

# NIAAA SPECTRUM

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES • National Institutes of Health • National Institute on Alcohol Abuse and Alcoholism

## FEATURE

### NIAAA AT 50: A LEGACY OF ADVANCING ALCOHOL RESEARCH

*Reflections on Five Decades of Innovation and Progress*



On December 31, 1970, Congress passed the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation Act, the legislation that created the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The new Institute’s mandate was to “develop and conduct comprehensive health, education, training, research, and planning programs for the prevention and treatment of alcohol abuse and alcoholism.” Five decades later, NIAAA is the world’s largest funder of alcohol research—supporting

comprehensive, multidisciplinary studies to pursue the mission of advancing and disseminating evidence-based knowledge to improve the diagnosis, prevention, and treatment of alcohol use disorder (AUD) and alcohol-related problems across the lifespan.

NIAAA is now celebrating its 50th anniversary, a milestone that has prompted NIAAA leadership to reflect on these five decades of progress.

NIAAA Director George F. Koob, Ph.D., comments, “While we have much more work to do, today we know more about how alcohol affects the brain and body than ever before, and we have better interventions to prevent and treat alcohol misuse, thanks largely to the determined and uncompromising efforts of the talented researchers supported by NIAAA. These efforts have provided the foundation for the recognition of AUD as a medical disorder ranging from mild to severe, rather than a moral failing.” Patricia A. Powell, Ph.D., Deputy Director of NIAAA, adds, “We’ve worked hard to share this information with health professionals and the public, and I think more recently we’re beginning to see a nationwide shift in attitudes about alcohol-related issues.”

Antonio B. Noronha, Ph.D., Director of NIAAA’s Division of Neuroscience and Behavior, says, “One cannot overstate the importance of NIAAA support for shaping our current understanding of the neurological underpinnings related to AUD. From early independent studies that discovered unique brain wave patterns

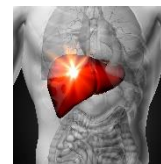
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and neuroimaging patterns found in people with a history of AUD, to today's large-scale multi-disciplinary research networks such as the Integrative Neuroscience Initiative on Alcoholism [INIA], NIAAA has been the engine driving new discoveries about alcohol's impact on the brain across the lifespan. Researchers continue to push the boundaries of alcohol regarding tolerance, pain modulation, sleep-related problems, and many other fields of neuroscience exploration."

George Kunos, M.D., Ph.D., Director of NIAAA's Division of Intramural Clinical and Biological Research (DICBR), states, "At the time that NIAAA was established, little was known about how alcohol alters brain function. With NIAAA support, researchers have discovered how specific neuronal proteins are altered by acute and chronic alcohol exposure, and how these effects influence brain function and behavior." DICBR's Deputy Director, David Lovinger, Ph.D., notes, "Since NIAAA's establishment, a variety of preclinical and clinical methods for measuring alcohol consumption and assessing intoxication, tolerance, dependence, and withdrawal have been developed." Indeed, the work of NIAAA-supported intramural and extramural researchers has shed light on the cellular and molecular mechanisms that underlie the effects of alcohol on the brain and liver, paving the way for the development of novel pharmacotherapies for the treatment of AUD and alcohol-associated liver disease (ALD).

Kathy Jung, Ph.D., Director of NIAAA's Division of Metabolism and Health Effects, comments: "From its earliest years, NIAAA has championed pivotal studies on fetal alcohol spectrum disorders [FASD]. This includes groundbreaking research focused on alcohol as a teratogen, and innovative neuroimaging and neurobehavioral research in humans revealing that brain regions involved in learning, memory, attention, decision-making, emotional control, and motor skills appear to be most sensitive to prenatal alcohol exposure. Furthermore, NIAAA-supported research has advanced our understanding of FASD prevalence and the development of effective learning and behavioral interventions to help people with FASD.

"In addition, over the past decades NIAAA-supported investigators have contributed significantly to an enhanced understanding of how alcohol contributes to tissue injury throughout the body as well as co-occurring health conditions such as HIV infection.

"More recently, NIAAA broke new ground in the area of alcohol biosensors through the Wearable Alcohol Biosensor Challenge, raising renewed interest and new possibilities based on modern technologies."

Ralph Hingson, Sc.D., Director of the Division of Epidemiology and Prevention Research, reflects, "Since the founding of NIAAA, several areas of alcohol prevention have shown substantial progress. This includes NIAAA-supported research demonstrating the effectiveness of the minimum legal drinking age of 21, a key public health strategy.

"Historically, NIAAA has paid special attention to preventing and reducing underage drinking and alcohol misuse among college students, contributing to a steady decline in underage drinking over the past two decades. Also, NIAAA-funded investigators demonstrated that the younger the age that people begin to drink, the greater the likelihood they will develop AUD. NIAAA also convened a task force of college presidents and researchers in the late 1990s, culminating in a landmark report on the magnitude of college drinking problems and evidence-based interventions to prevent them. The report gave national visibility to the need to reduce binge drinking and alcohol-related consequences among college students. NIAAA has invested similarly in disseminating research findings about effective college alcohol interventions. A prime example is *CollegeAIM*—the *College Alcohol Intervention Matrix*, a resource to help college and university officials identify interventions to reduce student drinking and related problems."

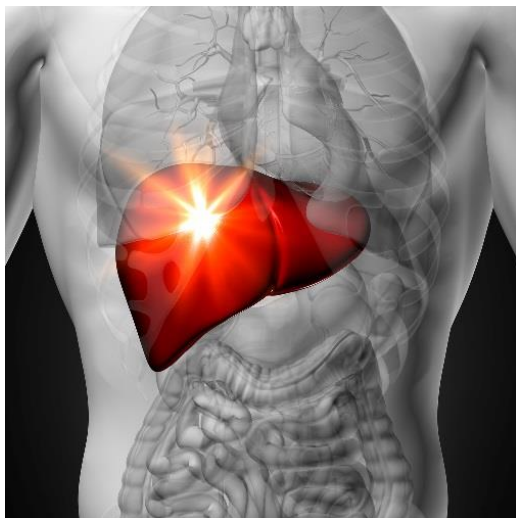
Raye Z. Litten, Ph.D., Acting Director of NIAAA's Division of Medications Development and Division of Treatment and Recovery Research, reflects: "When NIAAA was founded, only one compound—disulfiram—was available to treat AUD, and health professionals were just beginning to make inroads in behavioral therapies. Today, thanks in large part to NIAAA's investment in treatment research, patients with AUD have access to two additional medications approved by the Food and Drug Administration [FDA]—acamprosate and oral and long-term injectable naltrexone—and many other promising compounds are under investigation. In addition, a menu of behavioral therapies, such as cognitive behavioral therapy, motivational enhancement therapy, 12-step facilitation therapy, brief intervention, and couples therapy, have demonstrated efficacy in clinical studies.

"NIAAA also has demonstrated a longstanding commitment to disseminating science-based research information, tools, and resources for clinicians, patients, and families, including web-based tools such as the NIAAA Alcohol Treatment Navigator. These and other programs are milestones of NIAAA's distinguished record of pursuing strategies

to make evidence-based behavioral therapies and medications more accessible by integrating them into mainstream medicine.”

As NIAAA reflects on 50 successful years of alcohol research, the Institute is poised to build on the progress that has been made to gain greater insights for the future. In the coming year, visit the NIAAA website (see <https://www.niaaa.nih.gov/about-niaaa/50th-anniversary>) and follow NIAAA on Twitter (<https://twitter.com/niaaaneews>) and Instagram (<https://instagram.com/niaaaneews>) for more updates about NIAAA’s milestones and the continued commitment to advance the field of alcohol research. For our resources mentioned in this article and more, visit the NIAAA Alcohol Treatment Navigator (<https://alcoholtreatment.niaaa.nih.gov>), *CollegeAIM* (<https://www.collegedrinkingprevention.gov/collegeaim>), and Rethinking Drinking (<https://www.rethinkingdrinking.niaaa.nih.gov>).

## NEWS FROM THE FIELD



### ALCOHOL REHABILITATION CAN REDUCE HOSPITAL READMISSION, RELAPSE, AND MORTALITY IN PATIENTS WITH ALCOHOLIC HEPATITIS

Early alcohol rehabilitation can reduce the risk of hospital readmission, alcohol relapse, and mortality among patients hospitalized for alcoholic hepatitis (AH), according to a recent NIAAA-supported study. AH is a potentially life-threatening alcohol-associated liver disease; many patients who are hospitalized with severe cases of AH die within weeks of diagnosis. For hospitalized patients who survive an episode of AH, abstinence and the prevention of alcohol relapse are crucial to their long-term survival. A large body of research has demonstrated the effectiveness of alcohol treatment in promoting abstinence. Alcohol treatment integrated with AH treatment has the potential to improve health outcomes and contribute to long-term survival.

In the current study, researchers examined data from two groups of patients (one for testing the hypothesis; the other for validation) hospitalized for AH. The first cohort consisted of 135 AH patients hospitalized at the Mayo Clinic from 1999 to 2016 (“test cohort”). The second cohort consisted of 159 hospitalized AH patients who participated in NIAAA’s Translational Research and Evolving Alcoholic Hepatitis Treatment (TREAT) multi-site research consortium from 2013 to 2017 (“validation cohort”). A major goal of the study was to determine the rates of 30-day hospital readmission, 30-day alcohol relapse, and mortality after hospital discharge for AH and whether early alcohol rehabilitation programs after discharge could improve these outcomes.

Alcohol rehabilitation consisted of residential or outpatient treatment and/or mutual support groups. After hospital discharge, only 16–20 percent of patients from the cohorts participated in early alcohol rehabilitation.

The researchers found that the rate of 30-day hospital readmission among AH patients who received alcohol rehabilitation shortly after hospital discharge was significantly lower than those who did not receive rehabilitation (11.0 percent vs. 35.2 percent, respectively, in the test cohort and 21.1 percent vs. 45.0 percent, respectively, in the validation cohort). Even more striking were the differences in the rates of alcohol relapse in the 30 days after hospital discharge among AH patients who received alcohol rehabilitation compared to those who did not (7.4 percent vs. 44.4 percent, respectively, in the test cohort and 5.3 percent vs. 45.9 percent, respectively, in the validation cohort). Participating in alcohol rehabilitation was also associated with an 80 percent lower risk of long-term mortality.

The authors conclude that these findings strongly suggest that all patients hospitalized for AH should be evaluated by addiction specialists and referred to treatment, thus providing further support for the integration of addiction medicine in hepatology practice.

#### Reference:

Peerapathdit, T.B.; Kamath, P.S.; Karpyak, V.M.; Davis, B.; Desai, V.; Liangpunsakul, S.; Sanyal, A.; Chalasani, N.; Shah, V.H.; and Simonetto, D.A. Alcohol rehabilitation within 30 days of hospital discharge is associated with reduced readmission, relapse, and death in patients with alcoholic hepatitis. *Clinical Gastroenterology and Hepatology*. In press. PMID: 31042580

## NEWS FROM THE FIELD

## SBIRT HAS BROAD IMPACT ON ADOLESCENT HEALTH



Over the last two decades, numerous research studies have firmly established the effectiveness of screening, brief intervention, and referral to treatment (SBIRT) in pediatric practices for alcohol and other substances in reducing underage drinking and its harmful consequences.

More recently, investigators have hypothesized that SBIRT might have broader effects on adolescent health. Alcohol and other substance problems among young people often co-occur with medical conditions and mental health problems, such as depression and anxiety. These conditions and problems are in turn associated with increased healthcare use, including costly emergency department and inpatient care.

To explore the possibility that SBIRT could impact those related problems and healthcare issues, NIAAA-supported scientists led by Stacy Sterling, Dr.P.H., of the Division of Research, Kaiser Permanente Northern California, examined the effects of SBIRT on subsequent healthcare use and comorbid health conditions among adolescents ages 12 to 18. Their study sample of nearly 2,000 young people was drawn from participants in a randomized clinical trial of two different ways of delivering SBIRT in pediatric primary care: (1) by a pediatrician or (2) by a behavioral clinician working with a pediatrician. Adolescents who received SBIRT were compared with a control group that received usual care by pediatricians who had access to screening tools but no formal SBIRT training.

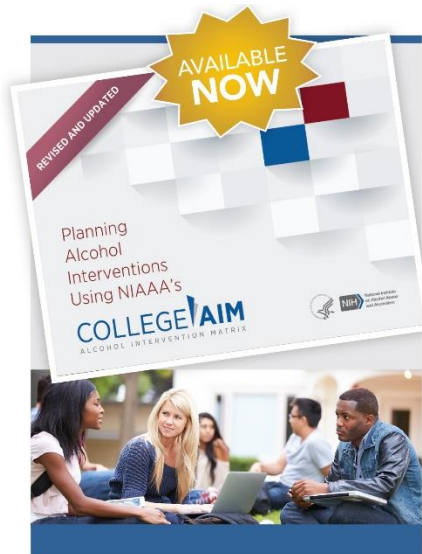
As they reported in the journal *Pediatrics*, the researchers found that adolescents who received SBIRT had lower use of psychiatry services at both 1 and 3 years later and lower overall outpatient use at 3 years after receiving SBIRT. The authors write that those lower use rates are particularly notable because they serve as important proxy indicators of health and well-being.

The researchers also found that adolescents who received SBIRT were less likely to have a mental health or medical diagnosis at 1 year and less likely to have a substance use diagnosis at 3 years. The findings, they conclude, “suggest that offering SBIRT in pediatric primary care may have an enduring impact on both health and healthcare use during this critical developmental period. Future research is needed on the effects of SBIRT for adolescents on these important outcomes.”

## Reference:

Sterling, S.; Kline-Simon, A.H.; Jones, A.; Hartman, L.; Saba, K.; Weisner, C.; and Parthasarathy, S. Health care use over 3 years after adolescent SBIRT. *Pediatrics* 143(5):e20182803, 2019. PMID: 31018988

NOTEWORTHY



### NIAAA COMPLETES UPDATE TO *CollegeAIM*

After extensive review, NIAAA has released a revised version of *CollegeAIM*—the *College Alcohol Intervention Matrix*—its comprehensive resource to help colleges and universities address harmful and underage drinking among their students.

Developed with input from leading college alcohol researchers, along with college student life and alcohol and other drug (AOD) program staff, the *CollegeAIM* guide and website were created to help college personnel use research-based information to choose wisely among the many potential interventions.

Its centerpiece is a comprehensive and easy-to-use, matrix-based booklet and website that help guide college staff to effective, evidence-based strategies. *CollegeAIM* can help schools choose interventions wisely—boosting their chances for success in addressing harmful and underage student drinking, thereby improving the health and safety of their students.

*CollegeAIM* is unique in the breadth of research covered by its analysis and was designed to be updated periodically to capture recent research findings in peer-reviewed journals and to ensure that recommendations are revised accordingly.

Information in the original *CollegeAIM* was grounded in evidence-based research on college alcohol interventions published through 2012. The revised *CollegeAIM* was updated to include new research findings through 2017. These studies were evaluated by a team of research experts, and 7 interventions were added to the nearly 60 strategies already included. These newly added interventions include online alcohol education programs, computer-based personalized feedback, skills training, the enactment of fake ID laws, and the establishment of minimum pricing. Five interventions received updated ratings—for effectiveness and amount of evidence—based on the new research findings.

*CollegeAIM* is available at <https://www.collegedrinkingprevention.gov/collegeaim>.

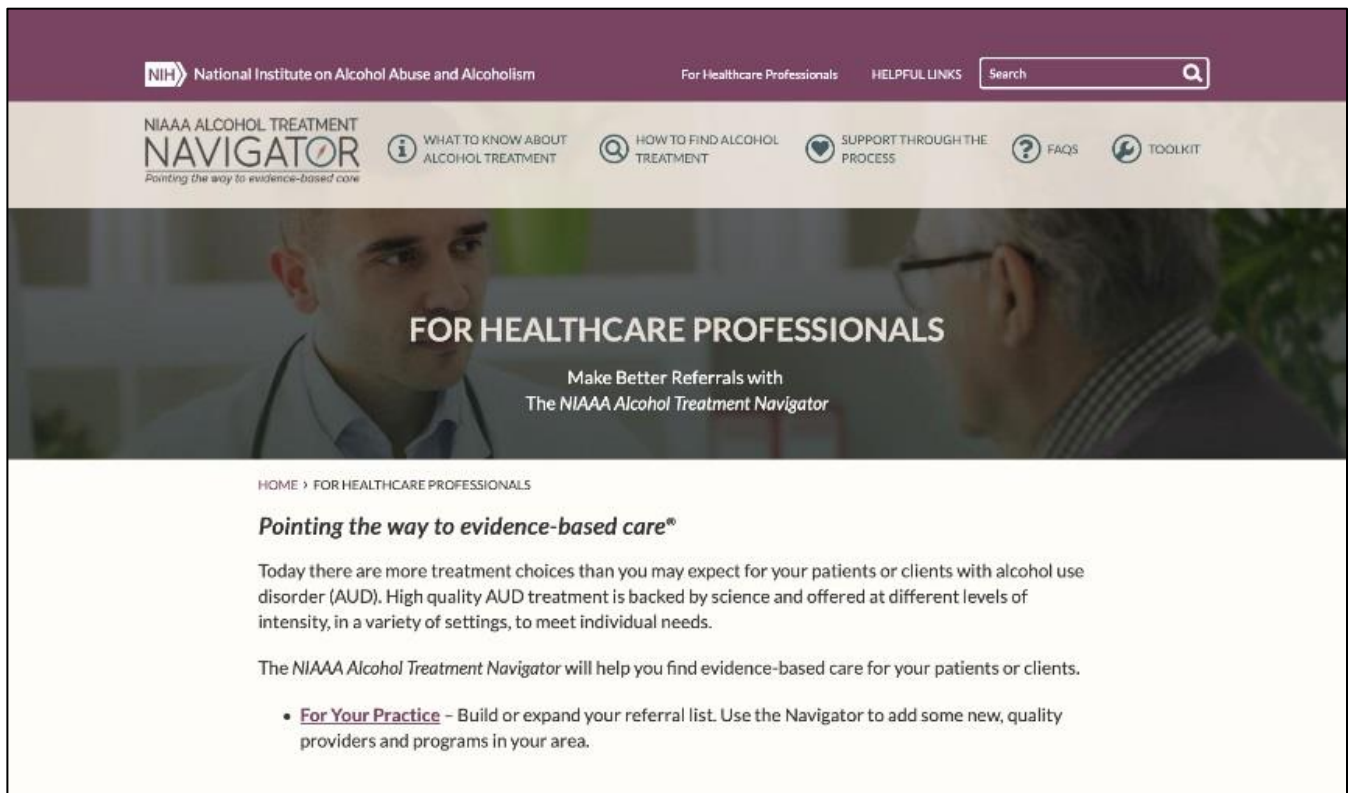
NOTEWORTHY

### NIAAA OVERDOSE FACTSHEET NOW AVAILABLE IN SPANISH

NIAAA recently released *Entender los riesgos de sobredosis de alcohol* (<https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/entender-los-riesgos-de-sobredosis-de-alcohol>), a Spanish-language version of *Understanding the Dangers of Alcohol Overdose* (<https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/understanding-dangers-of-alcohol-overdose>). This is the first in a planned series of translations of NIAAA's factsheets.

You can view and download additional NIAAA materials in Spanish at <https://www.niaaa.nih.gov/publicaciones-en-español>.

## NOTEWORTHY



## NEW PORTAL FOR HEALTHCARE PROFESSIONALS ON THE NIAAA ALCOHOL TREATMENT NAVIGATOR

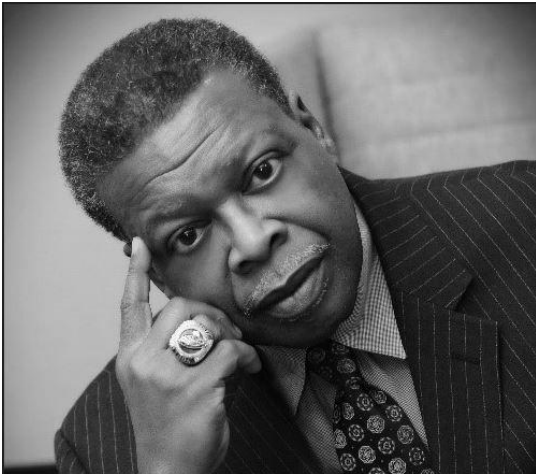
A new portal for healthcare professionals (<https://alcoholtreatment.niaaa.nih.gov/healthcare-professionals>) to “Make Better Referrals with the NIAAA Alcohol Treatment Navigator” is now live. This portal was designed with input from primary care practitioners and will help clinicians build or expand their referral lists to include providers offering up-to-date, science-based alcohol use disorder treatments that meet the varied needs of their patients. It also provides tips for sharing the Navigator directly with patients or their loved ones who wish to search on their own. The portal offers:

- A brief video introduction to the Navigator
- A Navigator user guide for healthcare professionals
- A fillable referral sheet form framed by types of providers
- Clinical guides
- Patient handouts

5 QUESTIONS WITH . . .

LOUIS E. BAXTER, SR., M.D.

*Chief Executive Officer and Executive Medical Director of the Professional Assistance Program of New Jersey, Inc. (PAPNJ)*



**1** You are the founder, CEO, and Executive Medical Director of the Professional Assistance Program of New Jersey, Inc. Would you please give us a brief description of your organization’s work and how alcohol treatment is part of it?

The mission of the PAPNJ is to provide services to protect the safety and welfare of the citizens of New Jersey through education, identification, evaluation, treatment planning, and advocacy for licensed healthcare and other professionals in recovery from impairing medical conditions and illnesses. According to our estimates, there may be more than 20,000 impaired healthcare professionals in the state. The PAPNJ is the solely approved program in the state of New Jersey to manage physician and other healthcare professional impairment. The PAPNJ manages all manners of impairment, including drug, alcohol, psychiatric, and behavioral conditions. Alcohol use is involved in more than 70 percent of all our cases.

**2** Over the course of your long career, you’ve seen many scientific advances in the alcohol research field. What developments in diagnosis and treatment of alcohol use disorder [AUD] do you find most significant?

I have been involved in drug and alcohol treatment for more than 30 years, and over that time there have been significant changes and developments in the diagnosis, treatment, and monitoring of AUD. Thanks to the efforts of NIAAA and other governmental research efforts, AUD has been proven to be a chronic medical brain disease that is influenced by genetic and environmental factors. The aforementioned has resulted in more accurate diagnosis and development of medications to assist in the treatment of AUD.

The finding that AUD is a chronic medical disease has led to the chronic medical model of treatment for AUD and co-occurring conditions. Specifically, we now understand that successful treatment and outcomes depend upon long-term rather than short-term management and that interventions are required. Recovery from AUD is a lifetime endeavor. The development of three FDA- [U.S. Food and Drug Administration] approved medications, i.e., disulfiram, naltrexone, and acamprosate, has allowed for individuals to obtain and maintain abstinence. Together, medications as well as behavioral therapies have significantly improved the outcomes of success for a large number of patients who are appropriately diagnosed, treated, and monitored.

**3** February is Black History Month—what are your thoughts about improving alcohol-related health outcomes among African-American communities?

There is a tremendous opportunity to improve diagnosis and treatment outcomes for AUD among African Americans. This largely depends on enhanced education and application of evidence-based diagnostic and treatment approaches for this group of patients. Both patients and health practitioners need to be the targets of alcohol education.

Currently, the lack of alcohol education among patients and practitioners has led to this documented disparity of care and successful outcomes among African Americans and other minorities.

Black History Month is a perfect time to kick off more intense involvement of organizations, both public and private, in the African-American community to focus on getting the education, new interventions, and developments dispersed throughout places of worship and educational and medical training institutions. This effort would be vitally important in reducing the current healthcare disparities we see in the African-American community and other minority communities today.

## 4 This is NIAAA's 50th anniversary year. As a member of the Institute's National Advisory Council, how would you summarize NIAAA's contributions to the alcohol research field over the last five decades?

As this is NIAAA's 50th anniversary, it is important to review and highlight some of the Institute's major accomplishments. NIAAA has established the recognition that alcohol and its use is a major cause of many health-related problems. Alcohol has been found to be a leading cause of morbidity and mortality in this nation. Alcohol use and misuse has in most cases been a confounding contributor to chronic and acute medical conditions. NIAAA has done wonders in terms of providing treatment information to patients and providers through its development of the NIAAA Alcohol Treatment Navigator.

## 5 Looking ahead, are there any alcohol research advancements on the horizon that particularly interest you?

Many alcohol research opportunities by NIAAA lie ahead that will improve our abilities as providers to diagnose, appropriately treat, and monitor AUD in the future. The effort to better screen and predict AUD is very promising in the genetics research supported by NIAAA. As we learn more about the neurobiology of addiction in general, and alcohol specifically, more targeted medications and counseling protocols can be developed to effectively treat and combat the ravages of alcohol misuse and AUD. These ongoing research initiatives will help in the screening and prevention of AUD, as well as diagnostic and treatment outcomes—endeavors that we do desperately need.

### ABOUT US

*NIAAA Spectrum* is NIAAA's triannual webzine. With engaging feature articles, short news updates, and colorful graphics, *NIAAA Spectrum* offers accessible and relevant information on NIAAA and the alcohol research field.

### CONTACT US

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