

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

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

**May 13, 2020
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 eighth joint meeting on May 13, 2020. Due to the coronavirus pandemic, the meeting was conducted online via Webex and NIH Webcast. Chaired by Nora Volkow, M.D., Director of NIDA, and George Koob, Ph.D., Director of NIAAA, this open session convened at 11:32 a.m.

National Advisory Council on Alcohol Abuse and Alcoholism Members Present:

Louis E. Baxter, M.D.
Jill B. Becker, Ph.D.
Daniel J. Calac, M.D.
Christopher S. Carpenter, Ph.D.
Alex M. Dopico, M.D., Ph.D.
Robert J. Hitzemann, 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 Odell, Ph.D.
Scott J. Russo, Ph.D.
Vijay H. Shah, M.D.
Susan M. Smith, Ph.D.
Edith Vioni Sullivan, Ph.D.

National Advisory Council on Drug Abuse Members Present:

Linda Chang, M.D.
H. Westley Clark, M.D., J.D.
Carlos del Rio, M.D.
Lakshmi A. Devi, Ph.D.
Gail D'Onofrio, M.D.
Marie Gallo Dyak
Daniel A. Goonan
Christian A. Heidbreder, Ph.D.
Paul Kenny, Ph.D.
Kenneth P. Mackie, M.D.
Lisa A. Marsch, Ph.D.

Jessica Hulsey Nickel
Edward V. Nunes, M.D.
Robert G. Rancourt, J.D.
Sharon Walsh, Ph.D.

National Cancer Advisory Board Members Present:

Deborah Watkins Bruner, RN, Ph.D., F.A.A.N.
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/Tobacco Control Branch Chief: Michele 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 R. B. Weiss, Ph.D.

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

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

NIDA Senior Staff: Bethany Deeds, Ph.D.; Gaya Dowling, Ph.D.; Michelle Freund, Ph.D.; Katia Howlett, Ph.D., M.B.A.; and Racy Waldeck, Ph.D.

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

Additional Participants

Four hundred and fifty-four individuals viewed the live webcast, including representatives of constituent groups, liaison organizations, and members of the general public.

Call to Order and Introductions

Nora Volkow, M.D., called to order the eighth joint meeting of the National Advisory Councils of NIAAA, NIDA, and NCI in open session at 11:32 a.m. on Wednesday, May 13, 2020. She and co-chair George Koob, Ph.D., welcomed Council members to the meeting.

NIDA Director's Presentation

Dr. Volkow observed that the coronavirus pandemic has put most substance abuse research on hold, yet there remains an urgent need for information about people's use of alcohol and other substances at this time of high stress.

Trends in Drug Use: Cigarette smoking and alcohol use, including binge drinking, have declined significantly over the past 10 years (Monitoring the Future [MTF], 2019). Only 5.7 percent of 12th-graders reported smoking cigarettes during the past month, the lowest rate since the MTF annual survey began. Conversely, nicotine and tetrahydrocannabinol (THC) vaping have increased since MTF began monitoring vaping among teens four years ago. Nicotine is the drug most used in vaping, with 25.5 percent of 12-graders reporting vaping nicotine in the past month, up from just over 10 percent in 2017. Similarly, past month use of THC vaping was reported by 14 percent of 12th-graders in 2019, a rate almost double that reported in 2018. In addition, significant increases in daily use of marijuana were reported by 8th- and 10th-graders (1.3 percent and 4.8 percent respectively). Exacerbating this issue is the increasing potency of marijuana; the percentage of THC in 2018 was 16.16 percent, compared to under 10 percent 10 years earlier.

The opioid crisis continues to be a significant concern. Because of reductions in opioid prescribing and in heroin use, overdose deaths from these sources have begun to drop but deaths from fentanyl and its analogs have increased dramatically; these are now the main cause of overdose mortality.

Methamphetamine overdose is also increasing as a source of mortality, higher than opioids in some parts of the country. The number of deaths across all opioids increased between 2018-2019, although the mortality rate for each one varied.

Impact of COVID-19. The impact of COVID-19 on substance use is presently unknown. It is clear, however, that stress caused by the uncertainty associated with the pandemic is widespread. Those with a substance use disorder (SUD) are more likely to resume using drugs to escape the anxiety associated with that uncertainty; feedback from the field suggests high rates of relapse. Researchers are investigating the interaction of cigarette smoking and COVID-19. Some studies have documented lower rates of COVID-19 among smokers, and there are plans for a large clinical trial with the nicotine patch. Outcomes among smokers, however, are worse than among non-smokers. Researchers can predict that COVID-19 will interact with alcohol, drugs, and SUDs in multiple ways, taking into account pharmacological, structural and social factors. Pharmacological factors may be acute or chronic. Structural factors refer to the treatment and community services systems that have been overwhelmed by the pandemic, reducing access to the most effective treatments. Social factors include stigmatization of those with SUDs, homelessness, and criminalization.

NIDA has issued two Notices of Special Interest (NOSIs) regarding the availability of Administrative Supplements and Urgent Competitive Revisions for Research on the 2019 Novel Coronavirus (NOT-DA-20-047). Their purpose is to support research collecting and examining data on the risks and outcomes of COVID-19 infection in individuals using substances. These have generated enormous interest but resources are constrained. Two projects in which administrative supplements have been deployed are the NIH Helping End Addiction Long-term (HEAL)-thy Brain and Child Development (HBCD) initiative where eight supplements on COVID-19 and fetal and neonatal consequences were awarded, and the Adolescent Brain and Cognitive Development (ABCD) project to assess the impact of COVID-19 on a variety of social and emotional measures and brain development in children and adolescents.

National Drug and Alcohol Facts Week (March 30-April 5, 2020) was held as a virtual event this year, with 2,733 events across all 50 states, the District of Columbia, and 11 countries. The sixth annual BRAIN Initiative Investigators meeting on June 1-2, 2020, will also be held virtually.

Finally, NIDA is extending the expiration dates on three public policy Funding Opportunity Announcements (FOAs): Notice to Extend the Expiration Date for PA-17-132 "Public Policy Effects on Alcohol-, Marijuana-, and Other Substance-Related Behaviors and Outcomes (R21)"(NOT-AA-20-008); Notice to Extend the Expiration Date for PA-17-134 "Public Policy Effects on Alcohol-, Marijuana-, and Other Substance-Related Behaviors and Outcomes (R03)"(NOT-AA-20-009); and Notice to Extend the Expiration Date for PA-17-135 "Public Policy Effects on Alcohol-, Marijuana-, and Other Substance-Related Behaviors and Outcomes (R01)"(NOT-AA-20-010).

NIAAA Director's Presentation

George F. Koob, Ph.D., NIAAA Director, compared the scope of alcohol use and misuse with that of opioids, highlighting alcohol's toll on society: Over 65 percent of the U.S. population uses alcohol, compared to 4.2 percent that use opioid drugs; 5.3 percent of the population have alcohol use disorder (AUD), compared to 0.8 percent with opioid use disorder (OUD). Alcohol is the primary cause for over 1.7 million emergency department (ED) visits per year, compared to 408,079 ED visits for opioids. Alcohol contributes to approximately 88,000 deaths per year, compared to 47,600 opioid overdose deaths. Alcohol also plays a synergistic role in opioid overdose mortality. An examination of the 399,230 opioid-related deaths between 1999-2017 revealed that the co-involvement of alcohol in all opioid overdose deaths increased nonlinearly from 12.4 percent in 1999 to 14.7 percent in 2017.

An investigation of the 944,880 alcohol-related deaths recorded between 1999-2017 revealed that alcohol-related mortality doubled from 1999 to 2017. Death rates were highest among men and middle-aged and older adults (ages 45-74). However, the increase in death rate over time was greater in women than men. Alcohol plays a prominent role in the "deaths of despair" that have contributed to the decreasing life expectancy in the U.S. observed since 2014. Alcohol contributes to about 20 percent of all drug overdoses, about 26 percent of all suicides, and about half of liver disease deaths.

Role of Alcohol in the COVID-19 Pandemic: Alcohol misuse leads to impaired immune function, heightening susceptibility to viral pathogens and pneumonia. In particular, chronic alcohol consumption increases the risk for Acute Respiratory Distress Syndrome (ARDS), resulting in the need for mechanical ventilation, a prolonged intensive care unit stay, and higher incidence of mortality. Half of those with ARDS have a history of alcohol misuse. The social isolation and stress resulting from physical distancing imposed by the COVID-19 pandemic may lead to greater alcohol misuse as a coping mechanism. Further, physical distancing poses challenges for those with AUD and increases the need for telehealth and virtual meeting options for individuals seeking treatment or in recovery from AUD.

NIAAA's Response to COVID-19 Pandemic: In response to the pandemic, NIAAA has created a new landing page on its website with links to an updated NIAAA Treatment Navigator that includes COVID-19 telehealth messages and links in banners; updates to the Alcohol Policy Information System (APIS) that include new information about state level alcohol-related COVID-19 policies; a Fact Sheet on "Alcohol and Physical Distancing"; and the Director's blog entry titled "Alcohol poses different challenges during the COVID-19 pandemic." In addition, NIAAA is collecting data on apparent per capita alcohol consumption during the pandemic.

COVID-19 Funding Opportunities: NIAAA and NIH have a number of pending NOSIs related to COVID-19. These include the Availability of Administrative Supplements and Competitive Revision Supplements on Coronavirus Disease 2019 (COVID-19) within the Mission of NIAAA (NOT-AA-20-011). In addition, NIAAA is participating in a wide range of the following NIH-wide NOSIs. COVID-19 science-focused NOSIs (including NOT-AA-20-011) are linked to PA-18-591 - Administrative Supplements to Existing NIH Grants and Cooperative Agreements to request additional funding to increase or preserve the parent award's overall impact within the original scope of award or expand one of the existing specific aims. COVID-19 science-focused NOSIs (including NOT-AA-20-011) also are linked to PA-18-935 - Urgent Competitive Revision to Existing NIH Grants and Cooperative Agreements to request additional funds during the current project period for new or additional activities (e.g., new specific aim) that reflect an expansion of the scope of the grant-approved activities, e.g., adding a new specific aim on the effects of alcohol and COVID-19 on the liver. Dr. Koob also reported that NIH is providing administrative supplements to existing grants for activities disrupted by COVID-19. i.e., unexpected increases in cost and hardships. All Administrative Supplement applications for activities disrupted by COVID-19 must be submitted through the parent administrative supplement FOA (PA-18-591).

Alcohol and Mental Health: Alcohol misuse correlates with poor mental health. It often precedes diagnoses of mental health conditions, and is commonly used in an effort to cope with symptoms. In the end, however, alcohol misuse makes mental health prognoses worse. Similarly, mental health conditions complicate treatment for AUD.

NIAAA Collaborations with Other Institutes/Centers (ICs): NIAAA has prioritized working with other ICs on issues of mutual concern, such as: Research on health effects, e.g., fatty liver disease (National Institute of Diabetes and Digestive and Kidney Diseases [NIDDK]) and alcohol and cancer (National Cancer Institute [NCI]); aging research, including alcohol and progression of dementias (National Institute on Aging [NIA]); pain research, i.e., the HEAL Initiative; neuroscience research across NIH, BRAIN Initiative, and intramural collaboration via the NIH Center for Compulsive Behavior; and Collaborative Research on Addiction at NIH (CRAN), i.e., the ABCD and HBCD studies.

Success in Reducing Binge Drinking in Underage and College Age Individuals: The trends in the two-week prevalence in binge drinking (five or more drinks in a row) has declined among middle school, high school, and college age youth. Among college students, the current rate of 28 percent binge drinking represents an all-time low. However, 14.4 percent of 12th-graders reported binge drinking in the past two weeks, a rate that is still too high. One contribution to this reduction may be publication of the NIAAA of the [NIAAA College Alcohol Intervention Matrix \(AIM\)](#) tool, which was originally released in 2015 and updated in 2019.

Emerging Issues: Dr. Koob identified three emerging issues that NIAAA is addressing. Among young people, **high intensity drinking** (alcohol intake at levels twice or more the threshold for binge drinking) continues to occur. National survey data have also revealed a disappearance of the gender gap and a reversal of previously established gender patterns: more young women than men now report recent alcohol use and intoxication. Among all age groups, **gaps between women and men are narrowing** for prevalence, early onset drinking, frequency and intensity of drinking, having AUD, drunk driving, and self-reported consequences. Women are more likely to experience blackouts, liver inflammation, brain atrophy, cognitive deficits, certain cancers, negative affect during withdrawal and stress, and anxiety-induced relapse, due to alcohol. More research is needed to better understand sex differences in alcohol use and consequences. The narrowing gender gap is also apparent among **older adults:** From 2002-2018, past-month alcohol use increased for men and women aged 65 and older, with a greater increase

observed in women. One in ten older adults in the U.S. engages in binge drinking. Alcohol misuse among this population contributes to accelerated aging in some brain regions, including the frontal cortex; pronounced reductions in brain volume in multiple cortical regions; and impaired cognitive function, learning, memory, and motor function.

NIAAA Priorities: Dr. Koob identified two priority areas in which NIAAA is developing tools. The first is **expanding alcohol-related resources for clinicians**. The Institute has updated the Alcohol Treatment Navigator to include telehealth options. Under development is the Clinician's Core Resource that will contain modules about alcohol and its presentation in primary care; role in common co-occurring conditions; neuroscience; diagnostic criteria; recommended drinking limits; evidence-based therapies/medications; addressing stigma; and interactions with commonly used medications. The second priority is **integrated treatment of AUD and alcohol-associated liver disease (ALD)**. ALD is the most common alcohol-related cause of death and the leading cause of liver transplantation. ALD-related deaths have increased by 40.6 percent since 1999, with the greatest increase in deaths driven by alcoholic cirrhosis in young adults ages 25-34. Integrated treatment of ALD and AUD may improve patient outcomes; for example, a recent study of patients recovering from alcoholic hepatitis found that participation in alcohol rehabilitation shortly after hospital discharge was associated with improved outcomes, including reduced hospital readmission rates, alcohol relapse, and mortality.

U.S. Dietary Guidelines for Alcohol Consumption: In response to questions about the definition of moderate drinking, NIAAA recommends the following guidance on alcohol use from the 2015-2020 U.S. Dietary Guidelines. For adults 21 and older: No more than two drinks per day for men; no more than one drink per day for women. For individuals under age 21: No alcohol. Others should avoid alcohol completely, e.g., those who plan to drive or operate machinery; have certain medical conditions or take certain medications; are recovering from AUD; and/or are pregnant or trying to become pregnant.

Possible Cultural Shift in Attitudes toward Alcohol Use: Dr. Koob raised the possibility that cultural attitudes toward alcohol use may be shifting in light of the increasing popularity of sober month observances (e.g., Dry January, Sober October) and the emergence of the Sober Curious movement. These trends reduce the stigma associated with not drinking. It remains to be seen what impact the current pandemic has on these trends.

Supporting the Next Generation of Alcohol Researchers: Since 2014, NIAAA has steadily increased the number of training and career development awards it supports. F and T training positions increased from 269 in 2014 to 325 in 2019 and career awards increased from 93 to 124 over the same period.

Updates from NCI

Michele Bloch, M.D., Ph.D., Chief, Tobacco Control Research Branch, reported on NCI's new Cancer Center Cessation Initiative, the Surgeon General Report on Smoking Cessation (published January 2020), and the new FDA Final Rule on required warnings for cigarette packages (March 2020).

Cancer Center Cessation Initiative (C3i): Dr. Bloch noted that an estimated 1.8 million people will be diagnosed with cancer in the U.S. in 2020. Self-reported smoking prevalence among cancer patients ranges from 10 to 33 percent. The 2014 Surgeon General's Report, *The Health Consequences of Smoking—50 Years of Progress*, concluded that smoking causes cancer, complicates cancer treatment, and adds to cost of oncology care. Smoking cessation improves the prognosis of cancer patients;

however, identifying and helping cancer patients who smoke to quit is not yet the standard of care in oncology.

The NCI Cancer Centers Program is a nationwide network of 71 diverse cancer centers performing laboratory, clinical, and population-based research in cancer. NCI funds a research infrastructure in these centers to support transdisciplinary, state-of-the art research on cancer prevention, diagnosis and treatment.

To address this treatment gap, NCI launched a nationwide effort to help people who are undergoing treatment for cancer quit smoking. This initiative uses Cancer Moonshot funding to help the NCI Cancer Centers build and implement sustainable tobacco cessation treatment programs for their patients. In Cohort One (2017-2019), 22 centers were funded. Cohort Two (2018-2020) consisted of 20 centers. Each center was funded for \$250,000 for two years.

Smoking Cessation: A Report of the Surgeon General (2020): A goal of this edition of the Surgeon General's Report is to update and expand the 1990 Surgeon General's Report, *The Health Benefits of Smoking Cessation*. The scientific literature has expanded greatly since 1990 on the determinants and processes of smoking cessation, informing the development of interventions that promote cessation and help smokers quit. The new report summarizes new knowledge and reviews patterns and trends of smoking cessation; biologic mechanisms; health benefits; overall morbidity and mortality; economic benefits of cessation; and Interventions and policies that promote smoking cessation.

Smoking Cessation contains ten major conclusions, as well as individual chapter conclusions. Dr. Bloch highlighted several conclusions. Smoking cessation is beneficial at any age, improving health status and enhancing quality of life. Smoking places a substantial financial burden on smokers, healthcare systems, and society, which smoking cessation reduces, including smoking-attributable healthcare expenditures; smoking cessation reduces risk for many adverse health effects, including reproductive health outcomes, cardiovascular diseases, chronic obstructive pulmonary disease, and cancer. More than three out of five U.S. adults who have ever smoked cigarettes have quit, and although a majority of cigarette smokers make a quit attempt each year, less than one-third use cessation medications approved by the U.S. Food and Drug Administration (FDA) or behavioral counseling to support quit attempts. Considerable disparities exist in both the prevalence of smoking across the U.S. population, with higher prevalence in some subgroups, as well as the prevalence of key indicators of smoking cessation—quit attempts, receiving advice to quit from a health professional, and using cessation therapies, with lower prevalence in some subgroups. E-cigarettes, a continually changing and heterogeneous group of products, are used in a variety of ways, which makes it difficult to generalize about efficacy for cessation based on clinical trials involving a particular e-cigarette. In addition, there is presently inadequate evidence to conclude that e-cigarettes, in general, increase smoking cessation. Finally, smoking cessation can be increased by raising the price of cigarettes, adopting comprehensive smoke free policies, implementing mass media campaigns, requiring pictorial health warnings, and maintaining comprehensive statewide tobacco control programs.

FDA Final Rule: Required Warnings for Cigarette Packages and Advertisements (March 2020): The 2009 Family Smoking Prevention and Tobacco Control Act (Tobacco Control Act) requires the FDA to issue regulations requiring color graphics depicting the negative health consequences of smoking to accompany new textual warning label statements. The final rule specifies the 11 new textual warning label statements and accompanying color graphics. In preparing the Rule, the FDA determined that the public holds misperceptions about the health risks caused by smoking and that textual warning

statements focused on less-known health consequences of smoking paired with concordant color graphics will promote greater public understanding of the risks associated with cigarette smoking. The Rule is scheduled to take effect on June 18, 2021.

The new warnings will include photo-realistic drawings, in contrast to the current warnings which are text only. The new warnings will occupy the top 50% of the area of the front and rear panels of cigarette packages. Examples of the new warnings include: WARNING: Smoking causes type 2 diabetes, which raises blood sugar; WARNING: Smoking causes cataracts, which can lead to blindness; and WARNING: Smoking can cause heart disease and strokes by clogging arteries. The warnings are designed to be easily understood and are based on extensive research.

Today, 120 countries require pictorial health warnings on cigarette packages. A more recent trend in cigarette packaging is toward plain (standardized) packaging. Dr. Bloch illustrated the use of plain packaging with an example of a cigarette package from Australia where, since 2014, 80 percent of the front and back of a cigarette package is the tobacco warning and the remaining 20 percent contains the name of the brand and number of cigarettes in the pack, all in drab green.

Adolescent Brain and Cognitive Development (ABCD) Study Update

Gaya Dowling, Ph.D., Director of the ABCD Project, updated Council members on the status of the study, which has received seven more years of funding to allow the full ten years of planned data collection.

Longitudinal Follow-up: The ABCD study is currently at the 2-year follow-up time point; participants are now 11-12 years old. Close to 90 percent of participants have been retained. To assure good retention, the Consortium is focusing on missed visits. Most participants have missed only one, but the study is tracking those who miss multiple visits and those who miss consecutive visits. Those most likely to miss visits are minority and low socio-economic status (SES) participants. Missed visit information is shared with study sites so they know where to redouble their follow-up efforts. The study is also looking at the characteristics of those who complete visits to ensure that the study data reflects the country at each time point. There have been some deviations in representativeness, but no dramatic changes.

Follow-up Assessments—Added Measures: The Consortium also revisits each component of the protocol annually, e.g., to include age-related measures or items for which there was insufficient time to include at baseline. For example, the 3-year follow-up added information from parents on physical activity and breastfeeding. A math task was also added to the neurocognition measures, which lacked items addressing mathematical fluency.

Imaging Data Quality: The Consortium monitors data acquisition and completion. An initial concern was that participants may have been too young to endure the extensive imaging protocol and that it would be challenging to get them to stay still long enough (minimum 12 minutes of motion-free resting state data was required) to obtain quality images. At 2-year follow-up, 96 percent of images were completed and 91% of motion-free rsfMRIs were obtained.

Impact of COVID-19 Pandemic: The ABCD study suspended all in-person visits in mid-March, 2020. The 18- and 30-month follow-ups have always been designed as phone interviews, and remain ongoing. The 2-year follow-up is an imaging visit, which the study hopes to resume at some point. Available options for doing so are currently being evaluated, based on when institutions begin to re-open. The 3-year

follow-up visit, which does not include imaging, will be completed virtually; no biospecimens will be collected. Neurocognitive assessments begin shortly. Rules have been relaxed about the intervals between assessments and allowable windows for the 3-year follow-up. The 4-year follow-up is similar to the 2-year follow-up and will follow the same plan, once that is established.

Sub-Studies: The overall protocol is broad, thus sub-studies allow investigators to dive more deeply into specific areas with additional funding. Four new sub-studies have been approved:

“Examining the Impact of the eCB System on Neurocognitive, Psychopathology, and Early Cannabis Use Outcomes” focuses on the endocannabinoid (eCB) system that is thought to play a significant role in neuroplasticity, including neurogenesis and activity-dependent refinement of neuronal connections. During adolescence, anandamide, 2-AG, and CB1R density undergo dynamic changes. However, the exact role of the eCB system in human adolescent neurodevelopment remains unknown. The study has three specific aims: To examine whether circulating eCB serum levels in youth are associated with corticolimbic brain structure and function (Aim 1); symptoms and diagnoses of psychopathology (Aim 2); and early onset, escalation, and subjective effects of cannabis use (Aim 3). Researchers at five ABCD sites will collect an additional 3ml blood sample for serum eCB analysis from 2226 total participants aged 11-12 at 2-year follow-up. The goal is to collect data for 2 years with the approved R21 funding and submit a follow-up R01 grant application in the fall to cover years 4, 6, 8, and 10.

“Magnetic Resonance Spectroscopy and Quantitative Susceptibility Mapping (QSM)” is a pilot study of ¹H MRS GABA and glutamate neurotransmitter metabolism in high and low-trait impulsivity in ABCD Subjects. ¹H MRS provides localized, quantitative measures of neurometabolites related to neuronal function (NAA), cell membrane synthesis/turnover (Cho), cerebral energetics (tCr), glial function/activation (Ins), inhibitory neurotransmission (GABA), and excitatory neurotransmission (Glu and Gln). Metabolic alterations are associated with substance use and affective disorders in adults. QSM quantifies magnetic properties (susceptibility) of brain tissue, including biometals (primarily iron compounds) for subcortical nuclei and myelination that are known to change during brain development. In the pilot, 144 total participants, 12-13 years old at the 3-year visit, will be scanned at three study sites for no more than 90 additional minutes. Pending future funding, these measures will repeat at 5-, 7-, and 9-year follow-up years.

“Passive Assessment of Youth Mobile Phone Usage” will collect real-time, longitudinal data via mobile phones at four study sites in order to determine the optimal platform and app (i.e., Vibrent and/or Effortless Assessment of Risk States [EARS]). Both appear to work well with Android phones but not the iPhones, which is what most participants use. This pilot will describe and compare the average screen time, social media apps used, time on social media, and other data captured over a 4-week period. The correlate outcome measures from each method with self-reported retrospective questionnaire data about phone use over the past 4 weeks. These data correlate with mental health, brain maturation, cognitive functioning, and other outcomes. This is a pilot study of 120 participants at 2-year follow-up visit, funded by the ABCD Coordinating Center. Depending on the outcomes (including feasibility and acceptability), the protocol will be incorporated into the parent study.

The goal of “Assessing Impact of COVID-19” is to characterize the impact of the COVID-19 pandemic and the extent to which exposures (e.g., media, screen time, attitudes) and family factors mitigate or exacerbate neurobiological, cognitive and affective outcomes. It is designed as an online survey sent to all participants and one parent. There is also a FitBit extension to the study in which pre-post data on activity, sleep, heart rate will be collected from 508 participants who were given FitBits prior to the

suspension of in-person visits. Data collection will continue until visits resume. This sub-study is currently funded for one time-point by the National Science Foundation (NSF). Supplement applications have been submitted to NIDA and the National Heart, Blood, and Lung Institute (NHLBI) for up to four additional time points.

Data Sharing and Use: Making data available to the scientific community is a priority for the ABCD study, and is accomplished through an annual data release. In 2019, the full cohort baseline data was released, along with data from the Hurricane Irma and FitBit sub-studies. The project remains on track for its next annual data release in late summer 2020. It will include the full cohort 6-month and 1-year follow-up data, and interim data from 18 months, 30 months, and 2-year (imaging). To encourage data sharing, ABCD conducts outreach to the scientific community, including a subscription newsletter and the ABCD website which contains news, information about upcoming events, and data opportunities. ABCD is tracking how researchers are using the data. To date, 13 grants using ABCD data have been funded, including two sub-studies, three motion-reduction studies, four data analysis grants, and four training grants. The National Institute of Mental Health (NIMH), NIDA, NIAAA, the National Institute of Dental and Craniofacial Research (NIDCR), and the National Institute of Biomedical Imaging and Bioengineering (NIBIB) have provided the funding for these grants. Finally, ABCD is also tracking publications that use its data. To date, 34 articles have been published since 2018. Twenty-three of these have been published by ABCD investigators; the remaining 11 by non-ABCD researchers. About 25 percent of these articles have analyzed the data by sex.

Recent Findings from ABCD: Elizabeth Hoffman, Ph.D., Scientific Program Manager with ABCD, summarized two recent publications based on data from the ABCD study.

The first, “Risk and protective factors for childhood suicidality: a U.S. population-based study” was published in *Lancet Psychiatry* (2020) by D. Janari, G. Doucet, M. Pompili, G. Sani, B. Luna, D. Brent, and S. Frangou, at the Icahn School of Medicine at Mount Sinai. The aim of this study was to identify and rank risk and protective factors for childhood suicidal thoughts and behaviors across multiple domains and evaluate their association with self-agreement and caregiver agreement in reporting suicidality. Previous research in adults and adolescents has identified multiple risk factors for suicidality. However, there have been few epidemiological studies in younger children. The study was based on a single timepoint when the subjects were ages 9-10. The investigators used measures from the suicidality module (administered to caregiver and youth) from the mental health protocol and parent/caregiver items from the culture and environment protocol, as well as other measures such as screen time survey (youth); fluid and crystallized intelligence (youth); demographics survey (parent); medical and developmental histories (parent). Results showed that child-caregiver agreement for suicidality was low. Regardless of informant, child psychopathology – as captured by the Child Behavior Checklist – and child-reported family conflict were the most robust risk factors for suicidality. Total problems on the Child Behavior Checklist, family conflict, and weekend screen use were associated with higher risk for child-reported suicidality, while parental supervision and a positive school environment were found to be protective factors.

“Sleep duration, brain structure, and psychiatric and cognitive problems in children” was published in *Molecular Psychiatry* (2020) by non-ABCD researchers W. Cheng, E. Rolls, W. Gong, J. Du, J. Zhang, X-Y. Zhang, F. Li, and J. Feng, at Fudan University. The aim of this study was to investigate possible neural mechanisms underlying the association between short sleep duration and various psychiatric symptoms and cognitive performance in children. Short sleep duration is associated with greater risk for cerebrovascular diseases and psychiatric disorders. The association between sleep

quality and depressive symptoms is mediated by resting state functional connectivity in adults. Research has identified associations between sleep and cognitive performance and adverse mental health outcomes in children, but the neural mechanisms underlying these associations in children have not been established. The study used measures of cortical thickness, cortical surface area, and cortical/subcortical volume from ABCD's structural MRI images, coupled with behavioral measures that included parental reports on the number of hours their children usually sleep from baseline and 1-year follow-up time points; an assessment of dimensional psychopathology and adaptive functioning, from baseline and 1-year-follow-up; and the NIH Toolbox baseline assessment of neurocognition. Subjects were 9-10 years old. The results showed that all cognitive measures were positively correlated with sleep duration; all psychiatric scores were negatively correlated with sleep duration. Depression significantly mediated the relationship between brain structure and sleep and was associated with lower sleep duration measured one year later. The findings of this study should be interpreted with caution, given the small effect sizes consistent with a large sample.

Discussion: Scott Russo, Ph.D., inquired if the researchers in the suicidality study examined the correlation between screen time and depression; screen time could be an indirect measure of neglect. Dr. Hoffman responded that the study did not examine the impact of screen time.

Round Table Discussion

The Round Table Discussion addressed the following themes:

ABCD: Jill Becker, Ph.D., asked Dr. Dowling if it was possible to collect saliva or other specimens from participants at home for the 3-year follow-up. Dr. Dowling responded that the specimen analysis vendors and institutions are currently mostly closed so that neither the required supplies nor the study site staff to distribute them are available. However, if it becomes possible, this option can be considered. Edward Nunes, M.D. inquired if there is an effort to examine subgroups within the ABCD study to look for strong relationships, given small effect size sizes when examining the large heterogeneous sample. Dr. Dowling responded affirmatively, noting that there will be a full-day remote meeting in the fall to consider how to approach the data from a small effect sizes perspective across multiple disciplines. Dr. Volkow commented that delays in language delay brain development. With the dramatic shift in how people are interacting during the pandemic, there is a need to monitor the impact of these changes on the brain. Dr. Dowling reported that the ABCD study is collecting data on if and how people are interacting. Social distancing guidelines didn't go into effect everywhere at same time, thereby allowing comparisons of their impact in different locations. Lisa Marsch, Ph.D., encouraged ABCD to use cell phone data not only in the pilot study but for the full cohort. She asked if it is possible to differentiate screen time for virtual schooling from social media use since one could hypothesize that these uses would have different effects. Dr. Dowling responded that the cell phone study could expand to the full cohort if the team can solve the data collection problem for Apple products. There are questions in the COVID-19 questionnaire about how the screen time is being allocated, e.g., between types of school-related screen time, videogaming, etc. so that their effects can be teased apart. Edith Sullivan, Ph.D., praised the additions to the ABCD protocol, particularly the addition of iron depositions and spectroscopy. She asked if researchers will be able to recognize microbleeds in sports accidents. Linda Chang, M.D., responded that it may be possible to look at this question among those who play sports; Dr. Dowling commented that the Utah study site is particularly interested in sports participation. Dr. Volkow inquired about the timeline for expanding the FitBit study and about data collection about sleep, since poor quality of sleep is linked to psychopathology. Dr. Dowling responded that FibBits have been distributed to the entire cohort, but for only three weeks at a time per person in order to cycle through the entire study population. Those who received a FitBit prior to the pandemic are keeping

them longer. At this point, none of the data has been analyzed. There will be partial FitBit data in the 2020 data release, and full data in the 2021 data release. Dr. Dowling asked Dr. Chang about Dr. Volkow's question on sleep. Dr. Chang responded that ABCD is collecting data on sleep quality with the Sleep Disorder Briefing, e.g., asking parents if their child snores. There is an ABCD investigator examining this data. In response to Dr. Sullivan's question, she reported that radiologists will be examining microbleeds, but it's currently a pilot study so it will not be done yet on the entire cohort. Daniel Calac, M.D., commented that when he's talked about ABCD to people in rural and underserved communities, there wasn't much excitement. He asked what strategies were being used to make the study more captivating to the general public. Dr. Dowling responded that the ABCD Consortium has a group that is developing strategies to get the information out to the public in innovative ways.

Alcohol Use During the Pandemic: A question was posed to Dr. Koob regarding the counter-culture of wine during the pandemic, e.g., virtual cocktail hours. Dr. Koob responded that NIAAA is concerned about people's isolation during the pandemic and is anticipating grant applications to gather data about this issue. Dr. Volkow asked if such virtual drinking was occurring among teens. Dr. Koob responded that NIAAA is hoping to collect data about this pattern during the pandemic. In response to a question from Jessica Hulsey Nickel, Dr. Koob said that NIAAA does not currently have specific guidelines about drinking for individuals with a family history of SUD or AUD; but as noted on the NIAAA web site and in recommendations based on the U.S. Dietary Guidelines, some may not want to drink at all, recognizing their vulnerability for addiction.

Evaluating New Data Collection Strategies: Dr. Volkow commented that the pandemic presents an extraordinary opportunity to develop the methodologies needed to do data collection remotely. Dr. Dowling noted that ABCD will be able to compare new data collection methods with the previous ones to evaluate the differences between them. Dr. Chang observed that ABCD participants are approaching puberty and the study is asking sensitive questions, such as gender identity. They may not have the privacy at home to answer these questions as they would in-person. Dr. Dowling said the study has had to make adjustments to the substance use questions for that reason. H. Westley Clark, M.D., J.D., asked what NIH was doing with large surveys whose administration is impaired by the pandemic. Dr. Volkow responded that she is asking the Principal Investigator of MTF to conduct a pilot to assess virtual data collection; because the patterns of drug use from year to year are known, there will be an opportunity to evaluate any surprises that emerge. Lack of confidentiality may be an issue. Dr. Clark noted that the Substance Abuse and Mental Health Services Administration (SAMHSA) may have similar challenges with a substantial number of respondents who won't open their doors to interviewers. Dr. Volkow said that NIDA would reach out to SAMHSA and find out if they have any plans to go virtual.

Adjournment

Dr. Koob adjourned the meeting at 2:49 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
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National Institute on Alcohol Abuse and
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For NIDA:

/s/

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

/s/

Susan Weiss, Ph.D.
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National Advisory Council on Alcohol Abuse
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For NCI:

/s/

Deborah Watkins Bruner, R.N., Ph.D., F.A.A.N.
Acting Chair
National Cancer Advisory Board
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/s/

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