



This Week's Focus: Mitragynine Derivatives & Kratom Byproducts

This week, the NDEWS Weekly Briefing focuses on mitragynine derivatives and kratom-related byproducts. While surveillance has historically focused on naturally occurring alkaloids such as *Mitragynine speciosa*, recent monitoring indicates expanding interest in structurally related compounds, including *Mitragynine pseudoindoxyl* (MP), concentrated 7-hydroxymitragynine (7-OH), and a growing number of semi-synthetic analogs such as dihydro-7-hydroxymitragynine (MGM-15), which is derived from 7-OH.

These compounds are appearing across online platforms and being sold in brick-and-mortar shops with varying degrees of transparency regarding their chemical composition, intended use, and pharmacological properties. Their emergence reflects broader patterns observed in novel psychoactive substance markets, where chemical modification can lead to the rapid introduction of new products.

NDEWS Scientific Advisory Group member Christopher McCurdy first alerted NDEWS to the 7-OH derivative MGM-15 in July 2025. More recently, in April 2026, NDEWS Co-Investigator Elan Barenholtz noted reports of MGM-15 overtaking 7-OH in the marketplace. In the most recent Sentinel Site Director's report highlighting notable trends in the first quarter of 2026, NDEWS Co-Investigator and Sentinel Site Director Bruce Goldberger shared reports of increased detection of mitragynine-related substances in decedents, including MP and MGM-15 by state toxicologists in the state of Florida.

These increasing trends prompted an inquiry into putting together the latest NDEWS Web Monitoring Report and NDEWS Special Report. Together these reports and briefing provide ongoing situational awareness by summarizing observed trends.

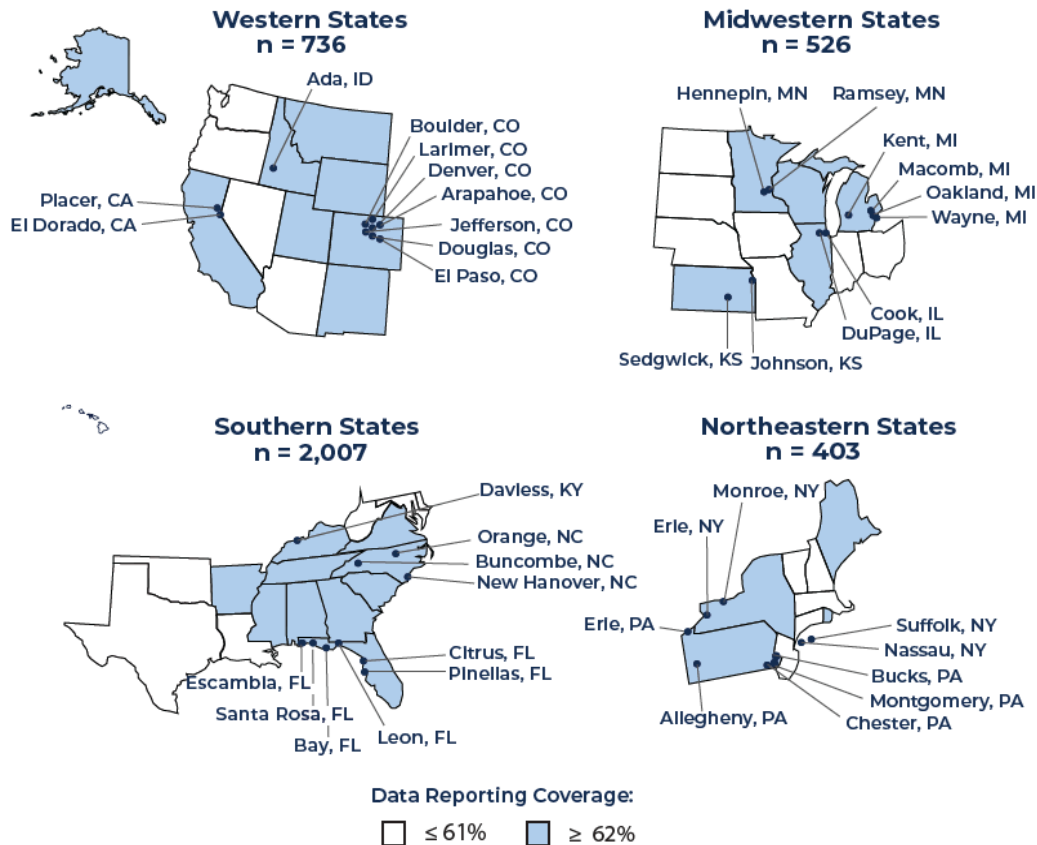
As a reminder, the next Our Community, Our Health NDEWS Webinar is scheduled to take place May 21, 2026 at 1 p.m. ET. Drug Enforcement Administration (DEA) Laboratory Director and NDEWS Scientific Advisory Group Member Dr. Agnes Winokur will present on orphines, Benzimidazol-2-ones, a class of potent synthetic opioids and designer drugs that have emerged in the US illicit drug market. [Register for the webinar here.](#)

As always, [we welcome your input.](#)

NDEWS ORIGINAL CONTENT

NDEWS Special Report: Top 10 US counties per region with the highest rates of EMS encounters involving nonfatal 7-OH, Mitragynine, or Kratom use per 10,000 population

**Top 10 US counties per region with the highest rates of EMS encounters involving nonfatal 7-OH, Mitragynine, or Kratom use per 10,000 population
January 1, 2023 - April 30, 2026**



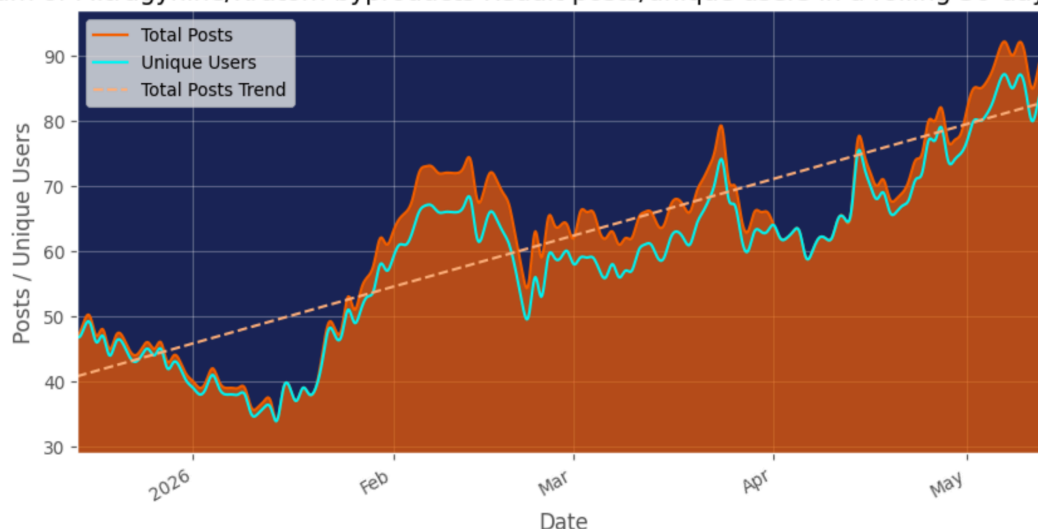
From January 1, 2023 to April 30, 2026, 3,672 suspected nonfatal overdose EMS encounters involving 7-OH, Mitragynine, or Kratom use were recorded nationally across 841 incident counties from 38 incident states. Regionally, 736 encounters occurred in Western states, 526 in Midwestern states, 2,007 in Southern states, and 403 in Northeastern states. Counties with ≥ 10 encounters are presented below as encounters per 10,000 population; counties with fewer than 10 encounters have been suppressed. [Read the full report here.](#)

[Click here to learn more about NDEWS Hotspot Alerts](#)

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Sum of Mitragynine/Kratom byproducts Reddit posts/unique users in a rolling 30-day window



Why are we reporting on this? Mitragynine derivatives and kratom-related compounds such as 7-hydroxymitragynine (7-OH), mitragynine pseudoindoxyl (MP), and semi-synthetic analogs like MGM-15 have become increasingly discussed in online forums and policy conversations due to their potency and evolving legal status. As of August 2025, legislative efforts in many states have proposed regulations or restrictions targeting specific kratom-derived compounds beyond mitragynine itself. At the same time, research institutions including Johns Hopkins University have initiated studies examining the effects, usage patterns, and pharmacology of these substances, reflecting growing scientific and regulatory interest in their emergence within the broader kratom market.

What are Mitragynine derivatives & kratom byproducts? Mitragynine derivatives and kratom byproducts are chemical compounds either naturally present in the *Mitragyna speciosa* (kratom) plant in trace amounts or synthesized from its primary alkaloids. This category includes 7-hydroxymitragynine, a potent mu-opioid receptor agonist, as well as more complex analogs like mitragynine pseudoindoxyl and MGM-15, which are often produced through chemical modification to enhance their pharmacological activity.

Public Health Impacts: Reddit discussants report significant concerns regarding the addictive potential and withdrawal profiles of high-potency kratom derivatives. Multiple commenters describe physical symptoms such as violent muscle spasms, excessive sweating, and "blackout" experiences

following the ingestion of concentrated analogs. There are frequent reports of individuals experiencing difficulty managing transitions between these substances and other research chemicals, with some mentioning the risk of precipitated withdrawal. Discussants also describe somatic discomfort including sore throats and respiratory issues, alongside concerns that these substances may be more reinforcing and harder to cease than traditional kratom leaf.

Previous Web Monitoring Reports on Kratom + Derivatives: [May 30, 2025](#)

Previous NDEWS reports on Kratom + Derivatives: [November 15, 2024](#),
[August 16, 2024](#), [June 21, 2024](#)

How is it Being Discussed? Reddit commenters frequently debate the pharmacological mechanisms of these compounds, specifically whether analogs like MGM-15 act as partial or full agonists at the mu-opioid and delta-opioid receptors. There is significant discussion regarding the potency of these byproducts compared to other research chemicals like ODSMT, with many seeking advice on how to transition between substances without losing efficacy or experiencing severe withdrawal. Discussants share experiences involving the combination of 7-OH or MGM-15 with other substances, including benzodiazepines, stimulants, and psychedelics, often noting that certain medications like alprazolam may blunt the desired effects. Online communities also provide a space for technical dialogue regarding the synthesis and stabilization of these alkaloids, including methods for creating specific salts and protecting indole rings during chemical reactions. Additionally, much of the discourse focuses on "Matthew Davenport's Law" and other regulatory actions that could criminalize these compounds, leading to a sense of urgency to obtain or increase personal supply among those who use these products for maintenance or recreational purposes.

[Click here to read more about NDEWS Online Monitoring.](#)

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Are you interested in learning more about our data from our Sentinel Site Directors? From EMS encounters? From the Rapid Street Reporting study? From our web monitoring? In networking and sharing your area's trends? Join

us for the 5th Annual Summit. It will be a [hybrid event on Saturday, June 13 from 2:00–6:00 PM PT](#) in conjunction with the 88th College on Problems of Drug Dependence (CPDD) Annual Scientific Meeting. Join us in person at the Oregon Convention Center or virtually via Zoom.

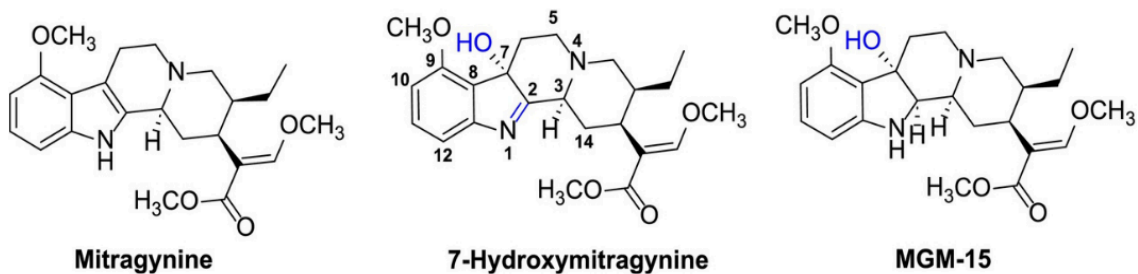


The agenda will feature updates from the NDEWS Coordinating Center and Early Warning Network, as well as presentations highlighting our latest publications and data. The program will also include dedicated time for an open-floor discussion for attendees to explore new partnership ideas, propose new research questions, and explore innovative approaches for data integration.

During CPDD, members of the NDEWS Coordinating Center and affiliates will present symposia and posters showcasing recent findings. While registration for the CPDD conference is not required to attend the NDEWS Summit, we encourage you to register and stay for what is the favorite conference for many of us.

RECENT PUBLICATIONS

From kratom to semi-synthetic opioids: The rise and risks of MGM-15



A recently published study in *Drug Testing & Analysis* led by Gour, co-authored by NDEWS Scientific Advisory Group member Christopher McCurdy, analyzed commercially available MGM-labeled tablets and subsequently evaluated the binding affinities of purified MGM-15 across multiple opioid receptors. Tablets contained an average range of 10.9 ± 0.2 mg (10.7 to 11.2 mg) of MGM-15, with no naturally occurring kratom alkaloids or illicit substances detected. The results showed that MGM-15 possessed greater human μ -opioid receptors and human δ -opioid receptor binding affinities than 7-HMG, indicating the potential for higher opioid effects and risks. [Read the full study here.](#)

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From kratom to 7-hydroxymitragynine: evolution of a natural remedy into a public-health threat



A recently published review in *Pharmaceutical Biology* by Alsbrook et al. examines how 7-hydroxymitragynine (7-OH) in kratom's natural form compares to the concentrated chemically enriched or semi-synthetic 7-OH products found in the US market. The review identified 2,216 unique records through database queries mentioning kratom and its alkaloids up until October 1, 2025. The authors noted that the evidence found demonstrated that concentrated 7-OH products are pharmacologically and toxicologically distinct from kratom leaf and pose significant risks. [Read the full study here.](#)

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CFSRE Report May 2026: Dihydro-7-Hydroxy Mitragynine (MGM-15)



cfsre

The Center for Forensic
Science Research & Education

A recently published report by *The Center for Forensic Science Research & Education* detailed the findings from forensic testing of newly marketed kratom-like products containing dihydro-7-Hydroxy Mitragynine (“MGM-15”) for notification to public health, public safety, clinicians, medical examiners, coroners, forensic laboratories, and other related communities. [Read the full report here.](#)

Additional CFSRE Reports:

- Test Purchase Report: [Mitragynine & 7-Hydroxy Mitragynine - May 2026](#)

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If you did not get a chance to give your feedback in our recent Weekly Briefing survey, please do so by clicking the link below to our Reader Response form! We believe that feedback is a gift!

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[Submit feedback anytime to
our Reader Response form](#)



NDEWS OPPORTUNITIES

Join the UF T32 Training Program in Substance Abuse and Public Health as a Pre or Postdoc! Work with the NDEWS Team!

ABOUT

Public health oriented training program

Focus on the epidemiology and prevention of substance use, its consequences and comorbidities

Mentoring mosaic approach expands guidance available to trainees

- Collaborate on current research
- Network with other trainees
- Participate in professional development
- Train in writing papers and grants
- Attend seminars by renowned experts
- Present at national conferences
- In person fellowship in Gainesville, FL - high quality of life and low cost of living



ELIGIBILITY & FUNDING

Predoctoral applicants must apply to the NIDA T32 and a participating PhD Program at UF

Postdoctoral applicants must have completed a doctoral-level degree

Applicants must be a US citizen, non-citizen national, or permanent resident

Funding includes an annual stipend, research/travel expenses, and insurance (and tuition for predoctoral trainees)

RESEARCH AREAS IN ADDICTION

- Adolescents (ABCD)
- Behavioral Interventions
- Data Science
- Monitoring and Surveillance Epidemiology (NDEWS)
- HIV/STD Risk Behaviors
- Neuro/Cognitive Science
- Pain
- Psychosocial Factors



INTERESTED?

Email: tmillay@ufl.edu

LEADERSHIP

Director
Linda B. Cottler, PhD, MPH, FACE

Co-Director
Sara Jo Nixon, PhD

Are you committed to advancing the science of substance use and public health? The University of Florida's NIDA-funded T32 Training Program offers predoctoral and postdoctoral scholars an exceptional opportunity to launch impactful research careers focused on NDEWS!

What We Offer:

- Interdisciplinary training at the intersection of addiction science, epidemiology, and surveillance
- Mentorship from leading UF faculty in epidemiology, public health, psychology, medicine, and more
- Hands-on research with landmark and important NIH-funded projects and access to rich data
- Career development support, including grant writing, publishing, and professional networking
- A collaborative, inclusive research community committed to reducing the burden of substance use

Eligibility:

- US citizens or permanent residents
- Interested in a PhD in Epidemiology, or early-stage postdoctoral fellows

- Demonstrated interest in substance use, addiction, or public health research

Location: Gainesville, Florida — a dynamic hub for scientific innovation with high quality of life and low cost of living.

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UPCOMING WEBINARS & EVENTS



The poster features a portrait of Agnes Winokur, PhD, on the left. To the right, the text reads: "OUR COMMUNITY OUR HEALTH TOWN HALL Orphines Thursday, May 21, 2026 1 PM ET". The background is dark blue with a network of glowing lines and dots.

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UF Clinical and Translational
Science Institute
UNIVERSITY of FLORIDA



Our Community, Our Health - NDEWS Webinar - May 21 at 1 PM

Laboratory Director and NDEWS Scientific Advisory Group Member Agnes Winokur has worked for the Drug Enforcement Administration (DEA) for more than 28 years in various roles (e.g., forensic chemist, supervisor, program manager). In this webinar Dr. Winokur will present on orphines, Benzimidazol-2-ones, a class of potent synthetic opioids and designer drugs that have emerged in the US illicit drug market.

 **Date:** Thursday, May 21, 2026

 **Time:** 1:00 pm - 2:00 pm ET

📍 **Location:** Virtually via Zoom

[Register for the webinar here.](#)

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Join us at the 5th Annual NDEWS Summit at CPDD

Dear friends of NDEWS,

Have you ever been to a College on Problems of Drug Dependence meeting? If not, you are missing an opportunity to learn about drugs from the bench to the community. Many of us have made lifelong friends by attending the annual meeting. This year, the conference will be held on 13 - 17, 2026 in delightful Portland, Oregon! If you have never been before and want to [learn more about the meeting and organization, click here.](#)

[Register for CPDD's 88th Annual Meeting here.](#)

We'd also love to see you at the Annual NDEWS Summit, which will be held as a hybrid event on Saturday, June 13 from 2:00–6:00 PM PT. While it is held in

conjunction with CPDD, registration for the CPDD conference is not required to attend the NDEWS Summit.

[Register for NDEWS Summit here.](#)

 **Date:** Saturday, June 13, 2026

 **Time:** 2:00 pm - 6:00 pm PT

 **Location:** In person at the Oregon Convention Center & Hyatt Regency Portland or virtually via Zoom.

We hope to see you there!

The NDEWS team

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ABOUT NDEWS

The NDEWS Weekly Briefing curates emerging data and findings from across the Early Warning Network, which includes three core components: our Scientific Advisory Group (SAG), comprised of national experts and federal partners; our Sentinel Site Directors (SSDs), who lead local surveillance in key geographic regions; and our Community-Based Health Experts, who provide on-the-ground insights from populations most impacted by drug trends. Together, these contributors generate timely, multidisciplinary and impactful information, ranging from peer-reviewed research findings to local surveillance data. These contributions inform public health and research communities.

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- [NDEWS Rapid Street Reporting \(RSR\) survey data reports](#)
- [NDEWS Web Monitoring Team Reddit Alerts](#)
- [NDEWS Sentinel Site Reports](#)
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