

**U.S. Department of Health and Human Services
National Institutes of Health**

**Minutes of the Sixth Joint Meeting of the
National Advisory Council on Alcohol Abuse and Alcoholism,
National Advisory Council on Drug Abuse, and
National Cancer Advisory Board**

**May 16, 2018
Rockville, Maryland**

Members of the National Advisory Council on Alcohol Abuse and Alcoholism (NIAAA), National Advisory Council on Drug Abuse (NIDA), and the National Cancer Advisory Board of the National Cancer Institute (NCI) convened for their sixth joint meeting on May 16, 2018, in Rockville, Maryland. Chaired by George Koob, Ph.D., Director of NIAAA, and Nora Volkow, M.D., Director of NIDA, this open session convened at 9:00 a.m.

National Advisory Council on Alcohol Abuse and Alcoholism Members Present:

Carmen E. Albizu-Garcia, M.D.
Howard C. Becker, Ph.D.
Daniel J. Calac, M.D.
Carlo C. DiClemente, Ph.D.
Alex M. Dopico, M.D., Ph.D.
James H. Eberwine, Ph.D.
Tatiana M. Foroud, Ph.D.
Paul J. Kenny, Ph.D.
Charles S. Milliken, M.D., ex-officio
Arun J. Sanyal, M.D.
Frank A. Sloan, Ph.D.
Susan M. Smith, Ph.D.
Edith Vioni Sullivan, Ph.D.
Constance M. Weisner, D.R.P.H.

National Advisory Council on Drug Abuse Members Present:

Anne C. Andorn, M.D.
Judith D. Auerbach, Ph.D.
Laura J. Bierut, M.D.
Julie A. Blendy, Ph.D.
Linda Chang, M.D.
H. Westley Clark, M.D., J.D. (on telephone)
Arthur T. Dean
Karl Deisseroth, M.D., Ph.D.
Marie Gallo Dyak
Jay N. Giedd, M.D.
Kenneth P. Mackie, M.D.
Lisa A. Marsch, Ph.D.

Edward V. Nunes, M.D.
Robert G. Rancourt, J.D.
Steffanie A. Strathdee, Ph.D.

National Cancer Advisory Board Members Present:

Yuan Chang, M.D. (on telephone)
Lawrence O. Gostin, J.D. (on telephone)

Chairs: George Koob, Ph.D., and Nora Volkow, M.D.

National Institute of Alcohol Abuse and Alcoholism (NIAAA) Director: George Koob, Ph.D.

National Institute on Drug Abuse (NIDA) Director: Nora D. Volkow, M.D.

National Cancer Institute/Division of Cancer Control and Population Sciences (NCI/DCCPS) Director:
Robert T. Croyle, Ph.D.

NIAAA Deputy Director: Patricia Powell, Ph.D.

NIDA Deputy Director: Wilson Compton, M.P.E., M.D.

NIAAA, Director, Office of Extramural Activities: Abraham P. Bautista, Ph.D.

NIDA, Director, Division of Extramural Research: Susan B. Weiss, Ph.D.

NCI, Director, Division of Extramural Activities: Paulette S. Gray, Ph.D.

NIDA Senior Staff: Carlos Blanco, Ph.D.; Bethany Deeds, Ph.D.; Gaya Dowling, Ph.D.; Katia Howlett, Ph.D., M.B.A.; Roger Little, Ph.D.; Michele Rankin, Ph.D.; Rita Valentino, Ph.D.; and Tracy Waldeck, Ph.D.

NIAAA Senior Staff: Vicki Buckley, M.B.A.; Ralph Hingson, D. Sc.; Kathy Jung, Ph.D.; Raye Litten, Ph.D.; Antonio Noronha, Ph.D.; and Bridget Williams-Simmons, Ph.D.

NCI Senior Staff: Michele Bloch, M.D., Ph.D., Glen Morgan, Ph.D.

Additional Participants

Approximately 45 observers attended the meeting, including representatives of constituent groups, liaison organizations, and members of the public.

Call to Order and Introductions

Dr. Volkow called to order the sixth joint meeting of the National Advisory Councils of NIAAA, NIDA, and NCI in open session at 9:00 a.m. on Wednesday, May 16, 2018. Council members and Institute leaders introduced themselves.

Adolescent Brain and Cognitive Development (ABCD) Study

Dr. Volkow introduced Gaya Dowling, Ph.D., Director of the ABCD study, who updated Council members on the status of the study. There are currently 21 research sites; the University of Rochester was the most recent site added. The diversity of the local population and their expertise will enhance the study's recruitment goals.

Enrollment: As of May 16, 2018, 9,345 child participants have been recruited and enrolled. The enrollment goal is 11,500 by the end of August 2018, which appears feasible based on historical recruitment patterns. As of May 13, 2018, 52 percent of participants were male. Enrollment targets are derived from the America Community Survey of the U.S. Census Bureau. To date, Hispanic/Latino enrollment is on target. African Americans are under-enrolled, as are whites and Asians of lower socio-economic status. These groups will be intensively recruited over the next several months. It has also been challenging to recruit a representative sample of twins. Four research sites are recruiting twins and the study is limited to potential participants on their registries. Hence, the enrollment targets for the twins' portion of the study are being adjusted.

Preliminary Descriptive Data: Descriptive analyses have been completed on the first 4500 participants enrolled, who are primarily 9- and 10-year-olds. For example, an analysis of participant diversity by Raul Gonzalez of Florida International University revealed a patchwork quilt of self-identified heritage cultures with the single largest group indicating "none," followed by Mexican, "multiple," and Mormon/Latter Day Saints (LDS). Roughly one-third of both parents and children report speaking a language other than English at home, with the majority indicating they speak only or mostly English with friends outside the home. Other analyses have examined the distribution of Body Mass Index (BMI) among participants, as well as participation in extracurricular activities, including sports and music/art instruction. The latter is of particular interest to the National Endowment of the Arts, a new partner in the ABCD study. The amount of screen time is also being tracked; few participants reported using mature-rated video games or movies. Similarly, few reported use of social media.

An analysis by Mary Heitzeg at the University of Michigan revealed that almost all participants had heard of alcohol and tobacco; almost six out of ten (57.9 percent) had heard of marijuana. Considerably fewer had heard of prescription drug misuse (36.6 percent); inhalants (26.6 percent); or other drugs that make people feel high (12.7 percent). Boys were more likely than girls to have "heard of" these substances. Almost three-quarters (73.3 percent) have not tried any drug personally; of those who have, sips of alcohol were most commonly reported. The majority of these sips were offered to the participants; the average age at which a sip was offered was 7.5 years. There were no differences between boys and girls in the pattern or age of being offered a sip. The vast majority of participants (95 percent) have no peers using substances and no intention to do so themselves (91 percent). Boys were more likely than girls to report having peers who have used a substance and to indicate an intention to try one themselves.

Hugh Garavan at the University of Vermont examined the mental health of participants, drawing from an extensive battery of questions. Attention deficit/hyperactivity disorder (ADHD) was most frequently reported, followed by oppositional defiant and conduct disorders. Less than one percent reported major depressive disorder, social anxiety disorder, or general anxiety disorder. A small number of participants had a significant family history of depression. Deanna Barch, Washington University St. Louis (WUSTL), analyzed suicidal ideation and psychosis in the sample. Parents reported levels of suicidal ideation in their children high enough to be of concern; child participants reported similar responses but at even higher levels. Proneness to psychosis was measured with a questionnaire for adults modified for

children and validated as effective. Some participants reported psychotic experiences (e.g., hallucinations, believing they had superpowers). There was a positive correlation between these experiences and a family history of psychosis.

Other data sources in the study include biospecimens, such as saliva samples, to examine puberty-related hormones and baby teeth to examine environmental influences. Brain images are also collected. A preliminary study by BJ Casey at Yale examined brain images during a Stop Signal task, which demonstrated activation of the prefrontal cortex, as expected.

Follow-up Assessments: Study participants come in annually for a follow-up assessment; telephone (eventually web-based) checks occur every three to six months. Over 2,200 participants are at the one-year follow-up stage, with most assessments completed. No brain imaging is conducted at this follow-up and there is a shorter set of questions. These include some that were previously deleted at baseline to keep the length of the initial visit to a reasonable level, while other new measures were not initially anticipated. For example, gender identity measures were added at the request of the Division of Adolescent and School Health (DASH) at the U.S. Centers for Disease Control and Prevention (CDC). Other additions include some on delinquency, adverse life events, discrimination, and substance abuse. NicAlert™ for cotinine analysis has been added, and the neurocognitive tasks changed. For parents, additions include questions about child nutrition and a short social responsiveness scale which gets at autism spectrum symptoms. Currently, the in-person follow-up assessment is approximately two hours in length. Follow-up assessments across sites are monitored to identify the number of participants and whether the assessments are completed within time limits. Currently, the retention rate is 99.6 percent.

ABCD Sub-Studies: All 21 sites are implementing the same protocol. However, sites and investigators who have specific areas of interest have the opportunity to propose sub-studies that must be implemented in at least two sites. These study proposals go through a review process to assure they don't jeopardize the study as a whole, and the sites must obtain outside funding. To date, two studies have been supported and their funders—CDC's Division of Violence and the National Institute of Justice (NIJ) in one case, and the National Science Foundation (NSF) in the other—have been added as ABCD partners. The CDC/NIJ study is examining the intersection of substance use, delinquency, and victimization, and related brain indicators. It is being conducted at the University of Pittsburgh, University of Florida, University of Michigan, Yale, and the University of Maryland, Baltimore. The Disaster and Youth, Neural and Affective Development in Context (DYNAMIC) study funded by NSF and instigated by Hurricane Irma, aims to explore the impact of disaster exposure on structural brain development and cognitive and affective outcomes, as well as to evaluate the extent to which pre-Irma structural factors predict and moderate effects of Irma exposure on cognitive and affective outcomes. Florida international University, University of Florida, Medical University of South Carolina, and the University of California, San Diego, are the participating sites.

Data Sharing: A fundamental value of ABCD is to share data as quickly as possible. Raw imaging data is released to the National Institute of Mental Health (NIMH) Data Archive (NDA) on an ongoing basis once it has been received and cleaned. The study also does an annual curated release of basic demographics; assessments of physical and mental health, substance use, culture and environment, and neurocognition; tabulated structural and functional neuroimaging data; minimally processed brain images; biological data; and residential history derived data. All data collected at baseline on the first 4500 participants have been released through the NDA. There are currently 531 NDA accounts with ABCD access, and over 3400 ABCD data packages have been created by 143 distinct users. The next data release on all participants is expected in February 2019.

Developmental Cognitive Neuroscience released a special issue in April 2018 about the ABCD study that includes eight articles that describe its rationale, development of measures, and early data.

Funding Opportunities: Two Funding Opportunity Announcements (FOAs) related to ABCD are currently available. PAR-18-062, Accelerating the Pace of Drug Abuse Research Using Existing Data, encourages secondary analyses. RFA-DA-19-006, Workshop on the Use of Adolescent Brain Cognitive Development (ABCD) Data, seeks to promote the availability and nature of ABCD data to the research community.

Discussion: All Council members offering comments on the presentation prefaced their remarks with admiration for the scope and implementation of the ABCD study. James Eberwine, Ph.D., inquired about genotyping of participants. Dr. Dowling responded that genotyping is ongoing using the Smokestream® chip; the data on the first 4500 participants will be made public in a patch release and the remainder will be released at the end of the year. Marie Gallo Dyak praised the inclusion of arts and music participation among the variables. She asked if this included children who feel they are self-taught in the arts. Dr. Dowling noted that the instruments ask if there is no formal arts/music instruction. Ms. Dyak inquired if the adverse childhood experiences being tracked include physically moving residences, as this may be traumatic. Dr. Dowling responded that information about residence is collected at each assessment and that, thus far, no participants have been lost due to geographic relocation. Ms. Dyak praised the inclusion of mental health questions for both parents and children, and the examination of multigenerational depression. Susan Smith, Ph.D., asked if the study was gathering information about nutrition. Dr. Dowling stated that there is a questionnaire for parents about their child's nutrition and that study administrators are in discussion with the National Heart, Blood and Lung Institute (NHLBI) about pursuing more in-depth nutrition information. Dr. Smith responded that such information is needed to understand brain development. She asked if information was being collected about prenatal alcohol consumption since many youngsters with prenatal alcohol exposure (PAE) are diagnosed with ADHD or autism in order to obtain services. Dr. Dowling explained that a question about prenatal alcohol consumption is included on a developmental history questionnaire and some investigators are analyzing that data. The baby teeth study will also contribute information about this issue. Edward Nunes, Jr., M.D., inquired about what happens when a child screens positive for suicide, ADHD, etc. Linda Chang, M.D., one of the ABCD investigators, responded that sites are proactive about responding to a positive suicide screen. She and a psychiatrist are both alerted immediately. They talk to the parent and the child, make sure they have needed referrals, and then follow up. This is also true for imaging; each image is read by a neuropsychiatrist at the University of California, San Francisco. If any kind of abnormality is observed, the site is immediately contacted, and site administrators contact the family and refer them to medical services. Similarly, Child Protection Services are notified in cases of suspected abuse; in one instance, the parent was the abuser and dropped out of the study. Lisa Marsch, Ph.D., inquired about patient compensation. Dr. Dowling explained that compensation is based on the amount of time parents and children are expected to spend; Dr. Chang added that compensation is variable, depending on location. Families are also reimbursed for travel. Daniel Calac, M.D., asked about the plan to improve representation among lower socio-economic groups. Dr. Dowling replied that study administrators are offering financial incentives to sites to reach out to communities where they may not have previously recruited. Arun Sanyal, M.D., inquired if the study was collecting fecal or salivary samples for microbiome analysis. Dr. Dowling responded no, due to budgetary constraints. Dr. Sanyal recommended doing so in a sub-study. Dr. Volkow concluded the discussion by noting that many Institutes and Centers (ICs) are interested in the ABCD study since it clearly has implications for most of the diseases that the ICs address.

Better Health through Better Partnerships

Dr. Volkow introduced VADM Jerome M. Adams, M.D., M.P.H., Surgeon General of the United States, who joined the meeting by telephone. Dr. Adams' primary foci for his tenure are health and national security, health and prosperity, and the opioid crisis. His foci for the opioid epidemic are prevention, education, and the overdose-reversing drug-naloxone. The goal of **prevention** is to help physicians to be better prescribers of pain medication following the CDC prescribing guidelines and to encourage patients to take better care of their medications. Society needs to recognize a dual crisis of pain and opioids. People are self-medicating to treat both chronic pain and mental health issues. Better pain treatment is also needed; if not available, those who have been on opioids for long periods will turn to alcohol, tobacco, and/or illegal opioids. The goal of **education** is to reduce stigma and to teach everyone how to help loved ones. Dr. Adams encouraged Council members to visit the President's website, www.crisisnextdoor.gov, where both President Donald Trump and Dr. Adams have shared their personal stories with addiction. The site also contains stories of recovery, because it is important that people understand that treatment is available and recovery is possible. The goal of **medication** is to raise awareness about naloxone and to train community members to become first responders. The Surgeon General has issued an advisory on naloxone, encouraging patients and their family members and friends to become trained to administer the drug and to keep it on hand. Naloxone is not the sole solution to the epidemic, but it's a first step to stem the tide.

In order to achieve these goals, better collaborations are needed; hence, "Better Health through Better Partnerships." Better partnerships mean breaking down silos and bringing together people from diverse fields, such as law enforcement, faith communities, and education.

Discussion: Dr. Koob thanked Dr. Adams for his inclusive partnership. Steffanie Strathdee, Ph.D., thanked Dr. Adams for his leadership, including his courage in issuing the naloxone advisory. She asked how access to Medication-Assisted Treatment (MAT) might be expanded, since only about ten percent of those addicted to opioids are able to gain access to it; state laws and low representation of addiction specialists in rural areas are among the barriers. She also noted a looming threat of Human Immunodeficiency Virus (HIV) and Hepatitis-C (HCV). Dr. Adams responded that policymakers may be unaware of the HIV and HCV threats and the need for increased resources. His upcoming Surgeon General's report on health and prosperity is aimed at helping people understand the relationship between health and jobs. For example, Amazon is evaluating local health factors as part of its decision about where to locate a new headquarters. Mayors and local officials need to be aware of this link between health and jobs. Dr. Adams asserted that he fully agreed with Dr. Marsch's emphasis on MAT, noting that there remains a lot of stigma about naloxone and MAT. There are many barriers to implementing MAT because there are different rules for each of the three drugs. One approach is to expand the types of providers who are authorized to prescribe them. It's important to highlight the models that work and disseminate them to policymakers. Westley Clark, M.D., expressed support for Dr. Adams' position on recovery. He noted that there is a 50 percent relapse rate within six months with Naltrexone. Thus, there is a need to foster sustained recovery. Dr. Adams agreed, stating that addiction needs to be redefined as a chronic disease like diabetes or heart disease. With alcohol, abstinence has been defined as success and falling off the wagon as failure, which increases stigma for those who relapse. Most people in the country don't believe there's an effective long-term treatment for opioid use disorder. Therefore, policymakers don't know what to do. The field needs to educate people and policymakers about what works. Dr. Clark encouraged Dr. Adams to remember college students in his work; some universities, for example, have established recovery dormitories. Dr. Adams concurred and suggested that another place where an impact can be made is with employers who are experiencing

workforce issues because people are unable to pass drug tests. He noted the case of Belden in Richmond, Indiana which began screening job applicants for drugs prior to the interview process and referring those who failed to community resources for treatment. The company promised applicants that if they were successful in treatment and passed a future drug test, it would hold the job open for them. Belden found those who succeeded became their best workers. Successful models like this need to be shared with employers and policymakers.

Dr. Koob stated that NIAAA's perspective is there are many paths to treatment; both the Patient Navigator and the HBO documentary, *Risky Drinking*, reflect this philosophy. AUD is a spectrum disorder. Abstinence may be the only solution for someone with a severe disorder, but there may be other options for those with a mild or moderate disorder. He noted that people can be maintained long-term with Vivitrol if they continue to take the medication. The old perception is that the only available treatment is Alcoholics Anonymous (AA) or a 28-day detox program. There are, however, many treatments available, including motivational interviewing and cognitive behavioral therapy. Dr. Adams thanked Dr. Koob for his explanation and noted that the misperception about abstinence has been a major concern in advancing MAT.

Dr. Volkow announced a break at 10:43 a.m. Council members reconvened at 11:05 a.m.

NIDA Director's Report

Dr. Volkow announced two new hires at NIDA: Kurt Rasmussen, Ph.D., formerly Senior Research Advisor in the Neuroscience Division at Eli Lilly & Co., joined NIDA as the Director of the Division of Therapeutics and Medical Consequences. Redonna Chandler, Ph.D. has been named Director of the AIDS Research Program at NIDA.

Dr. Volkow focused the majority of her report on cannabis and opioids; while NIDA is involved in many other complex issues related to substance use disorders, the current opioid crisis and policies impacting cannabis use have yielded a heightened interest in these areas. The 2017 Monitoring the Future survey revealed continuing decreases in alcohol and tobacco use among high school seniors since 2010, but no change in marijuana consumption for this population during that same period. Except for marijuana, substance use among teens in 2017 is the lowest seen in the last 25 years. Close to 6 percent of high school seniors use marijuana on a daily basis, compared to just over 4 percent who use tobacco daily. Nearly one in three seniors reported using an e-vaping device in the past year. Such devices may expose teens to nicotine for the first time, raising the concern that vaping could lead to tobacco use and adverse health impacts. More than half of teens surveyed said they are vaping flavors; however, 17 percent of these devices actually contain nicotine, even if the label says otherwise. Among 12th graders, more than 30 percent report that they are vaping nicotine, and 10 to 11 percent report they are vaping tetrahydrocannabinol (THC). Thus, vaping is a new route of administration for exposing adolescents to drugs and requires further investigation.

The 2017 Monitoring the Future survey also identified a dramatic reduction in the use of prescription opioids, and reduced consumption of cocaine and heroin among adolescents. This finding is notable since the use of heroin is increasing in other sectors of the population. NIDA is striving to understand what is driving these trends. One hypothesis is that increased social media use and shifts in social networks and peer relationships reduces exposure to alcohol and drugs and to face-to-face peer pressure to use these substances. Another is that the reduction in nicotine exposure due to a decrease in tobacco use may be protecting teens from alcohol and drug use and associated disorders, since nicotine helps prime the brain for the reinforcing effects of other drugs.

Use of mobile devices and social media has become nearly ubiquitous among youth. Given the importance of peers in adolescent behaviors such as substance use and to further understand the role of social media in teens' substance use patterns, NIDA and the NIH Office of Behavioral and Social Sciences Research co-sponsored a Workshop on Social Media, Mobile Technology, and Youth Risk on October 17, 2017. At the workshop, 11 experts from across diverse disciplines, including some grantees supported through the CRAN Social Media RFA issued in 2014, discussed key questions related to social media use and risky behaviors among youth to help guide NIDA's research priorities in this area. Social media appears to influence youth development on multiple levels, and youth both consume and create content. Meeting discussions stressed that there are important research opportunities to help better understand the developmental effects of social media. Specifically, to understand effects of social media on the brain and measure the influence of social media on behavior and well-being in real time in a laboratory setting; take advantage of the opportunities presented by existing longitudinal studies to examine effects in large samples; characterize the relationship between social media use and key neurobiological, behavioral, and social skill outcomes of interest; and capture the relationship between social media use and daily patterns of "real life" interactions and substance use-relevant outcomes. NIDA staff are collaborating with other components of NIH to follow up on recommendations that emerged from the meeting. The ABCD study, for example, may be able to incorporate many of the metrics identified in the workshop to investigate them further.

Cannabis laws have expanded; currently, 29 states (plus D.C. Guam and Puerto Rico) have legalized medical marijuana use and 8 have legalized recreational use of cannabis. In February 2018, a NIDA Council Workgroup on Cannabis Policy Research issued *Recommendations for NIDA's Cannabis Policy Research Agenda*, available on the NIDA website. NIDA has begun to expand policy research under the Division of Epidemiology, Services, and Prevention Research.

Enrollment for the ABCD Study is on target, as reported earlier by Dr. Dowling. The challenge is how to increase recruitment of underrepresented groups, especially participants from white populations with lower socio-economic status. The Study has released imaging data and curated data available through the NIMH Data Archive and NIDA has issued RFA-DA-19-006, Workshop on the Use of Adolescent Brain Cognitive Development (ABCD) Data which seeks to promote the availability of ABCD data for the research community and support creative educational activities to allow researchers to explore the data.

Opioids: The opioid crisis has resulted in a 22 percent increase in overdose fatalities since 2015. No change in the overdose death rate is expected in 2018 compared to 2017. At the same time, more than 80,000 people die from alcohol misuse and more than 400,000 from tobacco use each year. The opioid crisis is influencing the national dialogue to address all types of addiction.

The opioid crisis has evolved, beginning with over-prescription of opioid medications, which led to diversion and misuse. Heroin became an inexpensive alternative, and addiction to prescription opioids fueled its use. Heroin overdose deaths started climbing in 2011. Since then, fentanyl and other very potent synthetic opioids have emerged. Fentanyl-related overdose deaths are now at more than 20,000 per year, overshadowing the number of both heroin and prescription opioid overdose fatalities.

NIH's Opioid Research Initiative has adopted a three-pronged approach to address the opioid crisis, focusing on the development of safe and more effective pain management strategies; developing new medications and technologies for opioid addiction treatment; and new interventions for overdose

reversal to reduce mortality and link individuals to treatment. Overdose rates across different drugs are climbing rapidly due to new drug combinations in which heroin, cocaine, and methamphetamine are being laced with potent synthetic opioids. In addition, efforts need to focus on preventing opioid use disorder (OUD) in the first place through not just better treatment of pain (not all OUD follows that trajectory), but also screening and early intervention to prevent misuse from escalating. NIH Director Francis Collins, M.D., Ph.D., has identified the new Helping to End Addiction Long-Term (HEAL) initiative to end the opioid crisis as an NIH priority. A trans-NIH endeavor, HEAL focuses on collaborative, cross-cutting research at all levels, and innovative partnerships across agencies, sectors, and organizations to advance national priorities for pain and addiction research. The total HEAL budget for Fiscal Year (FY) 2018 is \$1.1 billion. NIDA will have \$250 million in FY 2018 and again in FY 2019 for research efforts addressing the opioid crisis (total \$500 million).

Another major priority is addressing the complex reasons for the increasing drug poisoning deaths, which are driving increases in mortality. Dr. Volkow showed maps of the United States representing the prevalence of alcohol use disorder (AUD), suicide, and obesity, as well as a map displaying poverty rates across the U.S. High-risk behaviors are related to lack of opportunities and poverty plays a role, but is not a total explanation. Education may be the best predictor of who will engage in these risky behaviors. Society provides an environment for internal structures to develop that allow people to be successful. To address what may be contributing to unhealthy trends in substance use, society needs to better understand how the environment influences the brain and creates vulnerabilities that contribute engagement in risky behaviors.

NIDA has recently launched a new webpage to highlight research topics of interest to encourage research in areas where gaps may exist—[NIDA Topics of Interest \(DAT\)](#). DATs will encourage use of existing parent funding opportunity announcements, but NIDA continues to encourage investigator-initiated projects in topic areas *not* listed on the DAT page.

NIAAA Director's Report

Dr. Koob began his report by describing progress on several alcohol-related issues:

Reducing Underage and College Drinking: The 2017 Monitoring the Future survey revealed that underage drinking has been reduced by one-third over the past ten years. In FY 2017, NIAAA funded 27 grants totaling \$8 million on underage drinking prevention, and 47 grants totaling \$15 million in college-age drinking prevention. NIAAA developed *Alcohol Screening and Brief Intervention for Youth: A Practitioner's Guide*, and *CollegeAIM*, a resource for helping colleges address harmful and underage student drinking that has been distributed to every college campus in the United States. Two major research studies funded by NIAAA also address underage drinking: the National Consortium on Alcohol and Neurodevelopment in Adolescence (NCANDA) and the new ABCD study.

Alcohol Policy Research: NIAAA's policy portfolio includes 12 active grants (\$7.4 million) in FY 2014 and 18 active grants (\$9.5 million) in FY 2017. Policy grants constituted 10 percent of the budget in the Division of Epidemiology and Prevention Research in 2014 and 10 percent in 2017. NIAAA encourages policy research applications via Public Policy Effects of Alcohol, Marijuana, and Other Substance Related Behaviors and Outcomes (PA-17-132, 134, & 135) (NIDA and NCI also participate). Finally, NIAAA maintains the Alcohol Policy Information System (APIS), a large searchable database of alcohol-related federal and state policies. Marijuana policies have recently been added.

Estimating Prevalence of Fetal Alcohol Spectrum Disorders: “Prevalence of Fetal Alcohol Spectrum Disorders in 4 US Communities” was published in *JAMA: Journal of American Medical Association* (2018 Feb 6; **319**(5):474-482) by PA May, CD Chambers, WO Kalberg, J Zellner, H Feldman, D Buckley, D Kopald, JM Hasken, R Xu, G Honerkamp-Smith, H Taras, MA Manning, LK Robinson, MP Adam, O Abdul-Rahman, K Vaux, T Jewett, AJ Elliott, JA Kable, N Akshoomoff, D Falk, JA Arroyo, D Hereld, EP Riley, ME Charness, CD Coles, KR Warren, KL Jones, and HE Hoyme. In this study, active-case ascertainment, the most reliable approach for estimating the prevalence of fetal alcohol spectrum disorders (FASD), was used to determine new prevalence estimates among four U.S. communities (eight sites) with varied demographics. Prevalence estimates ranged from 1.1 to 5 percent. Although not necessarily generalizable to all U.S. communities, these estimates are likely more accurate than previously reported estimates for the United States, and help highlight the prevalence of FASD.

Understanding How Alcohol Use Disorder Affects the Aging Brain: “The Role of Aging, Drug Dependence, and Hepatitis C Comorbidity in Alcoholism Cortical Compromise” was published in *JAMA Psychiatry* 2018; **75**(5):474–483 by EV Sullivan, NM Zahr, SA Sassoon, WK Thompson, D Kwon, KM Pohl, A Pfefferbaum. This study examined changes in regional brain volumes in alcohol-dependent individuals and age-matched controls, aged 25 to 75, who received one or more MRI scans over a 14-year period. Alcohol-dependent individuals had significant age-related decreases in brain volumes, most prominently in the frontal cortex. Drug dependence or HCV compounded the effects.

Emerging Issues: Dr. Koob highlighted several issues that are emerging as important areas of concern to NIAAA, including:

- **Increase in Alcohol-Related Emergency Department Visits:** “Trends in Alcohol-Related Emergency Department Visits in the United States: Results from the Nationwide Emergency Department Sample, 2006 to 2014” was published in *Alcoholism: Clinical and Experimental Research* (2018 Feb; **42**(2):352-359) by AM White, ME Slater, G Ng, R Hingson, and R Breslow. They found that the rate of ED visits due to acute and chronic alcohol misuse increased 47 percent between 2006-2014, while per capita alcohol consumption increased less than 2 percent. Increases were larger for women and older drinkers.
- **Binge Drinking:** “Drinking Beyond the Binge Threshold: Predictors, Consequences, and Changes in the U.S.” was published in the *American Journal of Preventive Medicine* (2017 Jun; **52**(6):717-727) by RW Hingson, W Zha, and AM White. They found a 13 times higher risk of emergency room (ER) visits among binge drinkers (4+ drinks for women, 5+ drinks for men, on an occasion) and a vastly higher risk—93 times higher—among extreme binge drinkers (12+ drinks for women, 15+ drinks for men, on an occasion). NIAAA is forming a working group of external experts to better understand the social and cultural determinants of extreme binge drinking to inform the development of improved interventions.
- **Alcohol and Women’s Health:** Gaps between women and men are narrowing for prevalence, frequency and intensity of drinking, early onset drinking, having an AUD, drunk driving, and self-reported consequences. Women are more likely to experience blackouts, liver inflammation, brain atrophy, cognitive deficits, certain cancers, and to experience negative affect during withdrawal and stress or anxiety-induced relapse. But little is known about why these health effects occur. Out of 230 structural neuroimaging studies on substance use over 23 years, only 26 percent evaluated sex differences. More clinical research about sex differences and alcohol is needed.

- ***Alcohol and Opioids—A Dangerous Combination:*** Alcohol is involved in approximately 15 percent of the opioid analgesic overdose deaths reported since 1999, according to CDC. Combining alcohol and opioids can be lethal because alcohol contributes to respiratory depression. More research is needed to understand the combinations of alcohol and opioids that are occurring.
- ***Alcohol and Pain Sensitivity:*** On March 13, 2018, the Friends of NIAAA hosted a Congressional meet-and-greet. Dr. Koob spoke about the role of alcohol in the opioid epidemic and its relationship to pain sensitivity; former journalist and novelist Martha Woodroof shared her personal story of using alcohol to blunt pain. “Analgesic Effects of Alcohol: A Systematic Review and Meta-Analysis of Controlled Experimental Studies in Healthy Participants” was published in *The Journal of Pain* (2017, May; 18(5) 499-510) by T Thompson, C Oram, CU Correll, S Tsermentseli, and B Stubbs. They conducted a meta-analysis of 18 controlled experiments comparing pain in people given alcohol vs. no alcohol. Their findings support the pain-reducing effects of alcohol. A mean blood alcohol concentration (BAC) of about 0.08 percent (legal driving limit) produced a small elevation in pain threshold and a significant reduction in pain intensity. A higher BAC was associated with greater pain insensitivity. These effects could explain alcohol misuse in those with persistent pain, despite its potential consequences for long-term health. “Increased Pain Sensitivity in Alcohol Withdrawal Syndrome” was published in the *European Journal of Pain* (2010; 14(7) 713-718) by T Jochum, MK Boettger, C Burkhardt, G Juckel, and K-J Bär. It’s been known that there is hyperalgesia or an increased sensitivity to pain during alcohol withdrawal; the more severe the alcohol withdrawal syndrome, the bigger the decrease in pain threshold. These researchers found there is also a correlation with the Beck Depression Index, so that the more depressed a person is, the more likely she or he is to express this hyperalgesic response to alcohol withdrawal. In the neurocircuitry of the brain that affects the overlap of pain and addiction, there is a well-known spinothalamic pain pathway in which pain enters the brain through the dorsal root ganglion, travels to the periaqueductal gray, reaches the thalamus, continues to the somatosensory cortex, eventually moves back down toward the limbic areas, and finally migrates to the amygdala. But there is another pathway discovered by Jean-Marie Besson that goes directly from the dorsal root ganglion to the parabrachial nucleus to the amygdala, and then connects up with the physical pain pathway. The implication of all this research is that pain is expressed both physically and emotionally. Physical pain can cause emotional pain and vice versa. This is an area of burgeoning research for NIAAA.
- ***Urgent Need to Grow the Addiction Medicine Workforce:*** Many providers do not perform AUD screening, and are unaware of evidence-based treatments or where to refer people. The goals of NIAAA’s initiatives in response to this emerging issue are to improve physician training in substance use prevention and treatment at all levels, from undergraduate and graduate medical education through residency, fellowship, and beyond; and to integrate prevention, early intervention, and treatment into routine medical care. NIAAA has supported the Board of Addiction Medicine scholarship program that aims to place addiction medicine specialists who are board-certified psychiatrists in every community in the United States. NIAAA seeks to go further, however, disseminating information about AUD and its treatment not only to physicians but also to consulting psychologists, nurses, pharmacists, and the criminal justice system.
- ***Alcohol Treatment Navigator:*** To assist people in finding AUD treatment, NIAAA launched the Alcohol Treatment NavigatorSM on October 3, 2017. The Navigator is a one-of-a-kind resource

that outlines the features of evidence-based AUD treatment; describes the varied routes to recovery; and provides a strategy for locating local qualified treatment specialists. Lori Ducharme, Ph.D., is taking the lead to develop the Navigator into a source of information for clinicians; this effort may possibly include developing the core information that is necessary for people to understand alcohol treatment.

NCI Director's Report

Robert Croyle, Ph.D., Director of the Division of Cancer Control and Population, represented Norman Sharpless, M.D., Director of the National Cancer Institute (NCI).

Dr. Croyle encouraged Council members to partner with their cancer research colleagues because the field of cancer research cuts across multiple disciplines, such as genomics. There are now 70 NCI-designated Cancer Centers across the country that are major sources of scientific research about cancer. NCI has been shifting the emphasis in the Centers to population concerns, encouraging them do more community outreach and engagement. Also of interest to alcohol and drug researchers, more of the cancer centers are becoming engaged with policy research, implementation science, and the social determinants of health.

Because of the Cancer MoonshotSM initiative, implementation science has become an area of focus at NCI. An example of a grant funded under Moonshot is Integrating Smoking Cessation into Routine Care at NCI-Designated Cancer Centers. Twenty-two cancer centers were funded at \$250,000 per year for two years to help make smoking cessation interventions part of routine care for tobacco-related cancers.

Smoking Cessation within the Context of Lung Cancer Screening is another example of an NCI grant program to integrate cessation services into cancer-related services that is currently operating at eight institutions. The U.S. Preventive Services Task Force (USPSTF) recommended that low-dose computed tomography (CT) scans be offered to high-risk individuals; this screening is funded by both private insurance and Medicare.

The Cancer Intervention and Surveillance Modeling Network (CISNET) is a consortium of NCI-sponsored investigators who use statistical modeling to improve understanding of cancer control interventions in prevention, screening, and treatment, and their effects on population trends in incidence and mortality. These models can be used to guide public health research and priorities.

NCI emphasizes the use of evidence-based research to inform tobacco control. It developed *Tobacco Control Monograph 21: The Economics of Tobacco and Tobacco Control* in collaboration with the World Health Organization (WHO), reflecting its involvement in global tobacco control. *Tobacco Control Monograph 22: A Sociological Approach to Addressing Tobacco-Related Health Disparities* examined health disparities in initiation, secondhand smoke exposure, frequency and intensity, cessation, morbidity, and mortality.

NCI has developed tobacco control policy tools (<https://tobaccopolicyeffects.org/>) that can be helpful to other ICs. NCI also undertakes a number of tobacco control initiatives behind the scenes. For example, the federal government's main web portal, www.SmokeFree.gov, is supported and run by NCI, although other federal and state agencies may do their own front-end branding of the site. NCI also supports and participates in a national network of tobacco quit lines, and participates in the support of large national surveys, including the Health Information National Trends (HINTS) survey.

Rural health and rural populations are new priorities at NCI. Until 1980, the highest cancer mortality rates were in urban areas, but today rural areas are highest and urban areas lowest. Preliminary results of progress toward achieving the 2020 Health People goals indicates that cancer-related goals were met in urban areas in 2013, but will take until 2022 in rural areas. There is a rural health crisis, including challenges posed by rural hospital closures, lack of Medicaid expansion, etc. In FY 2018, NCI will issue Cancer Center Support Grant P30 Administrative Supplements to support cancer control efforts in rural areas. It has issued an RFA on Improving the Reach and Quality of Cancer Care in Rural Populations. NCI is also sponsoring the first national Rural Cancer Control Conference on May 30-31, 2018.

Cancer Moonshot Initiatives to be funded during the summer of 2018 include Accelerating Colorectal Cancer Screening and Follow-up Through Implementation Science; Improving Management of Symptoms Across Cancer Treatments; and Approaches to Identify and Care for Individuals with Inherited Cancer Syndromes.

Round Table Discussion

Carlo DiClemente, Ph.D., commended the three ICs for the joint work they have undertaken, but encouraged them to go further by releasing Request for Applications (RFAs) that combine substances. For example, researchers at his institution are working with drug abuse and mental health facilities to identify tobacco smokers, so they would like to be able to work on drug and tobacco use simultaneously. Obstetricians report they are seeing an increase in polysubstance use (e.g., alcohol and marijuana) in pregnant women. Hence, an RFA that allows investigators to propose studying three substances would be helpful. Dr. Volkow agreed, reflecting on efforts she observed in rural Kentucky that indicated the need for developing models of care that can be implemented and sustained in rural areas. These require infrastructure building across substances. Dr. Koob commented that when he attended sessions of the Addiction section at the American Psychiatric Association, there was interest in mining NIAAA grants for tobacco research. He encouraged these researchers to submit a secondary analysis request. Alex Dopico, M.D., Ph.D., asked if NIDA has received any information about the semi-synthetic opioid crocodil (also known as krokodil) being used in the United States. Dr. Volkow responded that crocodil is used primarily in Russia. What NIDA is seeing are powerful combinations of drugs and synthetics, with new and unusual combinations now being reported. Judith Auerbach, Ph.D., reiterated a warning from the previous day's NIDA Council meeting to not become sidetracked by the substance du jour, but to recognize that non-opioid drugs, tobacco, and alcohol have not gone away. She asked what kind of marketing/communication messages can be deployed to make that point. Dr. Volkow responded that one avenue is meetings like this one where different agencies come together to examine how the drugs are working together. There is a need to focus on universal prevention and on the poverty map. If the basic causes of addiction are not addressed, little can be done. That's one of NIDA's basic messages. She encouraged researchers to influence the narrative on this topic. Dr. Koob added that the Surgeon General's Report on addiction makes this point; he suggested that some of the ICs could do a white paper on the topic. Dr. Croyle noted that NIH has increasingly recognized the social determinants of health in recent years and provided more funding toward addressing them, while still maintaining its traditional research foci. Dr. Auerbach commented that some in the HIV community have been concerned that funding was being reallocated to other health issues; it is ironic that the opioid crisis is refocusing attention on HIV. Laura Bierut, M.D., inquired if thought has been given to how new research information, e.g., about alcohol metabolism, will be disseminated to patients and providers. Dr. Koob stated that NIAAA is seeking to expand addiction-related information to multiple health professions. Howard Becker, Ph.D., suggested adding physician assistants to the list of health professionals who will

be targeted for this effort. He noted that many areas are being cut from the medical school curriculum as some schools move to three-year tracks; he suggested that a concise teaching module for residents would be a valuable way to get the information out to physicians. Dr. Volkow commented that all ICs invest in dissemination materials, and most rely heavily on their websites as communication and training vehicles. NIDA is engaged in training nurses about addiction in partnership with other agencies. Dr. Croyle commented that cancer treatments are at the leading edge in precision medicine and targeting specific therapies based on genetic profiles. However, it's been challenging to translate that evidence into practice due, in part, to regulatory barriers in addressing complicated treatment algorithms. Ms. Dyak observed that the current discussion offers compelling reasons for why education about addiction should be included in provider training, noting that one especially powerful reason is that people are driven to self-destruction to rid themselves of pain. Dr. DiClemente recommended focusing a prevention messaging strategy on how all substances (not just marijuana) affect the brain. Dr. Volkow responded that one of the message themes that is common to all substances is Dr. Koob's references to the dark side of addiction, which is ultimately the driver of over-consumption, relapse, and despair. Dr. Smith suggested bringing county coordinators for the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and Supplemental Nutrition Assistance Program (eSNAP) into discussions of rural health because they are trusted sources of information for women. Dr. Volkow noted that NIDA currently has a grant with this group. Carmen Albizu-Garcia, M.D., inquired if UpToDate has current information on the management of substance use disorders. Dr. Volkow observed that NIDA has been concerned that the medical school curriculum is very minimal on both opioids and alcohol, as well as on the management of pain. Anne Andorn, M.D., reported that UpToDate, a subscription service to a textbook, is updated regularly; its chapter on opiates is excellent. She also commented that the only medical curriculum that she has observed is one for psychiatry residents on addiction in general. Charles Milliken, M.D., interjected that UpToDate is also good on alcohol-related topics. Unfortunately, medical schools are not following it. Dr. Koob commented that the American Psychiatric Association has just published guidelines on the pharmacotherapy for AUD that was very well done, but that more education is needed within the medical school curriculum itself.

Constance Weisner, D.R.P.H., introduced a potential policy issue about marijuana use screening, noting that one of her colleagues wrote a paper about increasing rates of marijuana use during pregnancy. The paper received substantial pushback from the audience at a conference because there are 28 states where a pregnant woman will lose her baby if she reports marijuana use. Dr. Koob asked if this is also true for alcohol reporting. Council members responded it is true in some states. Dr. Albizu-Garcia said that a woman can be incarcerated and lose her baby in some places. Dr. Weisner said she didn't know if anyone has done an overview of policies, in light of changing marijuana laws and the opioid epidemic. Dr. Volkow responded that this was a great suggestion and NIDA should identify successful opioid programs using its new HEAL funding. This effort should include identifying state laws that make it easier or more difficult for women to seek help. This is very relevant, because NIDA is trying to reduce exposure of infants to substances and to treat pregnant women. Jay Giedd, M.D. suggested using the arts to reach students with a healthy brain development message; this would be more effective than a scare message. Students and schools could be incentivized, e.g., a competition among schools for development of the best messages. Dr. Volkow responded that NIDA could also evaluate existing arts programs that adopt this approach to determine their effectiveness so that others could use the information. NIDA tried to come up with some teen messages, but couldn't sustain the program because the strategy was not within NIDA's research mission. Dr. Milliken observed that providers no longer go to conferences to obtain continuing medical education credits (CMEs), but go online instead. He suggested a more intensive CME-based strategy to target all the healthcare professions with alcohol, tobacco, and drug information. For example, the article on "Neurobiologic Advances from the Brain

Disease Model of Addiction” in the *New England Journal of Medicine* that Drs. Koob and Volkow co-authored could be the basis for CME study. Dr. Koob responded that the field is welcome to use any of the NIAAA/NIDA review articles.

Adjournment

The meeting adjourned at 12:45 p.m.

CERTIFICATION

I hereby certify that, to the best of my knowledge, the foregoing minutes are accurate and complete.

For NIAAA:

/s/

George F. Koob, Ph.D.
Director
National Institute on Alcohol Abuse
And Alcoholism
Chair
National Advisory Council on Alcohol Abuse and
Alcoholism

/s/

Abraham P. Bautista, Ph.D.
Executive Secretary
National Advisory Council on Alcohol Abuse and
Alcoholism
National Institute on Alcohol Abuse
And Alcoholism

For NIDA:

/s/

Nora Volkow, M.D.
Director
National Institute on Drug Abuse
and
Chairperson
National Advisory Council on Drug Abuse

/s/

Susan Weiss, Ph.D.
Executive Secretary
National Advisory Council on Alcohol Abuse
National Institute on Drug Abuse

For NCI:

/s/

Yuan Chang, M.D.
Acting Chair
National Cancer Advisory Board
National Cancer Institute

/s/

Paulette S. Gray, Ph.D.
Executive Secretary
National Cancer Advisory Board
National Cancer Institute