

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

**Minutes of the Ninth Joint Meeting (Eighth CRAN) of the  
National Advisory Council on Alcohol Abuse and Alcoholism,  
National Advisory Council on Drug Abuse, and  
National Cancer Advisory Board**

**May 12, 2021**  
[NIH Webcast](#)

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 ninth joint meeting on May 12, 2021. Due to the coronavirus pandemic, the meeting was conducted online via ZOOM and NIH Webcast. Chaired by George Koob, Ph.D., Director of NIAAA, and Nora Volkow, M.D., Director of NIDA, this open session convened at 11:01 a.m.

**National Advisory Council on Alcohol Abuse and Alcoholism Members Present:**

Jill B. Becker, Ph.D.  
Christopher S. Carpenter, Ph.D.  
Constance M. Horgan, Sc.D.  
Beth Kane-Davidson, LCADC, LCPC  
Charles H. Lang, Ph.D.  
Mary E. Larimer, Ph.D.  
Col. Charles S. Milliken, M.D. (Ex-Officio)  
Laura E. Nagy, Ph.D.  
Laura Elena O'Dell, Ph.D.  
Scott J. Russo, Ph.D.  
Edith Vioni Sullivan, Ph.D.

**National Advisory Council on Drug Abuse Members Present:**

Linda Chang, M.D.  
Anna Rose Childress, Ph.D.  
Dennis Deer, Ph.D.  
Carlos del Rio, M.D.  
Lakshmi A. Devi, Ph.D.  
Gail D'Onofrio, M.D.  
Daniel A. Goonan  
Shelly Greenfield, M.D., M.P.H.  
Paul Kenny, Ph.D.  
Kenneth P. Mackie, M.D.  
Jessica Hulseley Nickel  
Andrey Ostrovsky, M.D.  
Travis Rieder, Ph.D.  
Rajita Sinha, Ph.D.  
Melissa Walls, Ph.D.  
Sharon Walsh, Ph.D.

**National Cancer Advisory Board Members Present:**

Deborah Watkins Bruner, RN, Ph.D.

Howard J. Fingert, M.D.

Andrea A. Hayes-Jordan, M.D.

Nikan Khatibi, M.D., M.B.A.

**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's (NCI) Behavioral Research Program (BRP) Director:** William M. Klein, Ph.D.

**National Cancer Institute/Tobacco Control Branch Chief:** Michelle Bloch, M.D., 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.

**NIAAA Senior Staff:** Vicki Buckley, M.B.A.; Kathy Jung, Ph.D.; Ralph Hingson, Ph.D.; Raye Litten, Ph.D.; and Antonio Noronha, Ph.D.

**NIDA Senior Staff:** Gaya Dowling, Ph.D.; Katia Howlett, Ph.D., M.B.A.; and Susan Weiss, Ph.D.

**NCI Senior Staff:** Michelle Bloch, M.D., Ph.D.; William M. Klein, Ph.D.

**Additional Participants**

One hundred and twenty-eight individuals viewed the live webcast, including representatives of constituent groups, liaison organizations, and members of the general public.

**Call to Order and Introductions**

George Koob, Ph.D., called to order the ninth joint meeting of the National Advisory Councils of NIAAA, NIDA, and NCI in open session at 11:01 a.m. on Wednesday, May 12, 2021. He and co-chair Nora Volkow, M.D., welcomed Council members to the meeting.

**NIAAA Director's Presentation**

Dr. Koob, NIAAA Director, addressed alcohol use during the COVID-19 pandemic and NIAAA's priorities.

**Alcohol and the COVID-19 Pandemic:** Biological and behavioral effects of alcohol misuse may interact with the COVID-19 pandemic: Alcohol produces behavioral disinhibition that may promote risky behavior and less compliance with guidelines to reduce the spread of the virus. Alcohol compromises immune function, increasing the risk and severity of lung infections. This combination of behavioral disinhibition (e.g., not wearing mask, shouting) and impaired immune function may increase the risk of viral infection. Isolation and stress may lead to increased alcohol misuse, i.e., physical distancing can lead to social isolation or loss of social support, which can lead to stress or precipitate relapse for those in recovery. Physical distancing also poses challenges for treatment and recovery. Telehealth and virtual meetings can be helpful options for individuals seeking treatment or in recovery from alcohol use disorder (AUD).

To illustrate the role alcohol plays as a coping mechanism during the pandemic, Dr. Koob presented a conceptual framework for a three-stage cycle of binge/intoxication, withdrawal/negative affect, and preoccupation or anticipation. The negative emotional state of drug withdrawal, termed hyperkatifeia, drives negative reinforcement that leads to compulsive alcohol seeking and using, as well as impulsivity and the discomfort of abstinence, factors associated with relapse. Pandemic-related stress may increase hyperkatifeia associated with alcohol misuse..

Addiction is rooted in the brain but understanding why it develops and how to prevent and treat it requires examining the broader context of peoples' lives. As with many other conditions, there are social determinants that influence the likelihood of developing and recovering from AUD. Social determinants include aspects of the social environment (e.g., income, access to education, social support, exposure to discrimination, violence), the physical environment (e.g., location of housing, alcohol outlet density, transportation), and health services (e.g., access to and quality of care, insurance). These factors can contribute to health inequities and can also serve as allostatic loads on brain systems involved in stress and emotion regulation, increasing the vulnerability to AUD.

Research suggests some people are drinking more during the pandemic while others are drinking less. Stress is a common factor for those drinking more. For example, a survey by the American Psychological Association found that nearly 1 in 4 adults (23 percent) reported drinking more alcohol to cope with stress during the pandemic. In a survey of physicians, 42 percent reported they are experiencing burnout and 1 in 4 of them (26 percent) indicated drinking alcohol to cope with it. In another survey, 29 percent of respondents reported drinking more and the odds of increasing were higher for those with symptoms of anxiety or depression. Other studies suggest having psychological well-being impacted negatively by the pandemic is associated with more drinking days and more drinks per occasion. Such findings are concerning given that drinking to cope places a person on a slippery slope to AUD.

### *Emerging Issues*

**Envisioning the Role of Telehealth in Addressing AUD in the Post-Pandemic Era:** The COVID-19 pandemic caused a rapid expansion in the use of telehealth. Evidence suggests telehealth can be effective for addressing alcohol misuse and can reach people who might not otherwise get support.

NIAAA supports a variety of telehealth projects (pre-pandemic and pandemic-related), including Screening, Brief Interventions, and Referral to Treatment (SBIRT) with clinicians by phone or video chat; cognitive behavioral therapy (CBT) with a clinician or self-guided (Computer Based Training for Cognitive Behavioral Therapy [CBT4CBT]); telehealth to address post-traumatic stress disorder (PTSD) and alcohol

use following sexual assault; and video-conferencing based motivational interviewing (MI) for alcohol misuse and medication adherence in patients living with HIV. The NIAAA Treatment Navigator links to effective options. NIAAA anticipates a larger role for telehealth for alcohol prevention, treatment, and recovery going forward.

**Research on Recovery from AUD.** In order to improve consistency across recovery research studies, NIAAA engaged stakeholders to develop a consensus research definition of recovery. The definition describes recovery as a process through which an individual pursues both remission from AUD and cessation of heavy drinking. NIAAA has disseminated the definition to the broader research community via a recent public virtual roundtable and is using the feedback from these stakeholders to refine the definition and to inform the direction of new recovery research opportunities. More information may be found on the NIAAA website.

### *NIAAA Priorities*

**Expanding Uptake of SBI/SBIRT:** The U.S. Preventive Services Task Force recommends alcohol screening and brief intervention (alcohol SBI) or counseling in primary care settings for adults ages 18 and older. This is a significant issue because the gap in alcohol consumption between men and women is narrowing in all age groups; in college, women drink more and binge more than men. However, evidence highlights missed opportunities for healthcare providers to intervene with patients who report binge drinking. For example, among patients 18+ who saw a healthcare provider in the past 2 years, 81 percent were asked at least one question about their alcohol use, but only 38 percent were asked whether they binged in the past month. Among those who reported binge drinking, about 1 in 5 were given advice to cut down. Women were less likely than men to be advised about the risks of binge drinking (33 percent vs. 47 percent). Women who reported binge drinking were less likely to be advised to cut down than men who reported binge drinking (14 percent vs. 25 percent). Older drinkers (65+) were less likely to be screened or advised to cut down. According to the 2018-2019 National Survey on Drug Use and Health (NSDUH), very few people who report drinking to a healthcare provider are asked if they have any problems related to their drinking (~7 percent) and even fewer (<5 percent) are offered additional information about alcohol or advised to cut down. This is concerning because many patients are prescribed medications that could interact negatively with alcohol. Further, alcohol misuse is increasing among women and older drinkers, two groups that are less likely to be given advice or offered more information about alcohol. Alcohol screening has other implications for health, i.e., questions about alcohol misuse can provide clues about other important aspects of health (e.g., binge drinkers are more likely to have serious thoughts of suicide and to misuse prescription opioids or sedatives). NIAAA's core resource for healthcare providers, available later this year, aims to provide physicians the information they need to become more comfortable discussing alcohol misuse with patients. *Healthy People 2030* is a U.S. Department of Health and Human Services (HHS) initiative that has outlined a goal of increasing the percentage of people with substance use disorders (SUDs) receiving specialty treatment from 11 percent to 14 percent. SBIRT offers a route for achieving this goal.

**Alcohol and Cancer:** The American Cancer Society estimates that about 41 percent of men and 39 percent of women will eventually develop cancer; about 5.6 percent of newly diagnosed cases are alcohol-attributable. A recent study estimated that 75,000 new cancer cases and 19,000 cancer deaths per year are attributed to alcohol consumption in America. These cancers include those of the mouth, larynx, throat, esophagus, breast, liver, colon, and rectum. Yet there is a common lack of awareness: A 2017 survey from the American Society for Clinical Oncology found that fewer than one-third of respondents recognized that alcohol could cause cancer. Similarly, a 2019 survey from the American

Institute for Cancer Research found that fewer than 50 percent of respondents recognized the cancer risks posed by alcohol. NIAAA and the National Cancer Institute (NCI) have partnered on a NOSI on Alcohol and Cancer Control, NOT-CA-20-034.

**Addressing Diversity and Health Disparities in the Alcohol Field.** NIAAA fully supports and is committed to the NIH UNITE initiative, a coordinated effort to address structural racism and promote racial equity and inclusion at NIH and within the larger biomedical research enterprise. To advance equity, diversity, and inclusion in the alcohol research enterprise, NIAAA is focusing on three primary areas: improving the NIAAA intramural and extramural workplace and culture; increasing diversity and equity in the scientific and administrative alcohol research workforce; and enhancing the NIAAA intramural and extramural scientific research portfolio. Dr. Koob described the following FOAs to support this effort:

- *Improving Health Disparities in Alcohol Health Services*, RFA-AA-21-001  
Health disparate and vulnerable populations face unique and intersecting barriers to treatment, including but not limited to stigma, mistrust, bias, and structural racism. This new funding opportunity seeks to expand alcohol health services research on health disparities as well as encourage new studies on the accessibility, appeal, costs, dissemination, and implementation of alcohol use disorder (AUD) treatment.
- *Understanding and Addressing the Impact of Structural Racism and Discrimination on Minority Health and Health Disparities*, RFA-MD-21-004  
Despite increased awareness of the contribution of racism and discrimination to poorer health outcomes, these issues are not routinely included as determinants of health in biomedical research. The goal of this initiative is to support observational or intervention research to understand and address the impact of structural racism and discrimination on minority health and health disparities.

**Training Opportunities to Support a Diverse Workforce:** Dr. Koob also noted the following training opportunities:

- NIH Ruth L. Kirschstein NRSA for Individual Predoctoral Fellowships to Promote Diversity in Health-Related Research (F31), PA-20-251<sub>2</sub>
- NIH Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience (D-SPAN) Award (F99/K00), RFA-NS-21-012<sub>2</sub>
- BRAIN Initiative Advanced Postdoctoral Career Transition Award to Promote Diversity (K99/R00); RFA-NS-19-043, RFA-NS-19-044<sub>2</sub>
- Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) Postdoctoral Career Transition Award to Promote Diversity (K99/R00), PAR-19-343<sub>2</sub> and
- Diversity supplements (PA-21-071) provide supplements to existing NIH-funded active grants to increase the diversity of the research workforce by supporting and recruiting students, and postdoctoral and other new investigators from groups that are underrepresented. More details about diversity supplements can be found at <https://go.usa.gov/xHf2j>.

**Supporting the Next Generation of Alcohol Researchers:** Since 2014, NIAAA has steadily increased its number of training positions (F and T) and Career Development (K) awards.

**NESARC-III Genetic Data Now Available to Researchers:** The NESARC-III is a large, nationally representative epidemiologic survey of substance use and mental health in adults in the United States. More than 36,000 people aged 18 and older were interviewed in 2012-2013. Among them, roughly

23,000 also provided samples of their DNA. This genetic data is now available to the research community. The combination of genotypic and phenotypic data about substance use and mental health makes NESARC-III unique. Exploration of the new genetic dataset with its rich phenotypic and family background variables could yield important insight into the relationships between genes and observable behaviors, including AUD and other substance use disorders, depression, post-traumatic stress disorder and other conditions, all diagnosed using criteria from the DSM-5. Thus, the NESARC-III genetic dataset will be a critical resource for helping scientists to better understand these disorders and develop novel diagnostic methods and treatments.

**A New Strategic Plan for NIAAA:** Work is in progress on NIAAA's strategic plan for 2022-2026. A Request for Information (RFI) seeking input on the Institute's priorities and objectives will be published soon.

Dr. Koob concluded by reminding everyone that NIAAA is their source for credible, evidence-based information about alcohol and health.

### **NIDA Director's Presentation**

Dr. Volkow, NIDA Director, reported on new developments at NIDA and new research on drug use trends and issues.

**Strategic Plan:** NIDA's strategic plan is under development and expected to be completed by the beginning of 2022. One of NIDA's priorities will be to address health disparities and structural racism.

**New Hire:** Dr. Volkow announced that Amy Hauck Newman, Ph.D. has been named the permanent Scientific Director of NIDA's Intramural Research Program.

**Drug Use Trends Among U.S. Teens:** Dr. Volkow reported on 2020 data from the Monitoring the Future (MTF) school-based survey of 8<sup>th</sup>, 10<sup>th</sup>, and 12<sup>th</sup> graders. Because of pandemic restrictions that began in March 2020, data were collected in January and February only and represent about 20-25 percent of the typical sample.

**Alcohol.** The long-term trend of decreasing alcohol use leveled off across all three grades, although the overall trends are positive. One in five 8<sup>th</sup> graders (20.5 percent), two in five 10<sup>th</sup> graders (40.7 percent), and over half of 12<sup>th</sup> graders (55.3 percent) reported past year alcohol use in 2020. Binge drinking (5 or more drinks in a row in the past two weeks) was reported by 4.5 percent of 8<sup>th</sup> graders, 9.6 percent of 10<sup>th</sup> graders, and 16.8 percent of 12<sup>th</sup> graders.

**Vaping among U.S. Teens:** The surge in nicotine vaping that occurred between 2017 and 2019 leveled off in 2020, but use remains high in with more than one-third (34.5 percent) of 12<sup>th</sup> graders, 30.7 percent of 10<sup>th</sup> graders, and 16.6 percent of 8<sup>th</sup> graders reporting that they vaped nicotine. Past year marijuana vaping increased from 10 percent in 2017 to 22.1 percent in 2020 among 12<sup>th</sup> graders; one in three 12<sup>th</sup> graders have vaped nicotine and one in five have vaped marijuana. There is a similar trend for 10<sup>th</sup> graders. These findings are of concern because severe acute lung injury has been linked to vaping THC (the active ingredient in marijuana) products, which the CDC determined was related to Vitamin E acetate in the vaping cartridges. This finding, first reported in 2019, has not led to a significant differences in teen vaping prevalence rates, although daily or near-daily marijuana vaping rates among 10<sup>th</sup> graders declined from 3 percent to 1.7 percent.

Vaping has transformed how teens are consuming drugs. Until 2000, the drug most frequently used by adolescents was nicotine, through cigarette smoking, but past month use of cigarettes has markedly declined from a high of almost 40 percent in the late 1990s to 7.5 percent in 2020. During this same period, states were modifying their policies about marijuana use based on a shift in perception of marijuana as a harmful substance to one with medical properties. As a result, marijuana use in adults has increased significantly. In teens, however, it has held steady, despite increases in regular or daily use among 8<sup>th</sup> and 10<sup>th</sup> graders in 2019 (but not 2020). Today, marijuana use is more common than cigarette smoking. Vaping, however, has reversed the trend of decreased smoking of both marijuana and nicotine.

A major concern has been how these vaping patterns influence future use of combustible tobacco. The evidence suggests that e-cigarette use does, in fact, lead to combustible tobacco use. For example, in a prospective study of 14-year-old students, students who used e-cigarettes were 2.75 times more likely to begin using any combustible tobacco product and 1.73 times more likely to smoke cigarettes. In another prospective study, this one of 12-15-year-old youth, those who used e-cigarettes were 4.09 times more likely to ever use cigarettes and 2.75 times more likely to currently smoke cigarettes. This pattern could lead to a downturn in advances in smoking reduction and cancer deaths.

E-cigarettes deliver higher concentrations of nicotine, metals, chemicals, and flavorings than do combustible cigarettes. A study of the health effects of vaping using positron emission tomography (PET) revealed that e-cigarettes deliver a lower concentration of nicotine to the brain than combustible cigarettes, but a higher amount to the lungs. There is evidence that e-cigarette use causes respiratory symptoms, lung damage, and inflammation. Because of the higher concentrations of nicotine, vaping could cause more severe dependence on the drug more quickly; e-cigarette users may subsequently transfer to combustible cigarettes because the latter provide greater delivery of nicotine to the brain. The long-term health effects of vaping are still being investigated.

There has also been concern during the pandemic that e-cigarette use may increase the chances of getting infected with COVID-19. In an April 2020 blog post, Dr. Volkow reported that “emerging evidence suggests that exposure to aerosols from e-cigarettes harms the cells of the lung and diminishes the ability to respond to infection.” And, indeed, an online survey of adolescents and young adults (n = 4,351) aged 13-24 years conducted in May 2020 revealed that past 30-day use and ever-use of e-cigarettes and dual use (e-cigarette and combustible cigarette) were positively associated with COVID-19 testing and positive diagnosis. Good news came from a study of 15 to 24-year-olds examining vaping between January to June 2020 that found that vaping had declined among adolescents. This may reflect the impact of school lockdowns and the reluctance of teens to vape in front of their parents.

**Marijuana:** The legal status of cannabis varies by state, with some legalizing recreational use, some medical use, and a few states fully decriminalizing the drug. This trend has led to a significant increase in marijuana consumption among young and older adults. The short-term adverse effects of THC include impairment of memory, attention and motor coordination; and sometimes, especially after consumption of higher doses, acute psychosis. Long-term effects are more worrisome, including cannabis use disorders (up to 20 percent in adolescents and up to 10 percent in young adults within two years); impairments in school performance and higher likelihood of school drop-out; chronic psychosis among vulnerable individuals, sleep impairments, and loss of motivation. Among those with a cannabis use disorder, withdrawal symptoms may include insomnia, irritability, and dysphoria, and can prompt relapse.

As more people are exposed to marijuana, the need to fully understand its effects grows more urgent. One issue that has been a roadblock for research on the effects of this drug is that it is difficult to quantify the amount or dose of marijuana that people are consuming. A committee of the NIDA Advisory Council studied the issue and recommended a standard unit of 5 milligrams (mg) THC for research studies. On May 7, 2021, NIDA, NCI, the National Heart, Lung, and Blood Institute (NHLBI), and the National Institute of Mental Health (NIMH) issued a Notice (NOT-DA-21-049) requesting that investigators conducting research focused on THC in human subjects, use this standard unit in their measurement and reporting of findings. Other quantities may be used but should be converted to the standard unit to facilitate comparison of findings.

Dr. Volkow concluded by sharing a screenshot of the NIDA for TEENS website, which provides information for adolescents who are struggling with a substance use disorder (SUD).

### **NCI Behavioral Research Program**

William Klein, Ph.D., Associate Director of the NCI Behavioral Research Program (BRP), began by noting that 2021 marks the 50<sup>th</sup> anniversary of the National Cancer Act, which changed the way people view cancer care and resulted in networks of cancer centers, clinical trials, data collection systems, and advanced research.

BRP initiates, supports, and evaluates a comprehensive program of research including basic behavioral and psychological science as well as the development, testing, and dissemination of interventions in cancer control areas such as tobacco use, diet and energy balance, and sun protection. Located within the NCI Division of Cancer Control and Population Sciences, it is divided into four branches: Basic Biobehavioral and Psychological Sciences; Health Behaviors; Health Communication and Informatics; and Tobacco Control. BRP's portfolio consists of 300 grants totaling \$200 million, with most falling under Tobacco Control.

BRP research priorities include perceptual and cognitive issues in cancer detection and diagnosis; accelerated aging; decision making (e.g., palliative care); health misinformation; dyadic processes; genetics of weight loss; racism and health; tobacco cessation and control; diet, weight, and physical activity; sun protection and exposure; virus exposure and vaccination; sleep hygiene; medication adherence; use of and reactions to genetic/genomic information; and alcohol.

**Alcohol and Cancer:** There is growing momentum to better address alcohol in cancer prevention and control. For example, the American Institute for Cancer Research (AICR) Third Expert Report (2018) recommended not drinking alcohol to prevent cancer. Other nations, such as the United Kingdom and Australia, are taking the lead in focusing on alcohol's role in cancer.

Globally, alcohol causes 5.5 percent of new cancer diagnoses and 5.8 percent of all cancer deaths. In the United States, 4.0 percent of cancer deaths are attributable to alcohol. In absolute numbers, this represents cancers of the breast (5,250-7,570), head/neck (4,210-4,750), esophagus (2,180-2,780), colon/rectum (4,590-8,100), and liver (2,540-5,420). In 2014, alcohol was ranked third among leading contributors to the overall burden of disease.

In 2018, the American Society of Clinical Oncology published the following statement: "Alcohol drinking is an established risk factor for several malignancies, and it is a potentially modifiable risk factor for cancer." Yet awareness of this risk is low in both the United States and globally. A 2017 National Cancer



Opinion Survey by the American Society of Clinical Oncology (ASCO) found that only 30 percent of respondents believed alcohol “increases a person’s risk of getting cancer.” An AICR bi-annual assessment that has been ongoing since 2001 reports continued low awareness of alcohol as a risk factor for cancer relative to tobacco and obesity. A 2018 review article about cancer awareness around the world reported that “In general, although awareness appears to be increasing in many countries, at least half or more of the population does not consider alcohol to be a risk factor for cancer.”

NCI provides a wide array of resources to support enhanced attention to the role of alcohol as a risk factor for cancer. Its Health Information National Trends Survey (HINTS) routinely collects nationally representative data about the American public’s use of cancer-related information. Surveillance of awareness/behavior items about alcohol were included in the 2003, 2017, 2019, and 2020 collections.

NCI has also sponsored panels and sessions at scientific conferences about alcohol and cancer; provided HINTS data analyses; funded a natural experiment evaluation of California’s Proposition 65 that mandated warning labels for carcinogens, including alcohol; published a JAMA Viewpoint article on Alcohol and Cancer Risk: Clinical and Research Implications (December 13, 2019). It is participating with NIAAA in the Alcohol and Cancer NOSI (NOT-CA-20-034) as well as on alcohol and tobacco supplements and workgroup.

On December 18, 2020, NCI held a virtual seminar titled Alcohol as a Target for Cancer Prevention and Control: Research Challenges. Participants identified these research challenges in alcohol and cancer across the cancer control continuum: Improve the measurement of alcohol behavior and better understand mechanisms linking alcohol and cancer; conduct more research on alcohol drinking and outcomes in cancer patients and survivors; expand research on communication and awareness related to alcohol and cancer, which is relatively sparse; and fully inform policymakers about the issue. A white paper on the meeting is forthcoming.

Dr. Klein shared the following selected funding opportunity announcements related to alcohol and cancer:

- Alcohol and Cancer Control, NOT-CA-20-034
- Stimulating Innovations in Behavioral Intervention Research for Cancer Prevention and Control, PAR-19-309 (R21 Clinical Trial Optional)
- Innovative Approaches to Studying Cancer Communication in the New Media Environment, PAR-19-348 (R01 Clinical Trial Optional) and PAR-19-349 (R21 Clinical Trial Optional)
- Public Policy Effects on Alcohol-, Cannabis-, Tobacco-, and Other Drug-Related Behaviors and Outcomes, NOT-AA-21-028
- Modular R01s in Cancer Control and Population Science, PAR-21-190 (R01 Clinical Trial Optional)

Dr. Klein concluded by inviting participants in the extramural community to engage with BRP and NCI via newsletter, Twitter, and website.

### **COVID-19 and Alcohol, Tobacco, and Nicotine Vaping**

Dr. Koob introduced Katherine Keyes, Ph.D., Columbia University, who reported on recent and ongoing work her group is doing to assess the impact of COVID-19 on substance use. She organized her presentation into three parts: adolescent substance use and the pandemic; adult alcohol use during the pandemic amid state-to-state heterogeneity in COVID-19 burden; and proposed methodological shifts to better ascertain the impact of COVID as a time-specific event.

**Adolescent substance use and the pandemic: interrogating potential hypotheses.** Availability theory suggests that the more available a substance is, the greater its use and the greater its harms. This has been the basis for the public health response to all substances, i.e., limit the availability by age laws, price, etc. To assess the impact of COVID-19 on adolescent substance use, the investigators created a 2x2 matrix that reflected how an increase or decrease in availability of a substance could result in an increase or decrease of its prevalence. Using the Monitoring the Future (MTF) survey, they compared pre-pandemic data collected in February and March 2020 to data collected in July and August, after COVID 19-related social distancing policies had been in effect for several months. They categorized respondents as follows: extreme social distancers (no contact with friends), 20 percent; high social distancers, 18 percent; and no-to-low social distancers, 61 percent.

The analysis revealed the largest decreases in substance use availability ever recorded in the 46 consecutive years it has been monitored by the MTF survey. Support for and against the four hypotheses of this study varied by substance and by social distancing levels: For cannabis and alcohol, the “perseverance” hypothesis (decreased availability, unchanged prevalence) was confirmed, while for vaping the “constriction of supply” hypothesis (decreased availability, decreased prevalence) prevailed.

Other key findings were that adolescent substance use prevalence decreased surprisingly little in summer 2020, despite social distancing efforts. Record decreases in availability of substances did not track with decreases in prevalence. Finally, changes were substance-specific.

**State-to-state heterogeneity and beginning to tackle COVID-19 policy analyses.** Dr. Keyes presented a study that addressed the impact of COVID-19 on adult alcohol use via state-by-state comparisons that took each state’s level of COVID-19 burden (whether or not a state had greater than the median national cumulative incidence of cases on the study date) into account. The investigators analyzed five waves (March 10-June 8, 2020) of UnderStanding America Study data to conduct the research.

Major findings were that alcohol frequency increased overall during the first wave of the pandemic. However, increases were concentrated among individuals living in states with lower COVID-19 burden. In high COVID-19 burden states, the lack of increase may be related to policy changes, such as reduced consumption in bars/restaurants.

**Setting a research agenda moving forward: localized and long-term period effects.** Dr. Keyes cautioned that an important point that might influence the findings of both studies about COVID’s impact reported above is that they need to be understood in the context of long-term substance use trends. For example, the number of drinking days among adults were increasing pre-pandemic and the gap in consumption between men and women was narrowing. Among adolescents, cigarette smoking has declined significantly over the past 25+ years, while nicotine vaping is increasing rapidly. It’s difficult to disentangle long-term and short-term effects.

Dr. Keyes demonstrated how incorrect interpretations of COVID’s impact on substance use behaviors can result from traditional time-series studies. She argued that traditional age–period–cohort models need to be expanded to consider nested period effects, such as those created by the pandemic, by incorporating long-term and ongoing substance use trends. Analytical approaches that can be explored for this purpose include growth models, interrupted time–series analysis, and difference-in-differences analysis.

## **Adolescent Brain and Cognitive Development (ABCD) Study Update**

Dr. Volkow introduced Gaya Dowling, Ph.D., ABCD Director, who updated Council members on the status of the study.

**Retention and COVID-19 Impacts.** The ABCD study has retained 98.5 percent of its cohort over a five-year period; a respondent needs to withdraw from the study to be counted as lost to follow-up. Currently, the two-year visits are almost complete with excellent retention. The pandemic shutdown in March 2020 put a stop to in-person visits and brain imaging. In the summer, some sites were able to offer hybrid visits, with the respondents coming in for imaging if they felt comfortable doing so. The 30- and 42-month visits are telephone interviews, while the third-year visit had also been changed to a virtual one.

Study investigators tracked the demographic mix of its cohort; their analysis reveals a good job at retaining diversity across race, income, and education. However, a different picture emerges when examining missed visits, particularly in the midst of the pandemic. Pre-COVID, only 3 percent missed a scheduled visit; the missing rate jumped to 14 percent during the pandemic. Those missing visits were more likely to be African American, lower income, and lower education. Investigators are now discussing how to re-engage these families and bring them back into the study.

**COVID-19 Data Collection.** Because data collection transitioned to virtual, the study maintained its completion rate for questionnaires and cognition at over 90 percent. Two areas that were impacted by the pandemic were biospecimen collection and brain imaging. Pubertal hormone data collection also dropped from 95+ percent to 70 percent for Year 2 and to 24 percent for Year 3, which began in September 2020. Saliva collection has now resumed, and thus pubertal hormone collection is continuing.

Neuroimaging data was obtained from about 8,000 participants at the 2-year follow-up visit. ABCD is tracking motion-free resting state fMRI data; 82 percent (at baseline) and 91 percent (at Year 2) of participants were able to remain still for at least 12 minutes.

To assess the impact of COVID-19 on families, ABCD received supplemental funding from the National Science Foundation (NSF) and NIH to survey youth respondents and their parents/caregivers every six weeks between May and December 2020. Topics included family situation, youth schooling, youth routine, relationships, adherence to COVID-19 public health directives, mental health and stress, substance use, screen time, media/news exposure, and youth COVID symptoms, diagnosis, and testing. Some participants also had Fitbits they had received previously, which allowed pre-post data on activity, heart rate, and sleep. Data analysis will also consist of mapping community impact to correlate with the questionnaire data. Preliminary data provided by the University of California San Diego (UCSD) covering the first three months of this data collection found that African Americans and those with lower income/education were less likely to complete these questionnaires than others.

Preliminary unpublished data, again from UCSD, examined pandemic-related job loss and material hardship on stress and family conflict. Those experiencing job loss/material hardship reported more stress and higher levels of family conflict. The study also looked at parental use of alcohol as a contributor to stress and family conflict, finding that about one-half of parents drank during the pandemic; the more days of alcohol use, the greater the likelihood of family conflict. This effect was even more pronounced for families experiencing material hardship.

Overall, youth substance use during the pandemic remained low (the youth cohort is now 11-14 years old). Alcohol and tobacco are the substances most widely used by youth and these have remained relatively stable. Because ABCD has pre-pandemic data on substance use, they examined whether substance use had increased from before the pandemic to during the pandemic, finding a decrease in alcohol and an increase in use of tobacco and prescription drugs. Because substance use increases with age, investigators conducted another analysis by age. The UCSD investigators found consistent results.

UCSD also examined the relationship between youth and parental substance use, learning that there was a significant association for alcohol, tobacco, and marijuana. The strength of the association was greater among the older children.

**Data Sharing and Use.** All ABCD data is released annually to a public database. The first three months of COVID-related data has already been released, with another one planned for June 2021. Two FOAs for secondary analysis of ABCD data with participation by multiple Institutes/Centers (ICs) have been issued:

- Accelerating the Pace of Child Health Research Using Existing Data from the ABCD Study (R01), PAR-19-162; and
- Accelerating the Pace of Child Health Research Using Existing Data from the ABCD Study (R21), PAR-19-163.

There is a data sharing page on the ABCD website that highlights new developments, e.g., a virtual interactive workshop on how to use the ABCD Data Exploration and Analysis Portal (DEAP) at the Pediatric Academic Societies annual meeting on May 19, 2020, that featured short educational videos on how to use the data.

Over 50 grants using ABCD data have been funded since 2017 in a steadily-growing number; NIMH has funded about half of these applications, with seven other ICs funding the remainder. There have now been 135 papers published using ABCD data, with about one-half authored by non-ABCD investigators. Dr. Dowling highlighted a few of these papers, including ones on the impact of Hurricane Irma on brain function and structure in youth, the impact of racial disparities on school disciplinary actions, and the shared heritability of the human face and brain shape, among others.

**ABCD Justice, Equity, Diversity, Inclusion (JEDI) Initiative:** In response to current events in 2020, ABCD created the JEDI initiative to examine the diversity sensitivity of its measures, diversity within ABCD staffing, and responsible use of ABCD diversity data. Three workgroups have been created to discuss these issues e.g., how to ensure culturally appropriate measures and how to model responsible analyses of health disparities data.

Dr. Dowling shared images of the ABCD issue of *ChildArt* magazine from the International Child Art Foundation that focuses on the intersection of arts and science, particularly neuroscience, and that features artwork from youth participants in ABCD.

**Meaningful Effects Meeting:** Elizabeth Hoffman, Ph.D., Scientific Program Manager with ABCD provided an overview of “Beyond Statistical Significance: Finding Meaningful Effects,” a virtual trans-NIH meeting held on September 2, 2020 to address the question of how to identify meaningful effects in the analysis of large heterogeneous studies, such as ABCD, in which statistical significance of results is high but effect size tend to be small. How can an investigator know when a small effect is both unbiased and replicable (i.e., meaningful)? To what extent does context—statistical, clinical, biological, public policy, etc.—matter? The keynote address was presented by a science journalist, followed by panel presentations,

and three breakout groups on small effects, covariates, and exploratory vs. confirmatory data analysis frameworks. Over 700 individuals participated in the meeting, whose goal was to develop best practice recommendations for scientists analyzing “big data.” The next step is to synthesize the ideas discussed into a paper.

**Recent Findings from ABCD:** Kim LeBlanc, Ph.D., and Elizabeth Hoffman, Ph.D., Scientific Program Managers with ABCD, summarized two recent publications based on data from the ABCD study.

***“Positive Economic, Psychosocial and Physiological Ecologies Predict Brain Structure and Cognitive Performance in 9-10-Year-Old Children”*** was published by MR Gonzalez et al. in *Frontiers in Human Neuroscience* (2020;14: 578822). This study addressed factors (e.g., adverse childhood events, economic insecurity, and perinatal adversity, among others) that contribute to the effects of socio-economic status (SES) on cognition and brain structure. Dr. LeBlanc reported on the study’s key findings: 1) Socio-economic status (SES) is associated with total cortical surface area and cognition; and 2) SES moderated associations between latent resource-to-adversity and cognitive performance, i.e., children from lower income households with the highest resources-to-adversity scores showed comparable cognitive performance to their higher-income peers. These findings highlight the need to implement public policies that target systemic inequities for youth in poverty/deep poverty.

***“Racial Disparities in Elementary School Disciplinary Actions: Findings from the ABCD Study”*** was published by MC Fadus et al. in the *Journal of the American Academy of Child & Adolescent Psychiatry* (24 December 2020) to address the question: Do school disciplinary practices disproportionately affect youth from racial and ethnic minority backgrounds? The study used data from ABCD’s Child Behavior Checklist, KSADS-5, and the Family Environment Scale to examine disparities in school detentions/suspensions while controlling for typical predictors. Dr. Hoffman reported on the study’s findings: 1) youth from single-parent households had 1.4 greater odds of receiving detentions or suspensions than youth in homes with a secondary caregiver; 2) Black and multi-racial Black youth were 3.5 times more likely to receive a detention or suspension than their white peers even when controlling for behaviors typically associated with disciplinary practices; and 3) disparities in disciplinary practices occur at 9-10 years, before school drop-out and juvenile justice involvement. The longitudinal design of ABCD provides opportunities for examining long-term trajectories and consequences of disparities in school disciplinary actions.

## **UNITE**

Dr. Volkow introduced Marie A. Bernard, M.D., Deputy Director, National Institute on Aging (NIA) and Acting Chief Officer for Scientific Workforce Diversity. Dr. Bernard serves as Co-Chair of the UNITE initiative addressing structural racism that launched on February 26, 2021. UNITE reflects principles that emerged from discussions among IC Directors, i.e., that NIH must ensure that biomedical research, and the administrative system that supports it, is devoid of hostility grounded in race, sex, and other federally protected characteristics. In this new initiative, NIH is committed to delineate elements that may perpetuate structural racism in biomedical research both within NIH and the extramural community leading to a lack of personnel inclusiveness, equity, and diversity.

At the February 26 launch, five inter-related UNITE workstreams, each supported by a committee of NIH staff members, were identified:

***U - Understanding stakeholder experiences through listening and learning:*** The charge to the U committee is to perform a broad, systematic self-evaluation to delineate elements that perpetuate structural racism and lead to a lack of diversity, equity, and inclusion within the NIH and the external scientific community. It is collecting information from ICs on relevant past, current, and planned activities and seeking input on practical and effective ways to improve the racial and ethnic inclusivity and diversity of research-centered environments and workforce via a Request for Information (NOT-OD-21-066).

***N - New research on health disparities/minority health/health equity (HD/MH/HE):*** The N committee's charge is to address long-standing health disparities and issues related to minority health to advance health equity (HD/MH/HE) in the United States by ensuring NIH-wide transparency, accountability, and sustainability in marshaling resources for HD/MH/HE research. It has launched two FOAs focusing on health disparities/health equity, including one specifically targeting investigators at Minority Serving Institutions (MSIs). Another activity in development is to create an HD/MH/HE Resource Center Dashboard to increase funding transparency by accurately reporting HD/MH/HE research funding.

***I - Improving NIH culture and structure for equity, inclusion, and excellence:*** The charge to the I committee is to change the NIH organizational culture and structure to promote diversity, equity, and inclusion throughout the NIH workforce. Its foundational efforts include providing granular data on the NIH workforce based on position and supervisory status. Next steps include expanding NIH policies to more explicitly acknowledge racial discrimination and establishing a campaign to make NIH staff aware of options for reporting racist actions; expanding recruitment efforts for NIH investigators from underrepresented groups; establishing an anti-racism steering committee; and working with NIH senior leadership to appoint a diversity, equity, and inclusion officer in every IC to track, advance, and coordinate IC-specific diversity, equity, and inclusion efforts.

***T - Transparency, communication, and accountability with NIH's internal and external stakeholders:*** The T committee's charge is to ensure transparency, accountability, and sustainability of all UNITE efforts among NIH internal and external stakeholders. It has launched a webpage on the central NIH portal for anti-racism policies; an external awareness campaign including editorials in scientific journals, mainstream media, and townhall style meetings; and diversifying the portraiture around the NIH, and implementing a digital campaign of UNITE: "Together We're Stronger."

***E - Extramural research ecosystem - changing policy, culture, and structure to promote workforce diversity gaps:*** The E committee's charge is to perform a broad systematic evaluation of NIH extramural policies and processes to identify and change practices and structures that perpetuate a lack of inclusivity and diversity within the extramural research ecosystem. This includes developing strategies to address funding disparities and increase applications that would support individuals from underrepresented groups. The E committee will also develop possible programmatic proposals addressing career pathways, institutional culture for academic institutions, NIH processes, and technical assistance and funding for Historically Black Colleges and Universities (HBCUs) and MSIs.

Three FOAs and a Notice of Special Interest (NOSI) have been released to support UNITE's goals:

- Transformative Research to Address Health Disparities and Advance Health Equity (U01 Clinical Trial Allowed), RFA-RM-21-021;
- Transformative Research to Address Health Disparities and Advance Health Equity at Minority Serving Institutions (U01 Clinical Trial Allowed), RFA-RM-21-022;

- Understanding and Addressing the Impact of Structural Racism and Discrimination on Minority Health and Health Disparities (R01 clinical Trial Optional), RFA-MD-21-004; and
- Notice of Special Interest (NOSI): Understanding and Addressing the Impact of Structural Racism and Discrimination on Biomedical Career Progression and the Biomedical Research Enterprise., NOT-GM-21-033.

In addition, the BRAIN Initiative released an FOA in which plans to enhance diverse perspectives was part of the scoring criteria.

### **Round Table Discussion**

Dr. Koob moderated a round table discussion on the day's presentations and/or other issues of concern. Dr. Volkow commented that the health disparities revealed in the ABCD studies begin in pregnancy and carry forward into a child's life. She said it was time for each IC to use the evolving knowledge on this topic to tailor interventions. Dr. Koob agreed, noting that one challenge NIAAA has considered is whether existing measures are racially biased or have been adjusted to account for differences, given that many were created decades in the past and based on white males. He also noted that there are sex differences found in rodent studies, but all protocols have been developed for male animals. Such issues extend to all of NIH's endeavors.

Dr. Volkow noted the importance of Dr. Keyes' presentation, noting that our models may not hold as circumstances change. Dr. Koob also noted the importance of Dr. Keyes' point about the existence of multiple interpretation issues resulting from baseline measures and different factors impacting people at different time points. He noted that isolation during the pandemic can reduce access to drugs and alcohol, but the stress of being isolated can contribute to increased substance use.

Col. Charles Milliken, M.D., asked if there is any sense in the substance use field about the risk of federal legalization of marijuana, given the state-to-state heterogeneity on this issue. Dr. Volkow commented that NIDA has several researchers taking good advantage of state heterogeneity. Their studies help identify practices that result in less adverse outcomes to teens and adults. She also emphasized that it's important to conduct studies that are adequately powered with well-controlled variables in order to understand how marijuana affects development at all ages. That will help to decide where to allocate resources. She worries that federal regulation will not be decided on the basis of science. Dr. Koob concurred, noting that one problem with alcohol that it is legal, so that people think it is a safe substance.

Rajita Sinha, Ph.D., commented despairingly on the school discipline article based on ABCD data, and the deep racism that its findings reflect. She asked if there were steps that the field could take to change the discipline patterns described in the paper over the next five to ten years. Dr. Dowling responded that ABCD has a national liaison board that includes members from the American Association of School Superintendents (AASA) who may be able to exert influence. ABCD is striving to reach out to others who can be influencers. Dr. Hoffman noted that she had mentioned a couple of external databases (e.g., U.S. Department of Education, U.S. Centers for Disease Control) that provide data at the school level. She noted that ABCD is planning to link the data (e.g., school achievement data) in these databases to ABCD data in the next data release, so that researchers can examine issue such as poverty levels and individual school performance within a school district and link it back to the ABCD respondent. Dr. Sinha commented that she was thinking longitudinally and concerned about future outcomes such as juvenile

delinquency. Dr. Dowling responded that the ABCD Study has a group that is interested in the policies and programs that keeps students in schools on track and how to help those who get off-track.

Lakshmi A. Devi, Ph.D., inquired about how much education doctors are receiving about alcohol and cancer, noting the need to incorporate a module on substance use into the medical and/or nursing school curricula. Dr. Koob replied that NIAAA has been trying to accomplish this for several years, but the Catch-22 is that the topic is not on board exams, so it's not in the curriculum. NIAAA is working on a physician's core resource about alcohol that it hopes to disseminate to all doctors and medical schools. Similarly, NIAAA is pushing for broader use of SBIRT. He noted there is a huge gap in the field, with only 5 percent of patients receiving one of three medications that are available for treating AUD.

### **Adjournment**

Dr. Volkow adjourned the meeting at 3:00 p.m.

### **CERTIFICATION**

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

For NIAAA:

/s/

George Koob, Ph.D.  
Director  
National Institute on Alcohol Abuse and  
Alcoholism  
and  
Chairperson  
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/

Andrea A. Hayes-Jordan, 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