PUBLICATIONS/VIDEOS

NIDA Publications and Online Resources

- Drugs, Brains, and Behavior: The Science of Addiction (Revised July 2014)
- Mind Over Matter: The Brain's Response to Marijuana (Revised August 2014)
- Mind Over Matter: The Brain's Response to Opioids (Revised September 2014)
- Electronic Cigarettes (DrugFacts) (Revised September 2014)
- Media Guide (Revised September 2014)
- Heroin (DrugFacts) (Revised October 2014)
- Prescription Drug Abuse Research Report (Revised November 2014)
- Heroin Research Report (Revised November 2014)
- Marijuana Research Report (Revised December 2014
- Drugged Driving (DrugFacts) (Revised December 2014)
- High School and Youth Trends (DrugFacts) (Revised December 2014)
- Hallucinogens - LSD, Peyote, Psilocybin, and PCP (DrugFacts) (Revised December 2014)
- Is Marijuana Medicine? (DrugFacts) (Revised December 2014)
- Prescription and Over-the-Counter Medications (DrugFacts) (Revised December 2014)
- Cigarettes and Other Tobacco Products (DrugFacts) (Revised December 2014)
- Club Drugs (GHB, Ketamine, and Rohypnol) (DrugFacts) (Revised December 2014)

En Espanol:

- Drogas: Derribemos los mitos (Drugs: Shatter the Myths) (Published in Spanish November 2014)
- La marihuana: Informacion para los adolescents (Marijuana: Facts for Teens) (Revised November 2014)
- Marihuana: datos que los padres deben saber (Marijuana: Facts Parents Need to Know) (Revised November 2014)
- Las drogas, el cerebro y el comportamiento: La ciencia de la adiccion (Drugs, Brains and Behavior: The Science of Addiction) (Revised November 2014)
- La marihuana es un medicamento? (Is Marijuana Medicine? Drug Facts) (Revised November 2014)
- Marihuana (Marijuana Drug Facts) (Revised November 2014)

Websites and Online Resources:

- **Step-by-Step Guides for seeking drug abuse treatment:** http://www.drugabuse.gov/related-topics/treatment (Launched September 2014)
- **Landing page on drug testing:** http://www.drugabuse.gov/related-topics/drug-testing (Launched September 2014)
- **Landing page on mental health:** http://www.drugabuse.gov/related-topics/mental-health (Launched September 2014)

- **Landing page on pain:** http://www.drugabuse.gov/related-topics/pain (Launched October 2014)
- **Drugs + HIV > learn the link:** http://hiv.drugabuse.gov/ (Updated in English and Spanish October 2014)

NIDA Notes (now online only)

Highlights:

Animation: The Rise and Fall of the Cocaine High (http://www.drugabuse.gov/news-events/nida-notes/2014/11/animation-rise-fall-cocaine-high)
Narrative of Discovery: In Search of a Medication to Treat Methamphetamine Addiction: This is the first in a new series of articles that bring readers fully into the life and adventure of research, by following a researcher (Linda Dwoskin) from the start of a project to its culmination. Additional selected articles report that varenicline is effective as a nicotine cessation treatment for mentally ill individuals; smoking cessation does not interfere with recovery from drug abuse; THC exposure in adolescence may cause epigenetic changes that are transmitted to the next generation; a new approach uses immune cells to deliver anti-HIV medications. ***NIDA Notes*** receives 35,000 visits monthly and is shared via, and are promoted on Twitter, Linked-In, and Facebook, and (videos) YouTube. As of February 2015, through an agreement with the Institute for Research, Education, and Training in Addictions, social workers and substance abuse clinicians will be able to receive CEU credits by reading and responding to a quiz about *NIDA Notes* articles.

Videos

- **CEWG Region Report**
  http://youtu.be/PCEQd1H6nXY
- **Addiction Science Fair Winners 2014: Aakash Jain**
  http://youtu.be/Y0ZHvdWonC4
- **Addiction Science Fair Winners 2014: Lily Wei Lee**
  http://youtu.be/Dbupp1-5aBU
- **Addiction Science Fair Winners 2014: Alexandra Ulmer and Sarayu Caulfield**
  http://youtu.be/1E58FanCrmw
- **What's New at NIDA: Office of Science Policy and Communication Director's Notes for August**
  http://youtu.be/NEv-5PVGrq8
- **The Swiss Cheese Model of Drug Addiction**
  http://youtu.be/SufLpGPauII
- **SPB Brain Animation**
  http://youtu.be/DMcmrP-BWGk
- **Pain Awareness Month: Dr. Nora Volkow on Pain Research and Opioids**
  http://youtu.be/4xaEwa5XULA
- **Pain Awareness Month: Dr. Story Landis on The Pain Consortium**
  http://youtu.be/o2M4mkeaQOA
- **National Drug Facts Week Promo**
  http://youtu.be/lZ1qayWXnz0

- **NCCAM-Pain Video**
  http://youtu.be/XUHifNHlzjU
- **NINR-Pain Video**
  http://youtu.be/qYbi6wdsOME
- **The Party: Drugs and HIV, "D'cisions" series (5) Videos**
  http://youtu.be/rKCfagQ-4cA
  http://youtu.be/1rhb_1OOtUg
  http://youtu.be/EBEk5NbxbBA
  http://youtu.be/UvDtLfOhth8
  http://youtu.be/xIU2lGp9bNk
- **NAC for Treating Marijuana Addiction: Dr. Kevin M. Gray**
  http://youtu.be/md4lRQsLlnE
- **What's New at NIDA: Office of Science Policy and Communication Director's Notes for October**
  http://youtu.be/5ZUYvTzx_YA
- **NIDA Encourages Community Based Marijuana Research: Dr. Wilson Compton**
  http://youtu.be/7127QLM2YWA
- **NIH CFC 2014 Director's Challenge – NIDA**
  http://youtu.be/GbkD60GhWQk
- **Dr. Wilson Compton Discuss MTF 2014 Results**
  http://youtu.be/aTB6iPz3H5E
- **Dr. Nora Volkow Discuss MTF 2014 Results**
  http://youtu.be/GnraNucCHH8
- **Teen Drug Use: 2014 Monitoring the Future Survey Results**
  http://youtu.be/8KaYHlCfAGA
- **What's New at NIDA: Office of Science Policy and Communication Director's Notes for January**
  http://youtu.be/C8u6RTZsIoU

CTN-Related Publications

Five editions of the CTN Bulletin Board were distributed. The Bulletin Board is an electronic report on the progress of the protocols, committees, and Node activity in the CTN. The Bulletin has wide readership within and outside the CTN and NIDA.

Data from 34 CTN studies are now available on the NIDA Data Share website http://datashare.nida.nih.gov/. Over 3,200 data sets have been downloaded by researchers from 69 countries. These data sets are in compliance with HIPAA and CDISC (Clinical Data Interchange Standards Consortium) standards in support of the interoperability required by the NIH Roadmap. The NIDA Data Share is also part of the Neuroscience Information Framework (NIF), which is a dynamic inventory of Web-based neuroscience resources: data, materials, and tools accessible via any computer connected to the Internet.

Other Publications

Aklin WM, Wong CJ, Svikis D, Stitzer ML, Bigelow GE, Hampton J, Silverman K. A reinforcement-based therapeutic workplace for the long-term treatment of substance dependence in Methadone Maintained Patients: Eight year abstinence and employment outcomes. Journal of Substance Abuse Treatment 2014; 47: 329-338.

Bogenschutz MP, Donovan DM, Mandler RN, Perl HI, Forcehimes AA, Crandall C, Lindblad R, Oden NL, Sharma G, Metsch L, Lyons MS, McCormack R, Konstantopoulos WM, Douaihy A. Brief intervention for patients with problematic drug use presenting in emergency departments: A Randomized clinical trial. JAMA Intern Med. 2014 Nov 1;174(11):1736-1745.

Bogenschutz MP, Donovan DM, Mandler RN, Perl HI, Forcehimes AA, Crandall C, Lindblad R, Oden NL, Sharma G, Metsch L, Lyons MS, McCormack R, Konstantopoulos WM, Douaihy A. Uptake of HIV testing in substance use disorder treatment programs that offer on-site testing. Kyle TL, Horigian VE, Tross S, Gruber VA, Pereyra M, Mandler RN, Feaster DJ, Metsch LR. AIDS Behav. 2014 Jul 30. [Epub ahead of print].

Ghitza UE. ASPIRE Model for treating cannabis and other substance use disorders: A novel personalized-medicine framework. Frontiers in Psychiatry 2014 Dec 8.

Onken L, Shoham V. Technology and the Stage Model of behavioral intervention development. In L. Marsch, S. Lord, & J. Dallery (Eds), Behavioral Healthcare and Technology: Using Science-Based Innovations to Transform Practice. Oxford, England: Oxford University Press, 2014.

Satterlee J, Pollock J et al., Novel RNA modifications in the nervous system: form and function. Satterlee JS, Basanta-Sanchez M, Blanco S, Li JB, Meyer K, Pollock J, Sadri-Vakili G, Rybak-Wolf A. J Neurosci. 2014 Nov 12;34(46):15170-15177.

Satterlee J, Rutter J, Procaccini Community Resources and Technologies Developed Through the NIH Roadmap Epigenomics Program. Satterlee JS, Beckel-Mitchener A, McAllister K, Procaccini DC, Rutter JL, Tyson FL, Chadwick LH. Methods Mol Biol. 2015;1238:27-49.

Visher CA, Hiller M, Belenko S, Pankow J, Dembo R, Frisman LK, Pearson FS, Swan H, Wiley TR. The effect of a local change team intervention on staff attitudes towards HIV service delivery in correctional settings: a randomized trial. AIDS Educ Prev. 2014 Oct;26(5):411-28.

Walton KM, Abrams DB, Bailey WC, Clark D, Connolly GN, Djordjevic MV, Eissenberg TE, Fiore MC, Goniewicz ML, Haverkos L, Hecht SS, Henningfield JE, Hughes JR, Oncken CA, Postow L, Rose JE, Wanke KL, Yang L, Hatsukami DK. Nicotine Tob Res. 2014 Oct 21. pii: ntu214. [Epub ahead of print].

COMMUNITY AND PRESS EVENTS

Dr. Volkow Featured Speaker at TEDMED

On September 11, Dr. Volkow was a featured speaker at the TEDMED 2014 conference held at the John F. Kennedy Center for the Performing Arts in Washington, DC. TEDMED is an annual multi-disciplinary gathering where leaders from all sectors of society come together to explore the promise of technology and potential of human achievement in health and medicine. This year's TEDMED theme was "Unlocking Imagination in Service of Health and Medicine." Dr. Volkow appeared as one of 11 featured experts in Session 4: "Stealing Smart," where speakers shared inspiring stories and ideas about how to adapt solutions from other industries and fields to solve the most intractable problems in health and medicine. Dr. Volkow addressed the neuroscience of obesity and the parallels between compulsive overeating and drug addiction. The NIDA press team issued a media availability, provided social media support for the event and facilitated interviews with *The Atlantic, Fox Business Network* and *WebMD.*

Pathways to Prevention: The Role of Opioids in the Treatment of Chronic Pain

In support of a conference on the use of opioids for chronic pain – held September 29-30 by the NIH Office of Disease Prevention and the NIH Pain Consortium – the NIDA press team facilitated three interviews: two with Dr. Wilson Compton (an independent documentary and *Frontline Medical Communications)* and one with Dr. David Thomas (*MedPage*). The NIDA communication staff also developed a plan to place rotators on the NIDA website, distribute a NIDA-wide promotion email, and publicize the meeting through Twitter, Facebook, and Linked-In posts.

NIDA Hosts Mini-Convention at Society for Neuroscience Annual Meeting, Presents Jacob P. Waletzky Award and Participates in NIH Press Conference

On November 14th, in the Natcher Auditorium on the NIH Campus, NIDA hosted its annual one-day mini-convention, *Frontiers in Addiction Research*, a satellite event of the Society for Neuroscience annual meeting. NIDA-funded scientists from around the world presented recent findings and discussed future directions in neuroscience and addiction research. NIDA Director Dr. Nora Volkow gave the welcoming remarks and introduced the winners of the Jacob P. Waletzky Award. The NIDA press team issued a media advisory about the conference, took photos for the NIH Record, and promoted the event through NIDA's social media channels. On November 16th, Dr. Volkow was one of seven NIH directors to participate in a Washington, D.C. press conference highlighting the status of NIDA's research being presented at the SfN meeting. The press team coordinated with NIMH to determine press briefing logistics and provided social media outreach.

NIDA Hosts National Teleconference and Twitter Chat to Discuss 2014 Monitoring the Future Results

NIDA hosted a press teleconference and twitter chat on December 16, 2014, to discuss the findings of the 2014 Monitoring the Future (MTF) survey. The annual survey, funded by NIDA and conducted by researchers at the University of Michigan at Ann Arbor, measures drug use and attitudes among eighth, 10th, and twelfth graders nationwide. The NIDA press team issued a media advisory for the teleconference and a press release about the survey results; coordinated the logistics of the teleconference and twitter chat; and facilitated interviews, resulting in hundreds of placements in media outlets and social media platforms nationwide.

2015 Chat Day and National Drug Facts Week (NDFW)
NIDA conducted its annual Chat Day (January 30) and NDFW (January 26 - February 1), which included approximately 1500 events in all 50 states and several countries. Over 130 high schools registered for Chat Day and hundreds of questions were answered by NIDA scientists. NIDA developed and distributed press and promotional materials, cultivated radio and organizational partnerships, pitched to select media, coordinated two Radio Media Tours for English and Spanish speaking audiences, and promoted the week via traditional and social media outreach. Visit http://teens.drugabuse.gov/national-drug-facts-week for more information.

PRESS RELEASES

September 9, 2014	**National Drug Facts Week 2015 to begin January 26**
October 16, 2014	**Using social media to better understand, prevent, and treat substance use**
November 12, 2014	**NIDA researchers confirm important brain reward pathway**
December 16, 2014	**Teen prescription opioid abuse, cigarette, and alcohol use trends down**

SCIENCE SPOTLIGHTS AND ANNOUNCEMENTS

September 2, 2014	**NIDA Director Dr. Nora Volkow to speak at TEDMED 2014**
September 2, 2014	**Commentary: More research needed into marijuana's effects on brain development and function**
September 10, 2014	**Short video increases HIV testing in emergency department patients who initially declined**
September 17, 2014	**Review summarizes research on health effects of K2/Spice**
September 22, 2014	**Unique interaction discovered between brain regions involved in addiction, depression**
October 27, 2014	**New CME/CE course addresses substance use**
November 6, 2014	**NIDA Mini-Convention: Frontiers in Addiction Research**
November 19, 2014	**Evidence grows that heavy marijuana use may harm the brain**
November 20, 2014	**Buprenorphine tapering less effective than ongoing maintenance for prescription opioid abuse**
December 2, 2014	**Regulating a single gene may alter addiction and stress responses**
December 9, 2014	**National Institute on Drug Abuse to discuss results of 2014 Monitoring the Future Survey**
December 19, 2014	**Methamphetamine or amphetamine abuse linked to higher risk of Parkinson's disease**
December 29, 2014	**Prescriptions for anti-anxiety medications put teens at risk**
December 30, 2014	**Registration open for Drug Facts Chat Day; 2015 Drug IQ Challenge preview available**
December 31, 2014	**Women who receive gender-specific substance abuse treatment have greater chance of employment**
January 8, 2015	**Effects of cigarette smoking on brain differ between men and women**

January 12, 2015 **Nicotine metabolism rates may impact success of smoking cessation treatments**

INTERVIEW HIGHLIGHTS: August 2014 – December 2014

Al Jazeera – Dr. Nora Volkow was interviewed about Monitoring the Future.
Bloomberg – Dr. Susan Weiss was interviewed about marijuana.
CBS Radio Network – Dr. Wilson Compton was interviewed about Monitoring the Future.
CNN – Dr. Nora Volkow was interviewed about Monitoring the Future.
CNN – Dr. Susan Weiss was interviewed about a NIDA research study about marijuana.
CNN Special Projects – Dr. Marilyn Huestis was interviewed about K2/Spice.
Consumers Digest – Dr. Wilson Compton was interviewed about pain/opioids.
ESPN – Dr. Marilyn Huestis was interviewed about drug testing.
Fox Business Network – Dr. Nora Volkow was interviewed about her TEDMED presentation.
HBO Real Sports with Bryant Gumbel – Dr. Wilson Compton was interviewed about heroin.
Men's Journal – Dr. Wilson Compton was interviewed about marijuana.
NBC News Network – Dr. Wilson Compton was interviewed about Monitoring the Future.
Newsweek – Dr. Ruben Baler was interviewed about marijuana.
Philadelphia Inquirer – Dr. Joe Frascella was interviewed about nicotine.
Sunday Times London - Dr. Nora Volkow was interviewed about ISEF Science Fair Winners.
The Atlantic – Dr. Wilson Compton was interviewed about Monitoring the Future.
The Boston Globe – Dr. Wilson Compton was interviewed about marijuana.
The New York Times – Dr. Nora Volkow was interviewed about marijuana.
The Wall Street Journal – Dr. Nora Volkow was interviewed about ISEF Science Fair Winners.
The Wall Street Journal (2) – Dr. Wilson Compton was interviewed about naloxone and elderly drug abuse.
Time (2) – Dr. Nora Volkow was interviewed about Monitoring the Future and marijuana.
Time – Dr. Marilyn Huestis was interviewed about drugged driving.
Time Online – Dr. David Thomas was interviewed about pain/opioids.
Tom Joyner Morning Show – Dr. Wilson Compton was interviewed about Monitoring the Future.
Total News Source - Dr. Nora Volkow was interviewed about Monitoring the Future.
U.S. News & World Report – Dr. Wilson Compton was interviewed about Monitoring the Future.
USA Today – Dr. Nora Volkow was interviewed about Monitoring the Future.
Washington Times - Dr. Wilson Compton was interviewed about Monitoring the Future.

Dr. Loreno Leggio, IRP, was recently interviewed by Hannah Thomas-Peter from Sky NEWS ("Call to ban intravenous drips as hangover cure"), which was also featured in several national and international websites and TV channels.

In December 2014, *Chemical and Engineering News* published an article about Dr. Amina Woods', IRP, work on alterations in brain lipids due to chronic ethanol consumption.

MEETINGS/CONFERENCES

Select Meetings and Conferences in which NIDA played a significant role

On November 14, 2014 NIDA held the annual **Frontiers in Addiction Research Mini-convention**, a satellite meeting of the Society for Neuroscience Meeting. The 2014 mini-convention included presentations on: Emerging and Novel Aspects of Neuronal Transmission; Extracellular RNAs in Neuroscience: Biology, Biomarkers, and Therapeutics; Advances in High Resolution and Large Scale Imaging of Brain Networks and Circuits; and The Effects of Drug-, Stress-, and Pain-induced Neuroinflammation on Glymphatics and Sleep. It also featured key note presentations by the 2013 and 2014 winners of the SfN Jacob P. Waletzky Award, which recognizes excellence in research in the area of substance abuse and the brain and nervous system, and a poster session showcasing the work of early career investigators. The winner of the 2014 Jacob P. Waletzky Award was Dr. Paul Phillips from the University of Washington and the 2013 winner was Dr. Rita Goldstein from the Friedman Brain Institute at the Icahn School of Medicine at Mount Sinai.

On September 24, 2014, the Trans-NIH (NIAAA, NICHD, NIDA, NIMH, NINDS) **Addressing Health Disparities through Neuroscience: Views by Two** committee held a seminar on "Cultural Neuroscience," an emerging interdisciplinary field that focuses on the influence of personally held opinions, attitudes, beliefs, mores, and laws on brain, mind and behavior. Coordinated by Flair Lindsey of the Office of Diversity and Health Disparities (NIDA representative), the seminar featured Drs. George Northoff (University of Ottawa) and Denise C. Park (University of Texas), who's presentations provided further insight into cultural neuroscience, discussed interdisciplinary approaches to adopting cultural neuroscience research methods to reduce health disparities and empirically-based advances in cultural neuroscience for further investigation. Launched in 2011, the goal of the *Addressing Health Disparities through Neuroscience* seminar series is to increase awareness of health disparities relating to neuroscience through a collegial discussion between 2 renowned scientists on a shared topic.

On September 19, 2014, NIDA's Office of Diversity and Health Disparities convened a meeting of scientific and research training experts from **NIDA Diversity Networks** to discuss the mentoring, training and grant-writing needs of underrepresented scholars. The meeting focused on programmatic strategies NIDA should take to increase the success of underrepresented early-stage independent investigators in the NIH grant submission process. The invited participants discussed feasible strategies and pitfalls to avoid when developing a sustainable grant-writing program for early-stage independent investigators. NIDA ODHD intends to use recommendations and suggestions provided during this meeting to develop a long-term grant writing program.

On September 22, 2014, NIDA's Office of Diversity and Health Disparities convened a meeting of eight students selected from the 2014 NIDA Summer Research Internship program to present their research project at NIDA Headquarters, and learn about NIDA's research priorities and career development opportunities. Students were from different racial and ethnic backgrounds and scientific areas. The NIDA Summer Research Program provides research internships for high school and undergraduate students, with a goal of recruiting underrepresented racial/ethnic populations into research. Internships include a paid 8 week intensive, hands-on drug abuse and

addiction research experience that provides students with the opportunity to gain an understanding of the research process. Internships are conducted with NIDA-funded investigators across the country. This meeting was an excellent opportunity for these budding scientists to learn about NIDA, meet NIDA staff, and learn how to pursue a career in substance abuse and addiction research.

PLANNED MEETINGS (pending approval)

The NIDA CTN Steering Committee Meeting will be held April 14-16, 2015 in Gaithersburg, MD.

The National Institute on Drug Abuse (NIDA) will sponsor a Grant-Writing and Career Development Workshop at the **College on Problems of Drug Dependence (CPDD) Annual Scientific Meeting**. This year's conference will be held in **Phoenix, Arizona, on June 13–18, 2015**. The Grant/Career Workshop provides new or junior investigators with information and skills to advance their research careers, with a heavy emphasis on NIDA funding opportunities, grantsmanship, and the grant application process. NIDA will be offering a limited number of travel awards to partially defray the cost of attending this conference. Only NIDA-supported Diversity Supplement recipients, NRSA trainees, and NRSA fellows are eligible for this award. The application deadline for these awards is February 5, 2015.

GRANTEE HONORS AND AWARDS

Dr. Kirill Martemyanov, a NIDA grantee in neuroscience from the Scripps Research Institute, has received the 2014 Cogan award from the Association for Research in Vision and Ophthalmology (ARVO) for his contributions to the field of G-protein signaling pertaining to photoreceptors and ON-bipolar cells, important in vision research.

Dr. Christopher R. McCurdy was elected as a fellow of American Association of Pharmaceutical Scientists (AAPS), AAPS Meeting 2014. He was recognized for his research on the development of medications for pain from natural products

UNC School of Medicine researcher **Dr. Bryan L. Roth**, the Michael Hooker Distinguished Professor of Protein Therapeutics and Translational Proteomics in the Department of Pharmacology, has been elected to the Institute of Medicine. Dr. Roth, is a world-renowned scientist best known for creating an innovative scientific method that allows neuroscientists to manipulate and study brain circuits in health and disease.

Dr. Xiang-Qun Xie, was awarded the Research Achievement Award in Drug Discovery and Development Interface at the 2014 AAPS meeting. Dr. Xie was recognized for his pioneering research for developing diseases-specific chemogenomics databases and cloud computing drug target identification platform for "Big Data to Knowledge" translational research. Dr. Xie was earlier mentored by Dr. Alex Makriyannis.

Dr. Nurul Zaveri was elected as a fellow of AAPS 2014 and was recognized for her contributions on the development of nociception analogs for pain treatment and smoking cessation.

STAFF HONORS AND AWARDS

Dr. Michael Baumann, IRP, was appointed to the Scientific Advisory Group of the National Drug Early Warning System (NDEWS), a government-sponsored organization which aims to track the availability and misuse of novel synthetic drugs in the United States.

Nina Lopatina, a graduate student in Dr. Schoenbaum's lab, successfully proposed for her dissertation work.

Dr. Samia Noursi, Women and Sex/Gender Differences Research Deputy Coordinator, DCNBR, was invited to join the Editorial Board of Violence Research Digest: Translating Research into Policy and Practice. The Violence Research Digest is a new resource created by the National Partnership to End Interpersonal Violence (NPEIV; www.NPEIV.org), in particular its action team "Translation and Dissemination." The overarching mission of this team is to facilitate communication among researchers, policy makers, service providers and practitioners, in such a way that treatment and policy making is informed by research, and researchers are responsive to input from the field.

Dr. Geoffrey Schoenbaum, IRP, has accepted a position on the Editorial Board of *Biological Psychiatry* as part of his official duties.

Dr. Jean Lud Cadet's doctoral student, **Karina Villalba**, defended her thesis on November 12, 2014. Karina completed her Ph.D. in public health, with specialization in health promotion and disease prevention with a focus in genetics at Florida International University.

STAFF CHANGES

New Appointments

Susan R. B. Weiss, Ph.D. has been selected to be the Director of the new Division of Extramural Research (DER), NIDA. Susan is currently serving as the Associate Director for Scientific Affairs in the Office of the Director, NIDA. In this role, she has done a remarkable job in leading NIDA's operations and program planning for new initiative development and provided scientific recommendations on funding for new grants, including those related to research training and career development. Most notably, Susan has done an outstanding job of planning and managing trans-NIH initiatives, including the Collaborative Research on Addiction at NIH (CRAN) and Brain Research through Advancing Innovative Neurotechnologies (BRAIN) and in planning and spearheading the ABCD study. She was previously the Acting Director of the Office of Science Policy and Communications, and has expertise in communicating to a wide range of stakeholders, allocating funds, and developing strategic plans.

Dave Daubert will serve as Acting Executive Officer. Dave has a very productive 12 year history at NIDA including being Deputy Executive Officer (since January 2014) in which role he has excelled. Additionally he is the principal on several NIH-level groups and is a respected member of NIH's executive community.

New Employees

Kim DiFonzo joined the Public Information and Liaison Branch (PILB), Office of Science Policy and Communications (OSPC), in January 2015, after working as a contractor in NIDA's press office for the past six years. She is currently serving as the Deputy Press Officer where she is responsible for daily media inquiries on a wide variety of issues related to drug addiction research; preparing spokespeople for media interviews; assisting with the implementation of media outreach campaigns and events; and writing and editing various press materials. Kim has more than 20 years of public relations experience in healthcare communications and media relations. Prior to NIDA, Ms. DiFonzo worked in the public relations office at the American Psychological Association, wrote public relations materials on behalf of the President of the American Nurses Association, served as a national spokesperson for the blood services program at the American Red Cross, and managed the Campaign on Clinical Depression while at Burson-Marsteller.

Dr. Emily Einstein joined the Science Policy Branch, Office of Science Policy and Communications as Health Science Policy Analyst on January 12, 2015. Prior to joining OSPC, Dr. Einstein completed her time as an AAAS Science and Technology Policy Fellow in the Office of Autism Research Coordination at NIMH. Dr. Einstein earned her B.S. in biology and English at the College of William and Mary, and her Ph.D. in neuroscience at Yale University. Her graduate research was focused on the molecular and cellular mechanisms of psychiatric disorders, with an emphasis on the basal ganglia circuitry that underlies drug addiction. Dr. Einstein also has an interest in evidence-based undergraduate course design, serving as the scientific coordinator of the

Yale Teaching Center, as an HHMI teaching fellow with the Yale Center for Scientific Teaching, and as a facilitator for the National Academies Summer Institutes.

David Marzilli joined NIDA's Office of Management in September 2014. David attended University of Massachusetts for his undergraduate degree and Catholic University of America for law school. Before coming to NIDA, David clerked for judges in both the Montgomery County Circuit Court and the Rhode Island Superior Court. He now serves as a contract specialist in the NIDA R&D Contracts Management Branch.

Dr. Susan McGuire joined NIDA as a Scientific Review Officer on September 21, 2014. Previously, she was employed by the University of Illinois at Chicago and the US Veterans Administration where she served as a Research Health Scientist at the Edward Hines Jr. VA Hospital in Maywood, IL, a Chicago suburb. Susan set up an independent lab at Loyola University Medical School in Chicago. There, she conducted pre-clinical research aimed at understanding neuroinflammation and the effects of diet in aging, brain injury, and neurodegenerative disease using animal models of multiple sclerosis (EAE), Parkinson's disease, neural transplantation and repair, Alzheimer's disease, and traumatic brain injury. In addition to VA funding, Dr. McGuire was funded by NIH, the Alzheimer's Association and various private agencies. Susan served as a peer reviewer for both CSR and NCCAM. She was also a member and officer of the American Society for Neurochemistry.

Shirley Simson joined the Public Information and Liaison Branch (PILB), Office of Science Policy and Communications (OSPC), in October 2014, after working as a contractor in NIDA's press office for the past eight years. She is currently serving as the Press Officer managing the day-to-day operations of the press office. Ms. Simson has more than 20 years of experience developing, managing and implementing successful public relations programs, with an emphasis on health communication and social marketing. Ms. Simson's career has included work for a wide range of government agencies, including the Substance Abuse and Mental Health Services Administration, the Centers for Disease Control and Prevention, the Food and Drug Administration, and the U.S. Department of Transportation. She also spent two years as a media spokesperson for the national headquarters of the American Red Cross.

Amanda Wasson joined NIDA on 11/2/2014. Before coming to the Washington D.C. area, Amanda worked at the Davis Monthan Air Force Base in Tucson, Arizona for almost 4 years. She worked as a Social Services Assistant for the Medical Operations Squadron, Mental Health Flight. She assisted with the management of the Family Advocacy program. Amanda will provide administrative support to all of the Branch Chiefs at Office of Management; assist in acceptance, tracking, acknowledgment, and administrations of donations to the NIDA Gift fund; backup to NIDA Executive Secretariat when needed; data calls; and other duties as assigned.

Anna Wheeler joined NIDA in September 2014 as an Ethics Program Specialist. She received a bachelor of science degree from Louisiana State University and a juris doctor from Tulane University. She practiced as an attorney for two years before working at the United States Attorney's Office for the District of Columbia Appellate Division as a legal assistant.

Departures

Glenda Conroy, CPA, MBA, PMP, NIDA's Executive Officer and Associate Director for Management has agreed to serve as the permanent Director of NIH OMA starting December 28, 2014. In January 2012, Glenda became NIDA's Executive Officer; during this period of time Glenda has worked diligently and creatively to strengthen the NIDA OM Team including the COAC. Her efforts let to significant improvements in the administrative and managerial structure of NIDA; for which I am very grateful. In her new capacity Glenda will continue to support NIDA.

Dr. Sheri Grabus left the Public Information and Liaison Branch (PILB), Office of Science Policy and Communications (OSPC), in December 2014, to relocate with her family to Florida. Dr. Grabus joined the Office of Science Policy and Communications (OSPC) in November 2010 as the NIDA Deputy Press Officer and began managing the press team in early 2013, bringing a strong science background to NIDA's media outreach efforts. Dr. Grabus was trained as a neuroscientist and has a Ph.D. from American University in Psychopharmacology and Neuroscience. As a postdoc at Virginia Commonwealth University, she designed mouse models of nicotine dependence and reward, and studied nicotinic agonists, antagonists, and bupropion. She has also taught at the college level—including courses in psychology, substance abuse prevention and treatment, and she has lectured on drug dependence, pharmacology and drugs and pain control. Prior to joining NIDA, Sheri served as Executive Director for a small-town Chamber of Commerce and was in charge of all marketing, public relations, sales and media relations.

Jessica Cotto, M.P.H. left the Science Policy Branch, Office of Science Policy and Communications (OSPC), in October 2014, to serve as a Health Science Policy Analyst in the Office of Science Policy, Engagement, Education, and Communication at NHLBI where she provides the Director and other NHLBI staff with reports on trends in morbidity, morality, and care patterns for diseases within the Institute's mandate. Ms. Cotto joined the Science Policy Branch of the Office of Science Policy and Communications as an Epidemiologist in January 2009. Her primary responsibilities included analyzing data and synthesizing information from disparate sources to identify trends related to substance abuse. She was also responsible for analyzing data on the use of prescription medications and for overseeing and monitoring the contract that provides this information. Prior to NIDA, Ms. Cotto served as a Clinical Research Associate for The Children's National Medical Center, the National Institute of Allergy and Infectious Diseases, and the National Cancer Institute.

Dr. Jessica Chambers of the Behavioral and Integrative Treatment Branch left NIDA on December 3, 2014 for personal reasons. She had directed the branch's portfolio in adolescent treatment and had contributed significantly to NIDA for several years.

Dr. Lisa Onken, Branch Chief of the Behavioral and Integrative Treatment Branch, has left NIDA on January 9, 2015 to establish a behavioral treatment program at the National Institute on Aging. She has contributed to NIDA significantly throughout the 27 years of her tenure here. She has provided leadership both at NIDA and at the NIH on numerous initiatives including the NIH Roadmap and NIH Common Fund, particularly most recently on the Science of Behavior Change initiatives. She has helped shape an entire field and has advanced substance abuse treatment substantially. Rarely are sustained contributions made that have such a significant impact as hers.

Her leadership has been recognized at the NIH as well as by national organizations with several awards, citations, and commendations.

Retirements

Dr. Debra Grossman of the Behavioral and Integrative Treatment Branch retired on January 30, 2015. Debra oversaw a large portfolio of grants on smoking, tobacco, and smoking cessation. She had over 34.5 years of Federal service, and her contributions to the branch, division and institute have been numerous. In addition to promoting behavioral and integrative treatment research, she was extremely involved in NIDA's training programs.

In Memoriam

Dr. Steven R. Goldberg, NIDA IRP Senior Investigator and Chief of the Pre-Clinical Pharmacology Section, passed away on November 25, 2014. Throughout his career Steve made countless outstanding contributions to our understanding of the behavioral and neuropharmacological mechanisms triggered by drugs of abuse and in the words of NIDA Director Nora Volkow, in her message to NIDA staff "... left us with the nagging feeling that the best was yet to come." Steve conducted research in animals on environmental, historical, and pharmacological determinants of the behavioral and cardiovascular effects of psychoactive drugs, with an emphasis in recent years on the psychoactive marijuana constituent delta-9-tetrahydrocannbinol (THC), the endogenous cannabinoid anandamide, the psychoactive tobacco constituent nicotine, and the psychostimulant methamphetamine. Steve collaborated extensively with many U.S. and European labs and published more than 370 empirical papers, reviews, and book chapters. He and his group developed many experimental procedures and identified various neuropharmacological mechanisms of drug reward and relapse that laboratories around the world have capitalized upon. Steve's research goal was to elucidate behavioral and neuropharmacological mechanisms that underlie the actions of legal (nicotine) and illicit (marijuana and methamphetamine) drugs of abuse, develop pharmacological treatment approaches to abuse of these drugs, and to develop new medications that maximize positive actions of cannabinoids, in particular, without their negative actions such as abuse liability and cognitive impairment. Steve received his Ph.D. from the University of Michigan and conducted his dissertation on the role of withdrawal states and conditioning in morphine self-administration in monkeys which appeared in two seminal papers published in Science in 1969. During the 1970s, he conducted research at Harvard Medical School where he and his colleagues developed procedures to study drug self-administration in laboratory animals that are still regarded as the gold standard in the addiction field. Steve joined the Addiction Research Center in 1979, and over the last several decades his research has continued to make important contributions to the field, including the first conclusive demonstrations that nicotine and THC are readily self-administered by non-human primates. Steve was also a visiting professor and adjunct faculty at Johns Hopkins University, Georgetown University, the University of Maryland, and the University of Cagliari in Italy. Beyond his outstanding scientific achievements, Steve will surely be remembered as an exceptionally generous and honest person, an excellent mentor and role model to his trainees, and a fantastic collaborator.