NIAAA Director’s Report on Institute Activities to the 160th Meeting of the National Advisory Council on Alcohol Abuse and Alcoholism

May 10, 2022
Virtual Meeting

George F. Koob, Ph.D.
Director
National Institute on Alcohol Abuse and Alcoholism
National Institutes of Health

https://www.niaaa.nih.gov/about-niaaa/advisory-council
FY 2022 Budget

• On March 15, 2022, the President signed H.R. 2471 - Consolidated Appropriations Act, 2022.

• NIH received a total of $45.2 billion for FY 2022 (5.4% increase), including
  – General increases to NIH Institutes and Centers
  – Allocations for the Helping to End Addiction Long-term (HEAL) Initiative, the 21st Century Cures Act, NIH Brain Research Through Advancing Innovative Neurotechnologies (BRAIN), and the All of Us research program
  – Continued support for the Gabriella Miller Kids First Act pediatric research initiative.

• NIAAA received a total of $573.7 million for FY 2022 (3.4% increase)

The President’s FY 2023 Budget was released on March 28, 2022.
NIAAA Funding Opportunities
(See Director’s Report for Complete Listing)

Specialized Alcohol Research Centers (P50, RFA-AA-22-001): Invites applications to foster and conduct interdisciplinary, collaborative research on alcohol use disorder (AUD), alcohol misuse and alcohol related problems, and other health related consequences across the lifespan and across racial/ethnic groups and other health disparity populations. **Scientific Contacts: Drs. Kathy Jung, Mariela Shirley, Ivana Grakalic, Greg Bloss, Antonio Noronha**

Comprehensive Alcohol Research Centers (P60, RFA-AA-22-002): Invites applications to conduct and foster interdisciplinary, collaborative research on topics relevant to the NIAAA mission across the lifespan and across racial/ethnic groups and other health disparity populations. Applications must include a dissemination core to initiate and expand community education related to the activities of the proposed Center. **Scientific Contacts: Drs. Kathy Jung, Mariela Shirley, Ivana Grakalic, Greg Bloss, Antonio Noronha**

Alcohol Health Services Research (R01, R34, PAR-22-157, PAR-22-157): Encourages research on closing the treatment gap for AUD, including increasing access to AUD treatment and making it more appealing and reducing health disparities. **Scientific Contacts: Dr. Laura Kwako**

Alcohol Treatment and Recovery Research (R01, R34, PAR-22-158, PAR-22-159): Encourages research on topics relevant to treatment of and recovery from AUD, including behavioral and pharmacotherapy, recovery, precision medicine, translational research, and innovative methods and technologies for AUD treatment and recovery. **Scientific Contacts: Dr. Brett T. Hagman and Dr. Dan Falk**
Research on Alcohol and Coronavirus Disease (COVID-19) within the Mission of NIAAA (R01, R03, R21, K99/R00, NOT-AA-22-012): Invites grant applications that advance understanding of the critical interactions between alcohol use, SARS-CoV-2, and COVID-19. A central focus is research that can improve public health by informing responses to the evolving COVID-19 pandemic and its consequences. Scientific Contact: Dr. Kathy Jung
Alcohol and Healthy Aging: Current Research and Future Directions

• On May 9, 2022, NIAAA participated in a webinar on alcohol and aging sponsored by the Friends of NIAAA, American Psychological Association, and the Research Society on Alcoholism

• Speakers included:
  – Dr. Robert Huebner, Chair, Friends of NIAAA
  – Dr. George F. Koob, Alcohol and Aging: An Overview
  – Dr. Katherine Keyes, Increased Alcohol Consumption Among Older Adults: Trends, Causes, and Consequences
  – Dr. Sara Jo Nixon, Neurobiological and Behavioral Consequences of Moderate Alcohol Consumption in Older Adults
  – Dr. Frederick C. Blow, Assisting Older Adults Who Misuse Alcohol: Brief Evidence-Based Treatment Approaches
  – Dr. Jeff Boissoneault, Pain and Alcohol Use: Implications for Healthy Aging
From NIAAA: The Healthcare Professional’s Core Resource on Alcohol

Launched May 10, 2022!
What is the Core Resource on Alcohol?

The Healthcare Professional’s Core Resource on Alcohol consists of 14 interconnected articles covering the basics of what every healthcare professional needs to know about alcohol. The “Core” was developed by NIAAA.

With guidance from practicing physicians and clinical psychologists, NIAAA created the Core with busy clinicians in mind. The Core articles provide user-friendly, practical overviews of

- Foundational knowledge for understanding alcohol-related problems (4 articles)
- Clinical impacts of alcohol (4 articles)
- Strategies for prevention and treatment of alcohol problems (5 articles)
- How to “put it all together” to promote practice change (1 article)

The Core articles are living documents that will be updated regularly.

Who can receive continuing education credit?

Free continuing education credit—0.75 to 1 credit hour for each of 14 articles (10.75 credit hours total)—is offered for physicians, physician assistants, nurses, pharmacists, and clinical psychologists.
From NIAAA: The Healthcare Professional’s Core Resource on Alcohol

Sample article

What counts as a drink?

- What is a standard drink?
- How much alcohol is in a standard drink?
- How many standard drinks count as one drink?
- What is binge drinking?
- What is heavy drinking?
- What is the clinical utility of the "heavy drinking" definition?

References

- Alcohol Mediabase - Vol 5 (15 minutes), Vrij Ramchandani, Ph.D., NIAAA, 2021
- Resources for Sharing with Patients Related to this Article
  - Reducing Drinking, website and brochure (PDF) - 144 KB, NIAAA
  - Patient Handout: Drink Sizes and Drinking Levels (PDF - 194 KB, NIAAA - Core Resource on Alcohol)
  - Fact Sheets on Excessive Alcohol Use and Men’s Health and Excessive Alcohol Use and Women’s Health - NIAAA
  - Facts Sheets on Moderate Drinking and Drug Drinkers - NIAAA

References


Earn CME/CE Credit

- CAMS (Cognitive Assessment of Marijuana Use) is a screening instrument designed to identify marijuana use and associated problems. CAMS is a brief, reliable, and valid instrument that can be used in clinical settings to assess marijuana use and its impact on the individual.
- NIAAA (National Institute on Alcohol Abuse and Alcoholism) is a federal agency of the U.S. Department of Health and Human Services that conducts and supports research on the causes, consequences, treatment, and prevention of alcohol and alcohol-related problems.
- DDQ (Drinking and Driving Quotient) is a tool that is used to assess the potential for drivers to be affected by alcohol.

Learning Objectives

- After completing this activity, the participant should be able to:
  - Assist patients in accurately estimating their alcohol intake.
  - Identify the categories of patients who need advice to avoid alcohol withdrawal.
  - Counsel patients on guidelines and symptoms for alcohol withdrawal.
- The CME/CE credits are offered as well as disclosure. Visit our CME/CE General Information page for more information.
Support Recovery: It's a Marathon, Not a Sprint

Step 1 - Read the Article

- How is recovery defined?
- What are the odds for recovery?
- What is the role of healthcare professionals in recovery?
- What strategies can help patients prevent or recover from a return to heavy drinking?

Step 2 - Complete the CME/CE Post-Test

Earn CME/CE Credit

References

Learn more about NIAAA, Alcohol Research Current Reviews, and Alcohol Use Disorders and Associated Health Conditions. Access the latest research and articles on alcohol use disorder and recovery.

Resources
Contributors – External

The NIAAA Core Resource on Alcohol was developed with the help of more than 70 contributors, including physicians, clinical psychologists, and basic and clinical alcohol researchers, who served as writers for full articles, content contributors to subsections, reviewers, and editorial staff. These contributors included both experts external to NIAAA as well as NIAAA staff.

External Writers and Content Contributors

Douglas Berger MD, MLitt  Deborah Hasin, MD
Michael E. Charness, MD  Ismene L. Petrakis, MD
Felicia W. Chi, MPH  Derek D. Satre, PhD
Joao P. De Aquino, MD  Stacy A. Sterling, DrPH, MSW, MPH

Constance M. Weisner, DrPH, MSW  Katie Witkiewitz, PhD

External Reviewers

Majid Afshar, MD, MSCR  Carlo C. DiClemente, PhD, ABPP
Anika A. Alvanzo, MD, MS, FACP, DFASAM  Anne C. Fernandez, PhD
Sudie Back, PhD  Julianne Flanagan, PhD
Louis E. Baxter Sr., MD, DFASAM  Olivier George, PhD
Douglas Berger MD, MLitt  Joseph Edwin Glass, PhD, MSW
Katharine A. Bradley, MD, MPH  Shelly F. Greenfield, MD, MPH
Mary F. Brolin, PhD  Constance M. Horgan, ScD
Randall Brown MD, PhD  Kenneth Lyons Jones, MD
Kathleen M. Carroll, PhD (Deceased)  John F. Kelly, PhD, ABPP
R. Colin Carter, MD, MMSc  Leonard Koda, PhD
Geetanjali Chander, MD, MPH  John H. Krystal, MD
Michael E. Charness, MD  Lewei (Allison) Lin MD, MS
H. Westley Clark, MD, JD, MPH  Evette J. Ludman, PhD
Hector Colon-Rivera MD, MRO  Chitra D. Mandyam, PhD
Kenneth R. Conner, PsyD, MPH  Renata C. N. Marchette, PhD, PharmD
Margot Trotter Davis, PhD  Barbara J. Mason, PhD

Barbara S. McCrady, PhD  Vijay H. Shah, MD
Jessica L. Mellinger, MD MSc  Kenneth J. Sher, PhD
William R. Miller, PhD  Kimberly Tallian, PharmD, APh, BCPP, FASHP, FCCP, FCSHP
Mack C. Mitchell, MD  Julie A. Tucker, PhD, MPH
Patricia E. Molina, MD, PhD  Constance M. Weisner, DrPH, MSW
Richard Saitz, MD, MPH (Deceased)  Emily C. Williams, PhD, MPH
Arun J. Sanyal, MD  Katie Witkiewitz, PhD
Contributors – NIAAA

NIAAA Writers and Reviewers
George F. Koob, PhD
Patricia Powell, PhD
Rachel I. Anderson, PhD
Nancy Diazgranados, MD, MS, DFAPA
Bill Dunty, PhD
Mark Egli, PhD
Zhigang (Peter) Gao, MD
Brett T. Hagman, PhD
M. Katherine Jung, PhD
Lorenzo Leggio, MD, PhD
Falk W. Lohoff, MD
András Orosz, PhD
Svetlana Radaeva, PhD
Aaron White, PhD

--and—

The NIAAA/DTR Core Editorial Team

Project Development Team

NIAAA/DTR Core Editorial Team:
Raye Z. Litten, PhD, Editor and Content Advisor
Laura E. Kwako, PhD, Editor and Content Advisor
Maureen B. Gardner, Project Manager, Co-Lead Technical Editor, and Writer

Contract Editorial Team Members (Ripple Effect):
Elyssa Warner, PhD, Co-Lead Technical Editor
Daria Turner, MPH, Reference and Resource Analyst
Kevin Callahan, PhD, Technical Writer/Editor

NIAAA Administrative Support:
Julie Simonds, Administrative Support
Jessica Cullen, COR for Ripple Effect Contract
Kate Masterton, COR for IQ Solutions Contract

Web Design and User Experience:
IQ Solutions
From NIAAA: The Healthcare Professional’s Core Resource on Alcohol

Visit the Core at
niaaa.nih.gov/CoreResourceOnAlcohol

Send us comments at
NIAAACoreResource@nih.gov
Research Highlights
Alcohol-Related Deaths During the COVID-19 Pandemic

The number and rate of alcohol-related deaths increased approximately 25% between 2019 and 2020, the first year of the COVID-19 pandemic. Rates increased for all age groups, with the largest increases occurring for people ages 35 to 44 (39.7%) and 25 to 34 (37.0%). The number of deaths remained elevated in the first half of 2021.
Serum Metabolomic Analysis Reveals Several Novel Metabolites in Association with Excessive Alcohol Use - An Exploratory Study

To identify biomarkers of excessive alcohol use, NIAAA-supported researchers profiled metabolites in the serum of research participants with a history of excessive alcohol use, compared to healthy participants. Of the metabolites identified, ten were most significantly associated with quantity and average number of drinks in the last 30 days and had better diagnostic performance on Receiver Operating Curve (ROC) for screening than commonly used lab tests.

Most metabolites identified were in the sphingolipid pathway.

Diagnostic performance of the top 10 metabolites (orange lines) compared to commonly used biomarkers

AST: aspartate aminotransferase
ALT: alanine aminotransferase
MCV: mean corpuscular volume of erythrocytes
GGT: gamma-glutamyl transpeptidase
CDT: carbohydrate-deficient transferrin

Genetic Variants Associated with Acamprosate Treatment Response in Alcohol Use Disorder Patients: A Multiple Omics Study

Acamprosate is an approved FDA-approved medication for the treatment of alcohol use disorder (AUD) and is thought to reduce alcohol craving during abstinence. Patients vary in their treatment response to acamprosate and pharmacogenomic variations could partially explain the differences. Researchers conducted a genome-wide association study (GWAS) to identify genetic variants that contribute to variations in plasma metabolomic profiles associated with craving and/or acamprosate treatment outcomes. A series of genes were identified, including a protein-protein interaction network involving the protein tyrosine phosphatase receptor type D (PTPRD) gene. Single nucleotide polymorphisms (SNPs) in PTPRD were associated with worse acamprosate treatment outcomes.

Bariatric surgery is associated with higher blood alcohol concentrations (BACs), higher bioavailability of alcohol, and, thus, higher risk of alcohol-related consequences. These effects are hypothesized to be due to deficits in first-pass metabolism of alcohol. To better understand how the stomach contributes to first-pass metabolism, researchers examined alcohol pharmacokinetics after alcohol administration among women with sleeve gastrectomy. Women with the gastrectomy had an approximately 40% higher peak BAC after oral alcohol administration compared to women without the procedure. The higher BACs indicate that the stomach contributes significantly to the first-pass metabolism of alcohol in this population. These results might help explain the link between bariatric surgery and elevated risk of alcohol-related consequences.

Citation: Seyedsadjadi N, Acevedo MB, Alfaro R, Ramchandani VA, Plawecki MH, Rowitz B, Pepino MY. JAMA Netw Open. 2022 Mar 1;5(3):e223711.
The central amygdala (CeA) and the noradrenaline/norepinephrine (NA) system are both involved in the brain’s responses to stress and alcohol. In the current study, researchers investigated how the NA system regulates CeA activity and influences drinking behavior in animal models of AUD. They found that NA receptors, \( \alpha_1 \) and \( \beta \), potentiated CeA GABAergic transmission and drove alcohol intake. In the animal model of alcohol dependence, \( \beta \) receptors disinhibited a subpopulation of CeA neurons and contributed to elevated alcohol intake. Postmortem analyses of human brain tissue of humans with AUD revealed increased \( \alpha_{1B} \) receptor mRNA expression in the amygdala.

Propranolol prevented the NA’s ability to reduce GABA release, suggesting involvement of \( \beta \) receptors.

Propranolol reduces alcohol consumption in dependent animals.

Significant increase in amygdala \( \alpha_{1B} \) mRNA levels in humans with AUD.

Without propanolol treatment, NA decreased sIPSC frequency in half the neurons suggesting reduced GABA release. After 20 mM propranolol pretreatment, NA increased sIPSC frequency in 5/8 cells, revealing beta adrenergic receptor recruitment in alcohol dependence in that NA’s disinhibitory effects are mediated by \( \beta \) adrenergic receptors.

High-risk Drinkers Engage Distinct Stress-Predictive Brain Networks

This study examined whether changes in brain networks that underlie emotional stress responses can serve as an early marker of alcohol misuse. Functional brain imaging and predictive modeling were conducted with people who engaged in binge drinking or “light” drinking and showed differences in stress-related brain networks. Stress was associated with visual and motor networks in the binge drinking group and with the default mode and frontoparietal networks in the light drinking group. To uncover differences in how strongly different edges predicted emotional stress, a “virtual lesion” approach was used, allowing only subsets of the brain to serve as predictors. This revealed that visual and salience networks were significantly stronger predictors of emotional stress in the binge drinking group.

Edgewide connectivity correlated with emotional stress. Widespread stress positive and negative network differences between the groups are indicated by asterisks.

Edges or connections selected on every leave-one-out fold for all temporal models were used to understand predictive networks.

Binge drinking at age 18 has been decreasing historically but by the mid to late 20s, the reverse is true as reflected in increased binge drinking. The current study examined data from the Monitoring the Future study to examine this reversal. Researchers found that the reversal occurred primarily between ages 18-24 for men and 18-22 for women. The historical narrowing in the gap in binge drinking between men and women was more pronounced at the beginning than at end of the transition to adulthood.

**Trajectories of binge drinking by sex and historical cohort group**
THANK YOU!

Special thanks to:

Cara Anjos Breeden
Maureen Gardner
Patricia Powell
Kate Masterton
Kat Tepas
Aaron White
Bridget Williams-Simmons
Van Van