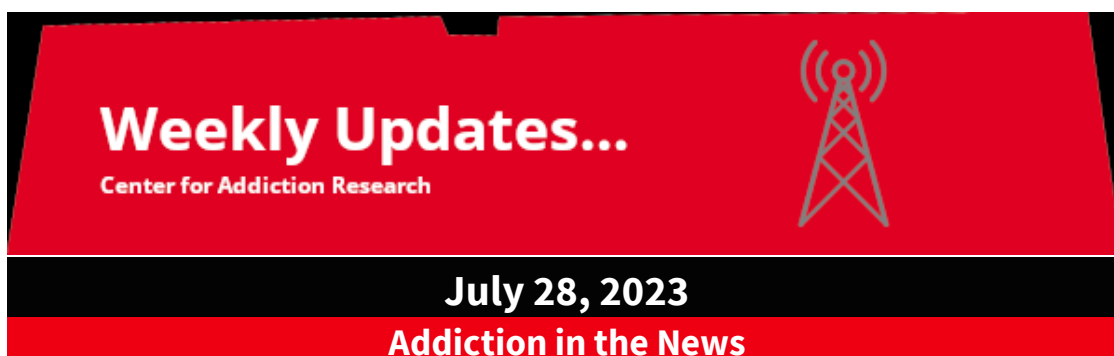


Welcome to the weekly newsletter from the Center for Addiction Research! Each newsletter includes highlights from addiction in the news topics, active funding opportunities offered by NIDA/NIAAA, and information about any new publications from CAR members. Please email Jen Rowe (roweji@ucmail.uc.edu) to change your communication preferences. Thank you.

Thank you for your interest in the Center for Addiction Research - our mission is to accelerate scientific progress in the prevention and treatment of substance use disorders and their consequences by fostering research collaborations across: 1) UC departments, colleges, and centers including Cincinnati Children's Hospital Medical Center; 2) Local, regional, and state community and governmental partners; and 3) Other academic institutions and industry."



UC/ Regional News

Center for Addiction Research Upcoming Summer Speaker Series

Back by popular demand, the Center for Addiction Research will hold its final 2023 virtual Summer Speaker Series event, Wednesday, August 9 at 12pm on "Examining Substance Use Around the Timing of Pregnancy from a Health Equity and Patient-Centered Perspective". The series is sponsored by Center for Clinical & Translational Science & Training. [\(pdf invitation attached\)](#)

>> Register for the presentation

Hamilton County Public Health is hosting an upcoming webinar:

"An Open Discussion and Q & A Session About Harm Reduction Efforts in Hamilton County, OH"

When: Thursday, August 24th from 1:00-2:00 pm ET

Register:

Summary:

Hamilton County Public Health in Cincinnati, OH is dedicated to helping our community during the addiction crisis. Substance use can lead to an increase in hepatitis, HIV, and sexually transmitted infections. HCPH's Harm Reduction program is here to offer compassion, education, and resources to the community. Harm Reduction is a community framework that tries to remove negative consequences related to drug use. Our program offers a comprehensive,

community-based program that provides disease prevention, education, and referral services, including:

- Substance use education,
- Referral for pregnancy testing and sexual healthcare
- Linkage to care to providers for medical, mental health, and addiction treatment services.

During this webinar, you will hear from Darci Smith, the Director of the Division, as well as other critical members of the team and learn more about their specific programs. We hope you can join us for this Hamilton County Public Health OD2A Peer-to-Peer Webinar and participate in this vital conversation.

LEARNING OBJECTIVES:

1. Participants will be able to describe the need for innovative harm and risk reduction efforts in large townships and communities.
2. Participants will be able to ask questions about all the harm reduction services HCPH provides in an open forum setting.

KY commission hears from experts on promise of psychedelic to treat opioid addiction

Karen Butcher, whose son died in 2020 of an opioid overdose, asked a panel of experts on Monday in Frankfort: If cost wasn't a factor, why shouldn't Kentucky explore the use of an illicit psychedelic drug as a treatment for opioid addiction? "If money wasn't an issue . . . knowing this crisis has been around for so long, why would we not want to investigate this as a viable treatment?" Butcher said, seated alongside other members of the Kentucky Opioid Abatement Advisory Commission. Butcher posed the question to Dr. Kenneth Alper, a neuropsychiatrist; Dr. Deborah Mash, a cellular and molecular pharmacologist; Dr. Srinivasa Rao, a neurobiologist and neuropharmacologist; and Dr. Nolan...

Greenberg: Louisville will receive millions in funding to fight impact of opioid addiction

LOUISVILLE, Ky. — Mayor Craig Greenberg announced the city of Louisville will receive millions of dollars of funding to fight the impact of opioid addiction. This money comes from legal settlements with opioid distributors, dispensers and manufacturers. Greenberg said according to the Kentucky Office of Drug Control Policy, Louisville lost more than 500 people last year to overdose. "Over one person everyday is dying as a result of an overdose and substance addiction," he said. "One of the biggest reasons for all of those deaths is opioids and the impact of opioids like fentanyl goes beyond the deaths. It wrecks lives and families and contributes to challenges like homelessness and public...

Ross County Sheriff's Office receives grant to fight drug trafficking

COLUMBUS, Ohio — The Ross County Sheriff's Office will receive grant funding from the governor's office in the amount of \$61,435 to help fight drug trafficking in the

county. The funding, which comes from Governor DeWine's RecoveryOhio Law Enforcement Fund, will be used to identify high-level drug traffickers, dismantle large drug trafficking organizations, interrupt the flow of money and drugs from international cartels, and prevent the sale of illegal narcotics to those suffering from substance use disorder. "Illegal drugs harm too many Ohioans every year, and these grant funds will ensure that the state's drug task forces can continue their daily battle to push back against this scourge..."

Northeast Ohio has a head start in spending millions of opioid settlement money

As states, counties and cities nationwide decide how to spend hundreds of millions of dollars from legal settlements with opioid distributors and producers, Northeast Ohio got a head start, and has spent years increasing efforts to mitigate the worst drug crisis in U.S. history. The opioid epidemic still persists, and those on its front lines are focused on finding the best sustainable uses of the finite funding. Cuyahoga and Summit counties were among the first to allege in a lawsuit that drugmakers and distributors misrepresented the addictive risks of prescription painkillers, arguing the companies were dishonest...

Indiana police ask state to revoke license of treatment center where 3 patients died within a week

MISHAWAKA, Ind. — Northern Indiana police have asked state officials to revoke the license of an addiction treatment center where three patients recently died within a week, saying that the less than year-old center is endangering its residents and placing a strain on law enforcement. The St. Joseph County Police Department said in a letter to state officials that Sheriff Bill Redman wants the Indiana Division of Mental Health and Addiction to investigate Praxis Landmark Recovery's 160-bed facility and requests that its license be revoked, the South Bend Tribune reported. "The facility is a large drain on our county first responder resources and is harmful to its patients and our community," county...

National News

Gene group influencing pain and brain communication can also influence alcohol use disorder risk

An estimated 16 million people in the United States have alcohol use disorders (AUDs), according to the National Institutes on Alcohol Abuse and Alcoholism (NIAAA). Now, Indiana University researchers have made a substantial discovery about the role genes play in the development of AUDs, finding that alteration of a group of genes known to influence neuronal plasticity and pain perceptions, rather than single gene defect, is linked to AUDs. "We know inherited genes are a major contributor to this disease, because past studies have shown family genetics to be directly associated with alcohol dependence..."

Primary care doctors face barriers in treating alcoholism

Researchers explored how primary care physicians who have some familiarity with medications for alcohol use disorder (MAUD) make prescribing decisions and identify reasons for the underuse of MAUD in primary care. They interviewed 19 primary care physicians who had recently prescribed MAUD to patients in an outpatient setting. These physicians were selected from a large online database of medical professionals. Participating physicians reported several challenges in prescribing MAUD: (1) they had somewhat negative personal beliefs about the effectiveness of medications and the likelihood...

Deep brain stimulation may help those with treatment-resistant alcohol use disorder

A new study published in Translational Psychiatry explores deep brain stimulation (DBS) in treating alcohol use disorder. The results of the study indicate that DBS may be a beneficial treatment for those with treatment-resistant alcohol use disorder. While the study didn't show significant results in terms of continuous abstinence, it did indicate that DBS might help reduce symptoms associated with alcohol use disorder, such as abstaining from alcohol more often, reducing cravings, and lessening anhedonia. Alcohol use disorder is a chronic and relapsing disorder that affects millions of people worldwide. Despite...

Alcohol, substance misuse causes brain changes, reducing 'cognitive flexibility'

"Cognitive flexibility" involves adapting to changes in circumstances to achieve favorable outcomes. Certain substances influence cognitive flexibility, and researchers are still working to understand the interactions and changes that occur. A recent study explored the link between reduced cognitive flexibility and the use of alcohol and cocaine. The data offered vital insight into the underlying neural pathways involved in these brain changes. The relationship between the brain and certain addictive substances is still not fully understood. Researchers are still seeking to understand the complexity and...

Excessive drinking during the pandemic increased alcoholic liver disease death rates

Excessive drinking during the COVID-19 pandemic increased alcoholic liver disease deaths so much that the condition killed more Californians than car accidents or breast cancer, a KFF Health News analysis has found. Lockdowns made people feel isolated, depressed, and anxious, leading some to increase their alcohol intake. Alcohol sales rose during the pandemic, with especially large jumps in the consumption of spirits. While this led to a rise in all sorts of alcohol-related deaths, the number of Californians dying from alcoholic liver disease spiked dramatically, with 14,209 deaths between 2020...

Use of law enforcement strategies to curb underage drinking has decreased over past decade: Study

Despite the harm that excessive alcohol consumption can cause in a community, use of some alcohol-related enforcement strategies remained low or decreased from 2010 to 2019, according to a new report in the Journal of Studies on Alcohol and Drugs. In particular, researchers found a drop in enforcement of underage drinking laws. Researchers at the University of Minnesota first surveyed 1,028 county and municipal law enforcement agencies throughout the United States in 2010 about their practices regarding three factors to alcohol harms in communities: underage drinking, impaired driving and...

Researchers find Korean Red Ginseng may alleviate addictive effects of alcohol

Alcohol is one of the most commonly used psychoactive drugs, with a growing number of users in many parts of the world. Despite the awareness regarding its adverse effects, individuals can get habituated to alcohol consumption, leading to a medical condition called alcohol use disorder (AUD). AUD is characterized by the abuse, dependency, and addiction of alcohol, leading to compromised social responses and interactions of the individual. Moreover, it impairs spatial working memory (memory that allows us to orient ourselves to our surroundings) and causes neuroinflammation—an inflammatory...

Marijuana use linked to epigenetic changes

Recent and long-term marijuana use is linked to changes in the human epigenome, a new Northwestern Medicine study published in Molecular Psychiatry has found. Marijuana is the most used drug in the United States, according to the Centers for Disease Control and Prevention, with roughly 48.2 million people (about 18% of all Americans) having used it at least once in 2019, the most recent year for which data is available. Although multiple states have legalized marijuana, the health consequences of marijuana use are not well understood, said Lifang Hou, MD, Ph.D., chief of Cancer Epidemiology and...

Cannabis poisonings rise after legalization, new review concludes

A new meta-analysis published by Addiction has found that cannabis legalization is associated with increased rates of cannabis poisoning. The risk of cannabis poisoning was higher among studies that focused on children. Cannabis poisoning occurs when too much cannabis is consumed at one time. The effects of cannabis poisoning include lethargy, drowsiness, dizziness, hypertension, palpitations, tachycardia (elevated heart rate), nausea, vomiting, irritability, agitation, coma, and slowing of the central nervous system. Cannabis use in children (usually inadvertent) is of particular concern as...

Cigarette smokers more at risk for tobacco dependence than users of smokeless tobacco, multiple tobacco products: Study

Cigarette smokers have higher odds of tobacco dependence than those who vape or use a variety of types of tobacco products, according to a Mount Sinai study published in July in *Nicotine & Tobacco Research*. The findings suggest that tailored tobacco cessation programs are needed for people with different tobacco use habits. The researchers identified three clear types of tobacco users: those who predominantly smoke cigarettes, those who predominantly use smokeless tobacco, and those who predominantly use a combination of cigarettes, e-cigarettes, and cigars. This discovery is important for tailoring tobacco use reduction and cessation programs to have better success. For...

Researchers find behavioral economics strategies can help patients quit smoking after a cancer diagnosis

Researchers from Children's Hospital of Philadelphia (CHOP) and the Perelman School of Medicine at the University of Pennsylvania have found that cancer patients who continued to smoke after their diagnosis were significantly more likely to receive treatment for tobacco use when "nudges" to provide tobacco treatment were directed at clinicians through the electronic health record. The findings strengthen the case for using behavioral economics, or targeting predictable patterns in human decision-making to overcome barriers to changes in behavior, to improve outcomes for patients treated for cancer. The...

Current evidence identifies health risks of e-cigarette use, long-term research needed

Research increasingly reveals health risks of e-cigarette use, and more studies are needed about the long-term impact e-cigarettes may have on the heart and lungs, according to a new scientific statement from the American Heart Association published in the journal *Circulation*. The statement, "Cardiopulmonary Impact of Electronic Cigarettes and Vaping Products," details the latest usage data and trends, identifies current health impacts, highlights existing basic and clinical scientific evidence surrounding e-cigarettes and recommends research priorities to further understand the short- and long-term health...

4.5 percent of U.S. adults used electronic cigarettes in 2021

In 2021, 4.5 percent of U.S. adults were electronic cigarette (e-cigarette) users, according to a July data brief published by the U.S. Centers for Disease Control and Prevention National Center for Health Statistics. Ellen A. Kramarow, Ph.D., and Nazik Elgaddal, from the National Center for Health Statistics in Hyattsville, Maryland, used data from the 2021 National Health Interview Survey to describe the percentage of adults who currently use e-cigarettes by sociodemographic characteristics. The authors also examined dual use of e-cigarettes and cigarettes. The researchers found that 4.5 percent of adults aged...

For over 1 in 10 young U.S. adults, vaping is a regular habit

About 11% of young adults in the United States now actively use electronic cigarettes, the U.S. Centers for Disease Control and Prevention says in a new report. The report, from CDC's National Center for Health Statistics, adds to growing concerns about the harms of vaping. Overall, about 1 in 20 adults are e-cigarette users, with young adults (aged 18 to 24) vaping most frequently, according to the report. "If e-cigarettes were being used as we would hope, the only people who should use them are those who are using them to quit smoking," said Dr. Joanna Cohen, director of the Institute for Global Tobacco...

E-Cigarettes Are Still Flooding the US, Addicting Teens With Higher Nicotine Doses

Kaiser Health News — When the FDA first asserted the authority to regulate e-cigarettes in 2016, many people assumed the agency would quickly get rid of vapes with flavors like cotton candy, gummy bears, and Froot Loops that appeal to kids. Instead, the FDA allowed all e-cigarettes already on the market to stay while their manufacturers applied for the OK to market them. Seven years later, vaping has ballooned into an \$8.2 billion industry, and manufacturers are flooding the market with thousands of products — most sold illegally and without FDA permission — that can be far more addictive. "The...

Study examines insurance barriers to access opioid addiction medication

In 2021, more people died from opioid overdoses in the U.S. than any other year in history, according to data from the U.S. Centers for Disease Control and Prevention. However, a new University of Central Florida study recently published in Health Affairs shows that one of the most effective medications for treating opioid addiction is one of the least covered by insurance plans often used by patients with substance use disorder. Researchers found that although most plans covered the immediate-release sublingual form of buprenorphine, extended-release buprenorphine injections were covered by less...

Study shows differences in how patients with heroin use disorder process drug and reward cues

An Icahn School of Medicine at Mount Sinai study sheds new light on some of the underlying neurobiological mechanisms of opioid addiction, which accounted for three-quarters of the more than 100,000 fatal drug overdoses in the United States in 2021. The Mount Sinai researchers found that inpatients with heroin use disorder exhibited a bias in favor of processing drug cues over cues related to natural, non-drug rewards, as observed during passive viewing of the cues and when the patients were asked to try two emotional regulation strategies. Results of the study were published in the July 12 issue...

Hepatitis cases and heart valve infection deaths tied to early OxyContin marketing

Decades after Purdue Pharma began to push physicians to prescribe addictive pain pills, the opioid crisis has been a slow-motion disaster, with overdoses destroying lives and families across the country. Now, it appears the consequences of those early marketing efforts are even more devastating. In a new study, researchers at the Yale School of Public Health show that infectious disease rates in the United States also climbed as a direct long-term result of the marketing of OxyContin. By comparing U.S. states that saw heavier OxyContin promotion with states that experienced less, the Yale study shows for the first...

Providers still hesitate to prescribe buprenorphine for addiction, despite 'X-waiver' removal

Significant challenges remain before most American clinicians feel comfortable treating patients with buprenorphine, according to a new study. While the federal government's recent moves to deregulate buprenorphine have led to a bump in new prescribers, it didn't lead to a significant bump in overall prescribing volume. Many health care providers still see prescribing buprenorphine as difficult, or simply have little interest in using the medication, according to the study. The research, published Friday in JAMA Health Forum, underscores two major challenges: allowing U.S. health care providers to...

Washington doctors detail pros, cons of fentanyl addiction treatment methods

There was a time, not long ago, when doctors had national protocols for using a leading opioid treatment drug. Heroin was the opioid king then, and it was fairly smooth to transition patients onto the medication buprenorphine, usually given as Suboxone, which reduces cravings for illicit opioids. Far trickier has been starting the medication with patients using fentanyl, a drug up to 50 times as powerful as heroin that's taken over the opioid market in the last several years. Fentanyl's unique properties can send those starting buprenorphine into an agonizing state of sudden, or "precipitous," withdrawal...

Senator holds fentanyl round table as WA becomes overdose epicenter

Why is Washington the epicenter of the fentanyl crisis? U.S. Sen. Maria Cantwell posed the question at a Seattle round table she convened Monday about the deadly drug, where speakers talked about innovations happening locally and the challenges that lay ahead. The senator pointed to Centers for Disease Control and Prevention numbers showing the state had the biggest increase in the nation—more than 21%—in fatal overdoses reported between February 2022 and February 2023. One big reason, explained Robert Hammer, a Homeland Security Investigations special agent in charge of the Pacific...

Blocking glutamate release reduces oxycodone intake and seeking behavior

Over the last decade, opioid abuse and overdoses have reached epidemic proportions in the United States. Now, Scripps Research scientists show that a drug that activates metabotropic glutamate 2 receptors in the brain can reduce oxycodone intake and drug-seeking behavior in an animal model of opioid use disorder (OUD). Importantly, the drug was able to reduce oxycodone intake and relapse without disrupting other reward responses in the brain, which could result in negative side effects. The team published their findings on July 20, 2023, in the journal *Neuropharmacology*. OUD is estimated to impact more...

More rapid increase seen in rate of OD deaths involving cocaine plus opioids

The age-adjusted rate of overdose deaths involving cocaine and opioids increased more quickly from 2011 to 2021 than the rate of overdose deaths involving cocaine alone, according to a July data brief published by the U.S. Centers for Disease Control and Prevention National Center for Health Statistics. Merianne Rose Spencer, M.P.H., from the National Center for Health Statistics in Hyattsville, Maryland, and colleagues examined trends in death rates involving cocaine and psychostimulants with and without opioid co-involvement from 2011 through 2021 using data from the...

New research sheds light on the neural basis of cocaine addiction

A recent study found that the initial sensitivity of neurons to cocaine in a brain region known as the nucleus accumbens shell can predict future increases in cocaine intake. These individual differences in neuronal sensitivity may have implications for understanding addiction susceptibility and developing personalized treatments or preventive measures. The new findings have been published in the journal *Addiction Neuroscience*. The researchers conducted this study to investigate why only a subset of individuals who try drugs like cocaine develop problematic use and addiction. They aimed to understand the underlying differences in neuronal processing that predict drug abuse...

Growing evidence supports prescribing psychostimulants for people at risk of overdose, say researchers

Growing evidence supports prescribing psychostimulant medications to help reduce use of illegal stimulants such as methamphetamine, authors write in a *CMAJ* (Canadian Medical Association Journal) commentary. Illegal stimulant use is rising, judging by the presence of these drugs in at least half of all opioid deaths in Canada in 2022. Following evidence from clinical trials in Australia, Europe and the United States, physicians and nurse practitioners in Canada and other countries are increasingly prescribing psychostimulants as harm reduction for stimulant use disorder. "This emerging evidence can...

Study: Gastric bypass surgery associated with non-alcohol substance use disorder

Researchers have discovered a link between gastric bypass surgery and an increased risk of non-alcohol substance use disorder, according to a new study in Obesity. "The current study shows that non-alcohol substance use disorder was 2.5 times more common after gastric bypass surgery compared with controls receiving usual obesity care, but the total number of patients having non-alcohol substance use disorder was overall low. Health care professionals should consider the risk of non-alcohol substance use disorder in the care of patients treated with gastric bypass surgery," said Professor...

A Fabulous New Tool for Managing Substance Withdrawal in Jails

The Department of Justice (DOJ) recently released "Guidelines for Managing Substance Withdrawal in Jails -- A Tool for Local Government Officials, Jail Administrators, Correctional Officers, and Health Care Professionals." Spoiler Alert: This is a fabulous document that is going to cause seismic change and improve the way patients are treated for withdrawal in U.S. jails. You should read it even if you do not work in a jail. I had been an emergency department (ED) doctor for 15 years when I was asked to provide medical care to the local jail. I had no idea of the different world I was walking into. Take...

The painful legacy of 'law and order' treatment of addiction in jail

Megan Dunn, who has struggled with addiction since her teens, points to the moment her life went "deeply downhill." After dropping out of high school, she gave birth at age 19 to a son she named Preston. Six weeks later, Dunn said, he died of sudden infant death syndrome. From then on, I went into this, like, PTSD, depression," said Dunn, now 28. Shortly after the baby's death, Dunn said, she started using pain pills again. Eventually, she said, she was arrested on charges related to her illicit drug use, such as trespassing. She said she has had more than 30 stays in Walker County's jail, a brick building in...

Aromatherapy could help substance use disorder patients, study finds

Aromatherapy eases stress in people undergoing treatment for substance use disorder which, in turn, could enhance their chances of a successful recovery, according to West Virginia University research. The study, which is ongoing, incorporates the use of essential oils as an integrative therapy that is part of a bigger picture model focusing on the whole person. Researchers set out to determine whether the use of an aroma inhaler filled with bergamot essential oil produced an increase in comfort and ease, and a decrease in stress. For the study, comfort was defined as the experience of relief, while...

Hep C Infections in Pregnancy Skyrocketed Over the Past Two Decades

The prevalence of hepatitis C virus (HCV) infections in pregnant women increased 16-fold over a 21-year period, with associated higher risks of adverse perinatal

outcomes, according to a cross-sectional study. Among more than 70 million hospital admissions for childbirth or spontaneous abortion in the U.S. from 1998 through 2018, the prevalence of HCV-positive pregnancies increased from 0.34 (95% CI 0.26-0.41) cases per 1,000 pregnancies to 5.3 (95% CI 4.9-5.7) cases per 1,000 pregnancies, reported Po-Hung (Victor) Chen, MD, PhD, of Johns Hopkins University School of Medicine in Baltimore, and colleagues...

Hepatitis C Vaccine Is Essential for Expediting Elimination

The 2022 World Health Organization (WHO) report estimated 58 million people live with chronic hepatitis C, while approximately 40% of people are unaware of their infection. The hepatitis C virus (HCV) genome, discovered in 1989, is a spherical, enveloped, positive-strand RNA virus, and has many genotypes according to Simmonds genotyping system. A highly anticipated hepatitis C vaccine is currently under development and review in clinical trials. If deemed safe and effective, this will be an essential tool for eradicating hepatitis C and relieving its heavy disease burden. Globally, infectious diseases...

Near-Zero Risk of HIV Transmission With Low Viral Loads

BRISBANE, Australia – The risk of sexual transmission of HIV with viral loads of less than 1,000 copies per mL was almost zero, according to a meta-analysis and systematic review. In eight studies involving 7,762 serodiscordant couples across 25 countries, there were two cases of possible transmission among patients who had detectable viral loads that were under that threshold, reported Lara Vojnov, PhD, of the World Health Organization in Geneva, in a presentation at the International AIDS Society Conference on HIV Science (IAS). The findings were simultaneously published in *The Lancet*. In three studies, there...

Reduced loss aversion and altered functional connectivity in internet gaming disorder

Internet Gaming Disorder (IGD), a newly recognized form of behavioral addiction characterized by excessive involvement in online gaming, is gaining global attention as a significant public health issue. Mirroring other substance and behavioral addictions, previous studies have established that IGD patients suffer damage to delay discounting, a major aspect of value-based decision-making. However, the impact of another key aspect of value-based decision-making, loss aversion, is less understood in the context of IGD. A research team led by Professor Zhang Xiaochu from the University of Science and...

Funding Opportunities



GRANTS & FUNDING

NIH Central Resource for Grants and Funding Information

[RFA-DA-24-063](#)

[HEAL Initiative: Novel Targets for Opioid Use Disorders and Opioid Overdose \(R01 Clinical Trial Not Allowed\)](#)

[RFA-DA-24-064](#)

[HEAL Initiative: Novel Targets for Opioid Use Disorders and Opioid Overdose \(R21 Clinical Trial Not Allowed\)](#)

[RFA-DA-25-019](#)

[Ending the Epidemic: New Models of Integrated HIV/AIDS, Addiction, and Primary Care Services \(R01 Clinical Trial required\)](#)

[RFA-DA-25-020](#)

[Ending the Epidemic: New Models of Integrated HIV/AIDS, Addiction, and Primary Care Services \(R34 Clinical Trial optional\)](#)

[RFA-DA-25-014](#)

[Microglial Pathophysiology in Comorbid Substance Use Disorder \(SUD\) and HIV \(R61/R33 Clinical Trial Not Allowed\)](#)

[NOT-AA-23-016](#)

[Notice of Request for Letters of Interest: NIAAA Alcohol Pharmacotherapy Evaluation Program \(APEP\)](#)

CAR Member New Publications

MRI Findings in Third-Trimester Opioid-Exposed Fetuses, With Focus on Brain Measurements: A Prospective Multicenter Case-Control Study

Usha D Nagaraj, Beth M Kline-Fath, Bin Zhang, Jennifer J Vannest, Xiawei Ou, Weili Lin, Ashley Acheson, Karen Grewen, P Ellen Grant, Stephanie L Merhar

American Journal of Roentgenology

DOI: [10.2214/ajr.22.28357](https://doi.org/10.2214/ajr.22.28357)

ABSTRACT

BACKGROUND: The opioid epidemic has profoundly affected infants born in the United States, as in utero opioid exposure increases the risk of cognitive and behavioral problems

in childhood. Scarce literature has evaluated prenatal brain development in fetuses with opioid exposure in utero (hereafter opioid-exposed fetuses).

OBJECTIVE: The purpose of this study is to compare opioid-exposed fetuses and fetuses without opioid exposure (hereafter unexposed fetuses) in terms of 2D biometric measurements of the brain and additional pregnancy-related assessments on fetal MRI.

METHODS: This prospective case-control study included patients in the third trimester of pregnancy who underwent investigational fetal MRI at one of three U.S. academic medical centers from July 1, 2020, through December 31, 2021. Fetuses were classified as opioid exposed or unexposed in utero. Fourteen 2D biometric measurements of the fetal brain were manually assessed and used to derive four indexes. Measurements and indexes were compared between the two groups by use of multivariable linear regression models, which were adjusted for gestational age (GA), fetal sex, and nicotine exposure. Additional pregnancy-related findings on MRI were evaluated.

RESULTS: The study included 65 women (mean age, 29.0 ± 5.5 [SD] years). A total of 28 fetuses (mean GA at the time of MRI, 32.2 ± 2.5 weeks) were opioid-exposed, and 37 fetuses (mean GA at the time of MRI, 31.9 ± 2.7 weeks) were unexposed. In the adjusted models, seven measurements were smaller ($p < .05$) in opioid-exposed fetuses than in unexposed fetuses: cerebral frontooccipital diameter (93.8 ± 7.4 vs 95.0 ± 8.6 mm), bone biparietal diameter (79.0 ± 6.0 vs 80.3 ± 7.1 mm), brain biparietal diameter (72.9 ± 7.7 vs 74.1 ± 8.6 mm), corpus callosum length (37.7 ± 4.0 vs 39.4 ± 3.7 mm), vermis height (18.2 ± 2.7 vs 18.8 ± 2.6 mm), anteroposterior pons measurement (11.6 ± 1.4 vs 12.1 ± 1.4 mm), and transverse cerebellar diameter (40.4 ± 5.1 vs 41.4 ± 6.0 mm). In addition, in the adjusted model, the frontooccipital index was larger ($p = .02$) in opioid-exposed fetuses (0.04 ± 0.02) than in unexposed fetuses (0.04 ± 0.02). Remaining measures and indexes were not significantly different between the two groups ($p > .05$). Fetal motion, cervical length, and deepest vertical pocket of amniotic fluid were not significantly different ($p > .05$) between groups. Opioid-exposed fetuses, compared with unexposed fetuses, showed higher frequencies of both breech position (21% vs 3%, $p = .03$) and increased amniotic fluid volume (29% vs 8%, $p = .04$).

CONCLUSION: Fetuses with opioid exposure in utero had a smaller brain size and altered fetal physiology.

CLINICAL IMPACT: The findings provide insight into the impact of prenatal opioid exposure on fetal brain development.

Psychometric Properties of the Prenatal Opioid Use Perceived Stigma Scale and Its Use in Prenatal Care

Carla M Bann, Jamie E Newman, Katherine C Okoniewski, Leslie Clarke, Deanne Wilson-Costello, Stephanie Merhar, Nicole Mack, Sara DeMauro, Scott Lorch, Namasivayam Ambalavanan, Catherine Limperopoulos, Brenda Poindexter, Michele Walsh, Jonathan M Davis

ABSTRACT

Objective: To examine the psychometric properties of the Prenatal Opioid Use Perceived Stigma (POPS) scale and to assess the relationship of POPS scores to adequate prenatal care.

Design: Prospective cohort study.

Setting: Medical centers in Alabama, Ohio, and Pennsylvania (N = 4).

Participants: Women (N = 127) who took opioids during pregnancy and whose infants participated in the Outcomes of Babies With Opioid Exposure Study.

Methods: Participants reported their perceptions of stigma during pregnancy by responding to the eight items on the POPS scale. We evaluated the instrument's internal consistency reliability (Cronbach's alpha), structural validity (factor analysis), and convergent validity (relationship with measures of similar constructs). In addition, to assess construct validity, we used logistic regression to examine the relationship of POPS scores to the receipt of adequate prenatal care.

Results: The internal consistency of the POPS scale was high (Cronbach's $\alpha = .88$), and all item-total correlations were greater than 0.50. The factor analysis confirmed that the items cluster into one factor. Participants who reported greater perceived stigma toward substance users and everyday discrimination in medical settings had higher POPS scores, which supported the convergent validity of the scale. POPS scores were significantly associated with not receiving adequate prenatal care, adjusted OR = 1.47, 95% confidence interval [1.19, 1.83], $p < .001$.

Conclusion: The psychometric testing of the POPS scale provided initial support for the reliability and validity of the instrument. It may be a useful tool with which to assess perceived stigma among women who take opioids, a potential barrier to seeking health care during pregnancy.

Keywords: delivery of health care; opioid-related disorders; pregnancy; pregnant women; prenatal care; prenatal drug exposure; psychometrics; scale development; social stigma; stigma.

