Kratom 101
What You Need to Know

Andrew Kolodny, MD

Medical Director, Opioid Policy Research Collaborative
Heller School for Social Policy & Management
Brandeis University

akolodny@brandeis.edu

Opioid Policy Research Collaborative

Presentation Overview

1. What Is Kratom?
2. Understanding Kratom’s Opioid Effects
3. Public Health Surveillance
4. Why Hasn't the Federal Government Banned Kratom?
5. Kratom’s Role on the Opioid Crisis

Opium Contains Codeine & Morphine



Kratom Contains Mitragynine



What is an Opioid

An opioid is a drug that binds to the Mu opiate receptor and activates the receptor.

Opioids can be:

1. Completely natural
2. Semi-synthetic
3. Synthetic

Semi-Synthetic Opioids

Made from Opium	Made from Kratom
Heroin	7-Hydroxymitragynine (7-OH)
Oxycodone	Mitragynine Pseudoindoxyl
Hydrocodone	MGM-15
Hydromorphone	MGM-16

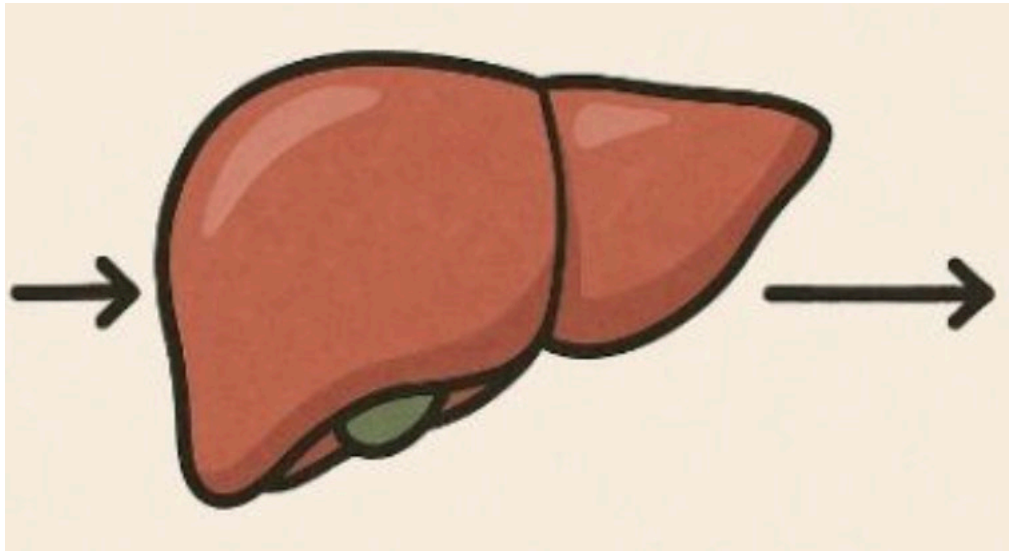


"Compounds in kratom make it so it isn't just a plant – it's an opioid."

U.S. Food and Drug Administration. *Statement from FDA Commissioner Scott Gottlieb, M.D., on the agency's scientific evidence on the presence of opioid compounds in kratom, underscoring its potential for abuse*. Silver Spring (MD): FDA; 2018 Feb 6

The Human Liver Converts Mitragynine to 7OH

Mitragynine



7OH

Kratom products for sale at a convenience store









Opioid Effects

- Increased energy
- Improved mood
- Increased motivation
- Talkativeness
- A sense of well-being
- Decreased anxiety
- Decreased pain

Opioid Effects

Tolerance – Needing a higher dose for the same effect

Dependence- Feeling sick when you stop using

Addiction- Continued use despite harm

Opioid Withdrawal Effects

- Increased sensitivity to pain
- Fatigue & lethargy
- Depressed mood
- Anxiety
- Flu-like symptoms
- Sense of “impending doom”

Two Reasons Why Opioids Are Highly Addictive

Taking an opioid produces positive effects, including decreased pain and anxiety and a sense of well-being

When taken daily, dependence sets in, causing withdrawal symptoms when use stops.

JOURNAL OF
Addiction Medicine
The Official Journal of the American Society of Addiction Medicine

Cite
Share
Favorites
Permissions

CASE REPORTS

Treatment of Kratom Withdrawal and Dependence With Buprenorphine/Naloxone: A Case Series and Systematic Literature Review

Weiss, Stephanie T. MD, PhD; Douglas, Heather E. MD

Author Information

Journal of Addiction Medicine 15(2):p 167-172, March/April 2021. | ***DOI:*** 10.1097/ADM.0000000000000721

BUY SDC

Journal of Neonatal-Perinatal Medicine
Volume 12, Issue 1, 2019, Pages 109-112
© 2019 – IOS Press and the authors. All rights reserved, Article Reuse Guidelines
https://doi-org.ezproxy.cul.columbia.edu/10.3233/NPM-1863

Case Report

Natural drugs, not so natural effects: Neonatal abstinence syndrome secondary to 'kratom'

L. Davidson[a], M. Rawat[a], S. Stojanovski[b], and P. Chandrasekharan[a,*]

BACKGROUND: Mitragyna speciosa, also known as kratom, is obtained from the coffee plant family 'Rubiaceae.' Kratom is available in the form of capsules, whole, processed and powdered leaves, and as liquids. Secondary to its 'natural herb' status and opioid effects, it is misconceived to be a safe alternative for the treatment of chronic pain. The use of kratom has increased by tenfold in the United States since 2010.

METHODS AND RESULTS: We report a term neonate who was born to a chronic kratom user and required treatment with opiates for neonatal drug withdrawal.

CONCLUSION: Physicians should be aware of these herbal supplements and its potential withdrawal effects in newborn which cannot be picked up by the standard toxicology screen.

Keywords

Kratom, NAS – neonatal abstinence syndrome

[a]Division of Neonatology, Department of Pediatrics, University at Buffalo, Oishei Children's Hospital, Buffalo, NY, USA
[b]Department of Pharmacy, Oishei Children's Hospital, Buffalo, NY, USA

Corresponding author(s):

[*]Address for correspondence: Praveen Chandrasekharan, Division of Neonatology, Department of Pediatrics, Oishei Children's Hospital, University at Buffalo, 818 Ellicott St, Buffalo, NY 14203, USA. Tel.: +1 716 323 0260; E-mail: pkchandr@buffalo.edu.

Kratom exposures reported to the National Poison Data System January 1, 2011, to July 31, 2018

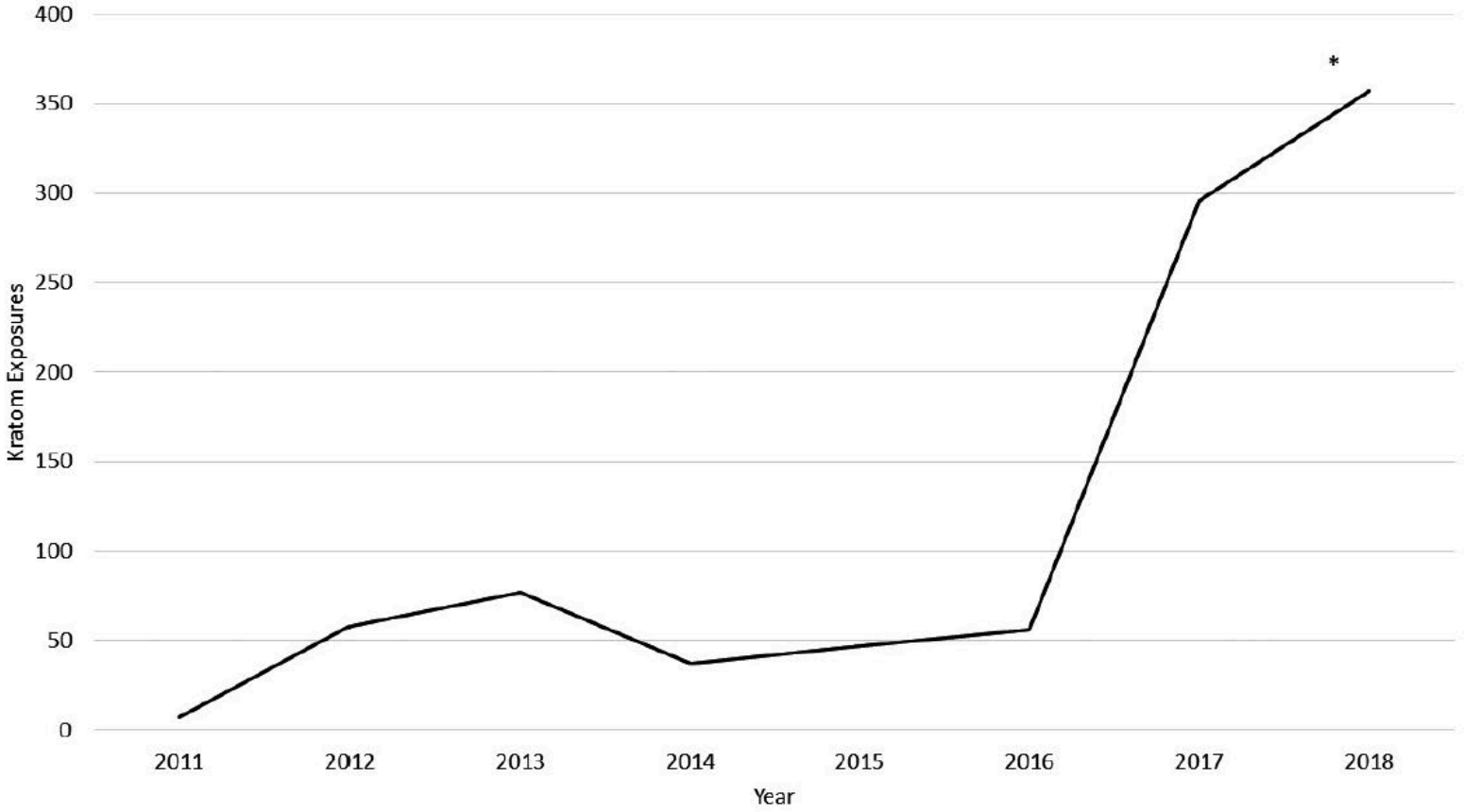


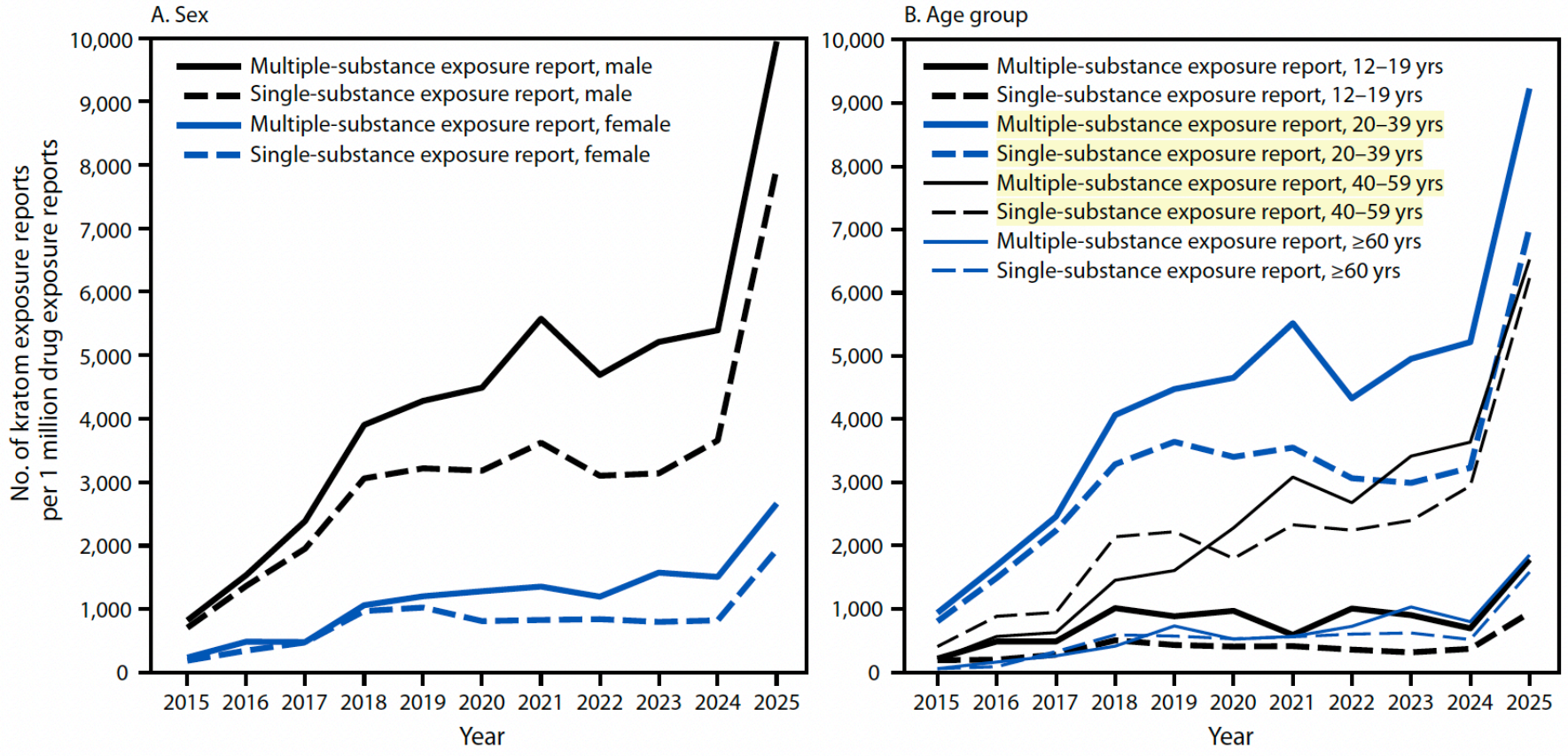
Figure 1. Kratom exposures reported to the National Poison Data System from January 1, 2011, to July 31, 2018. *Data for 2018 is partial and includes exposures from January 1, 2018, to July 31, 2018.

Source: Eggleston W, et al. Kratom Use and Toxicities in the United States. Pharmacotherapy. 2019 Jul;39(7):775-777.

U.S. Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Weekly / Vol. 75 / No. 11
March 26, 2026

Increases in Kratom-Related Reports to Poison Centers — National Poison Data System, United States, 2015–2025

FIGURE 2. Rates* of kratom-related single- and multiple-substance exposure reports to poison centers among persons aged ≥12 years, by sex (A)†,§ and age group (B)¶, — National Poison Data System, United States, 2015–2025**

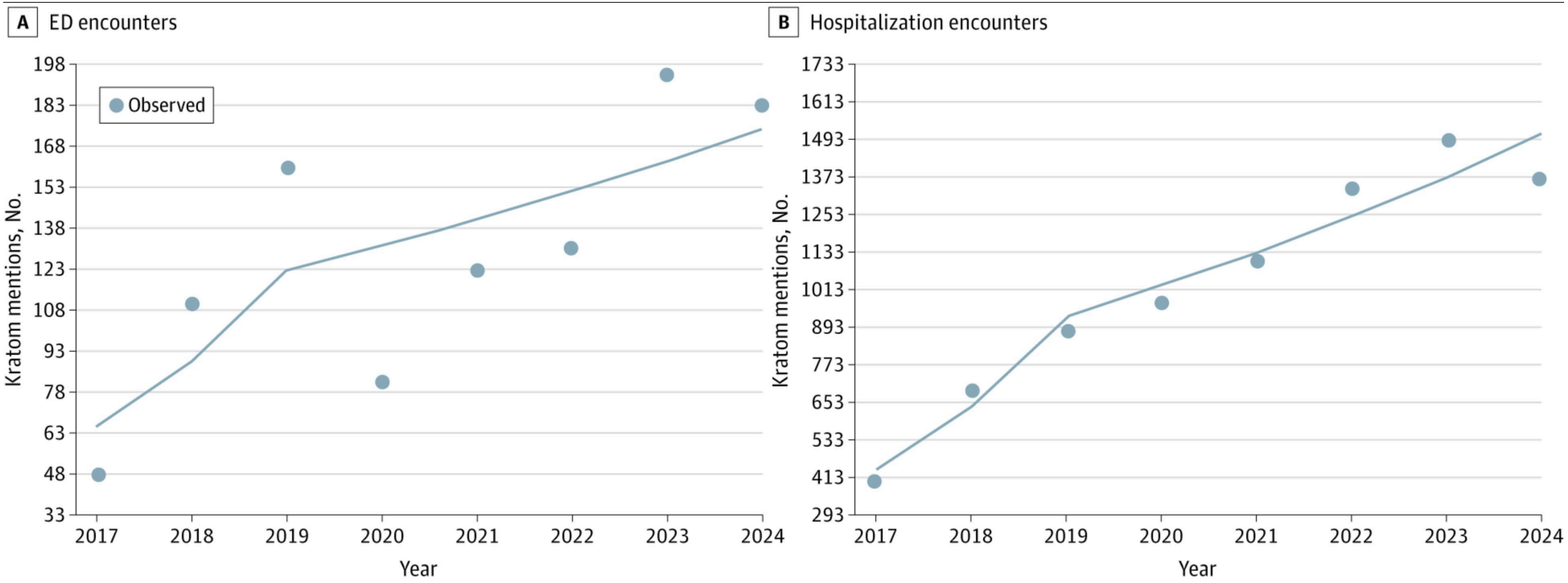


Kratom Use Trends Within the Mass General Brigham System From 2017 to 2024

Anika Kopczynski, BS[1]; Wenyu Song, PhD[1,2]; Alexander Wu, BA[1]; et al

» Author Affiliations | Article Information

JAMA Netw Open
Published Online: March 17, 2026
2026;9;(3):e262037.
doi:10.1001/jamanetworkopen.2026.2037



Two Independent Federal Databases Point the Same Direction

FAERS 2004-2021

FDA Adverse Event Reporting System

- Tracks reports on drugs & therapeutic products, including kratom, submitted by doctors, pharmacists, and consumers.
- 489 deduplicated kratom reports including seizures, organ toxicity, withdrawal, and psychiatric harm.
- Compared with every other drug and natural product, kratom-associated accidental death was reported 63 times more often than statistical chance would predict

CAERS 2004-2025

FDA's Food & Dietary Supplement Adverse Event System

- Tracks reports across all dietary supplements — vitamins, herbal products, weight-loss aids, and kratom.
- 404 deduplicated kratom reports
- 178 of 404 kratom reports to the FDA's supplement safety system — 44% — ended in death.
- Out of more than 900 dietary supplements studied, kratom's association with death was the strongest

Source: Li X, et al. Clinical and Translational Science. 2023;16(6):1002–1011. doi:10.1111/cts.13505; Farquhar H. Disproportionality analysis of dietary supplement adverse events in the FDA CAERS database, 2004–2025. Food and Chemical Toxicology. 2026;215:116225. doi:10.1016/j.fct.2026.116225

Received: 12 August 2025 | Accepted: 6 March 2026

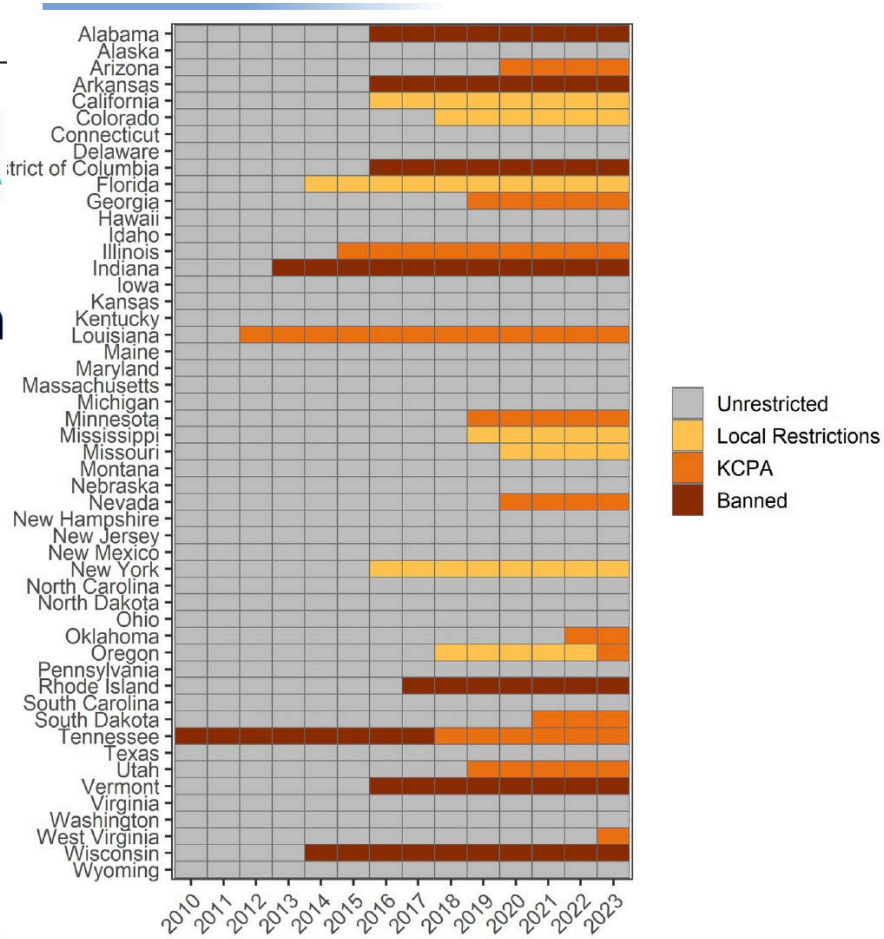
DOI: 10.1111/add.70416

RESEARCH REPORT

ADDICTION SSA

Association between state-level kratom regulations and poison center-reported severe medical outcomes and healthcare use: A United States national analysis

Grant Comstock[1] | Anthony P. Gulotta[2] | Lisa E. Rein[3] | Ryan Feldman[4,5]



Conclusion: Kratom exposures and severe medical outcomes reported to United States poison centers are increasing nationally, though states with bans in place have experienced less pronounced increases.

SUBSTANCE USE & MISUSE
https://doi.org/10.1080/10826084.2026.2670611

Taylor & Francis
by informa

ORIGINAL ARTICLE

Check for updates

Association Between State Kratom Policy Status and Kratom-Involved Overdose Deaths in the United States, 2020–2024: Analysis of the State Unintentional Drug Overdose Reporting System (SUDORS)

ABSTRACT

Background: Kratom laws vary widely across U.S. states, from Schedule I control to regulation or no policy. Limited evidence links these environments to kratom detection in fatal overdoses. This study examines the association between state kratom policy status and kratom-detected overdose deaths using State Unintentional Drug Overdose Reporting System (SUDORS) data.

Methods: A retrospective ecological analysis using 2020–2024 SUDORS data from 45 jurisdictions reporting kratom detections. Jurisdiction-year observations were classified as controlled, regulated, or lacking statewide policy. Negative binomial regression with jurisdiction and year fixed effects and an offset for total overdose deaths estimated incidence rate ratios (IRRs). Standard errors were clustered by jurisdiction. Opioid–stimulant co-involvement was included as a covariate. Quasi-Poisson fixed-effects model assessed robustness.

Results: Compared with Schedule I controlled-substance states, kratom detection rates were significantly higher in regulated states (IRR 3.27; 95% CI 1.78–6.02) and in states without statewide policy (IRR 4.19; 95% CI 2.94–5.98). Quasi-Poisson estimates were similar.

Conclusions: Kratom detection in fatal overdoses was more common in regulated and non-regulated states than in controlled-substance states. State policy context may influence kratom availability and detection. Ongoing monitoring and policy evaluation are needed.

Table 2. [a]Kratom and all drug overdose death counts by jurisdiction from SUDORS[b], 2020–2024.

Jurisdiction	Number of Kratom involved deaths	Number of all drugs involved deaths
Alabama	19	1474
Alaska	16	1392
Arizona	172	13,259
Arkansas	19	2017
Colorado	214	7889
Connecticut	101	6692
Delaware	2	2361
District of Columbia	5	2737
Georgia	653	11,245
Hawaii	14	1187
Illinois	164	9280
Indiana	32	3769
Iowa	58	1845
Kansas	84	3013
Kentucky	36	10,105
Maine	60	2773
Maryland	117	12,267
Massachusetts	117	11,588
Michigan	330	10,387
Minnesota	123	5682
Mississippi	93	2231
Missouri	80	5285
Montana	32	614
Nebraska	37	776
Nevada	118	4589
New Hampshire	38	1931
New Jersey	147	13,959
New Mexico	24	4229
New York	127	10,177
North Carolina	395	15,314
Ohio	252	23,505
Oklahoma	103	5696
Oregon	221	6288
Pennsylvania	355	23,694
Rhode Island	12	2016
South Carolina	54	1488
South Dakota	12	218
Tennessee	183	12,922
Utah	159	3039
Vermont	19	1131
Virginia	176	11,084
Washington	86	6325
West Virginia	112	6260
Wisconsin	30	2694
Wyoming	7	95
Total	5208	286,522

[a]Not all jurisdictions report SUDORS data in every year during 2020–2024; totals reflect available data.
[b]SUDORS: State Unintentional Drug Overdose Reporting System.

Source: Lekshmi Rita-Venugopal (14 May 2026): Association Between State Kratom Policy Status and Kratom-Involved Overdose Deaths in the United States, 2020–2024: Analysis of the State Unintentional Drug Overdose Reporting

How is FDA protecting the public from the risks of kratom?

There are no FDA-approved kratom drug products or over-the-counter drugs containing kratom that are legally on the market in the U.S. FDA continues to warn consumers not to use kratom because of the risk of serious adverse events, including liver toxicity, seizures, and substance use disorder (SUD).

Source: https://www.fda.gov/news-events/public-health-focus/fda-and-kratom

In 2016, The DEA attempted to ban kratom

NEWS

DEA to ban Kratom by the end of the month

A drug sold locally will soon be banned from shelves because of what the DEA says are "dangerous" side effects.

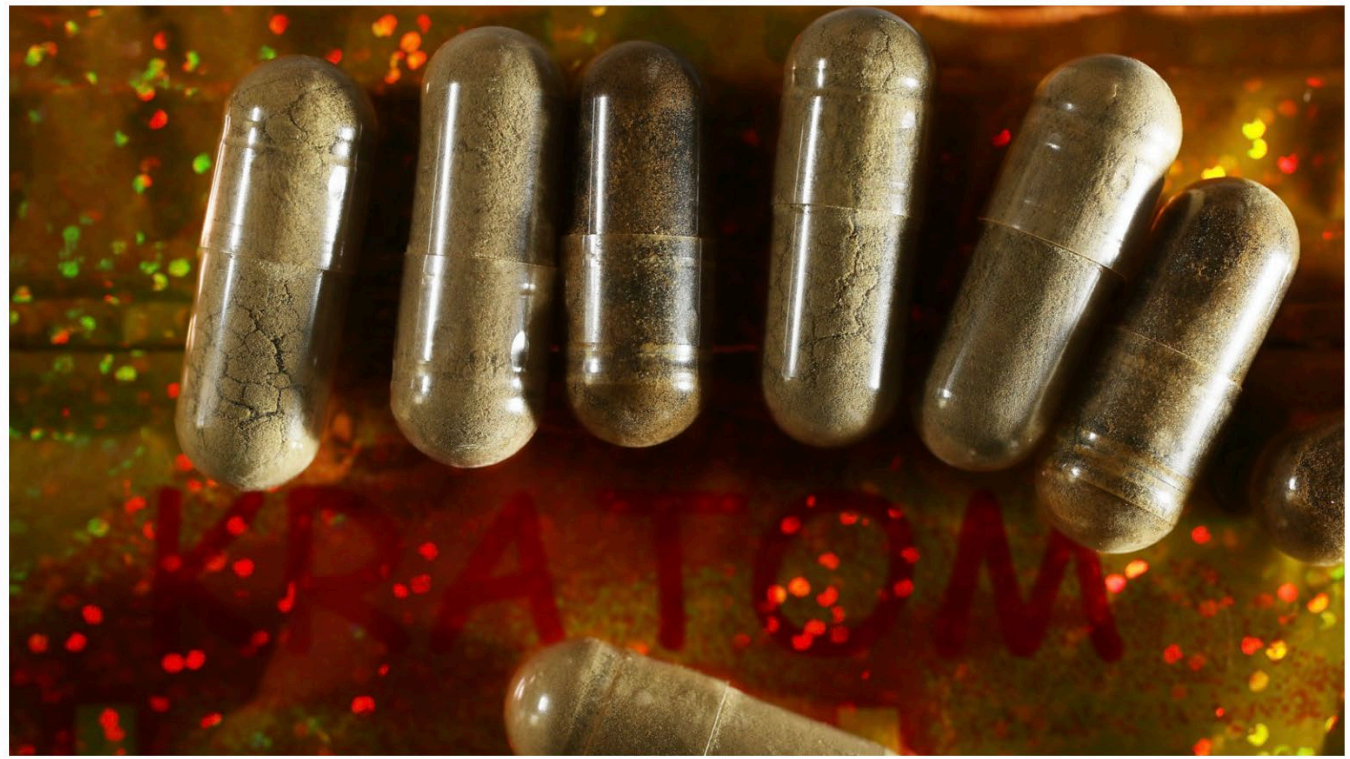


HEALTH

DEA opts against ban on herbal supplement kratom

By Associated Press Oct. 12, 2016

Reprints



Kratom pills

JOE RAEDLE/GETTY IMAGES

WASHINGTON — The Drug Enforcement Administration has reversed a plan to temporarily ban a plant that some users suggest could be an alternative to powerful and addictive opioid painkillers.

As he pushed to legalize kratom, R.I. lawmaker failed to disclose trips to Indonesia paid by kratom nonprofits

State Representative Brian Patrick Kennedy belatedly disclosed more than $20,000 in kratom-related travel after being contacted by the Globe

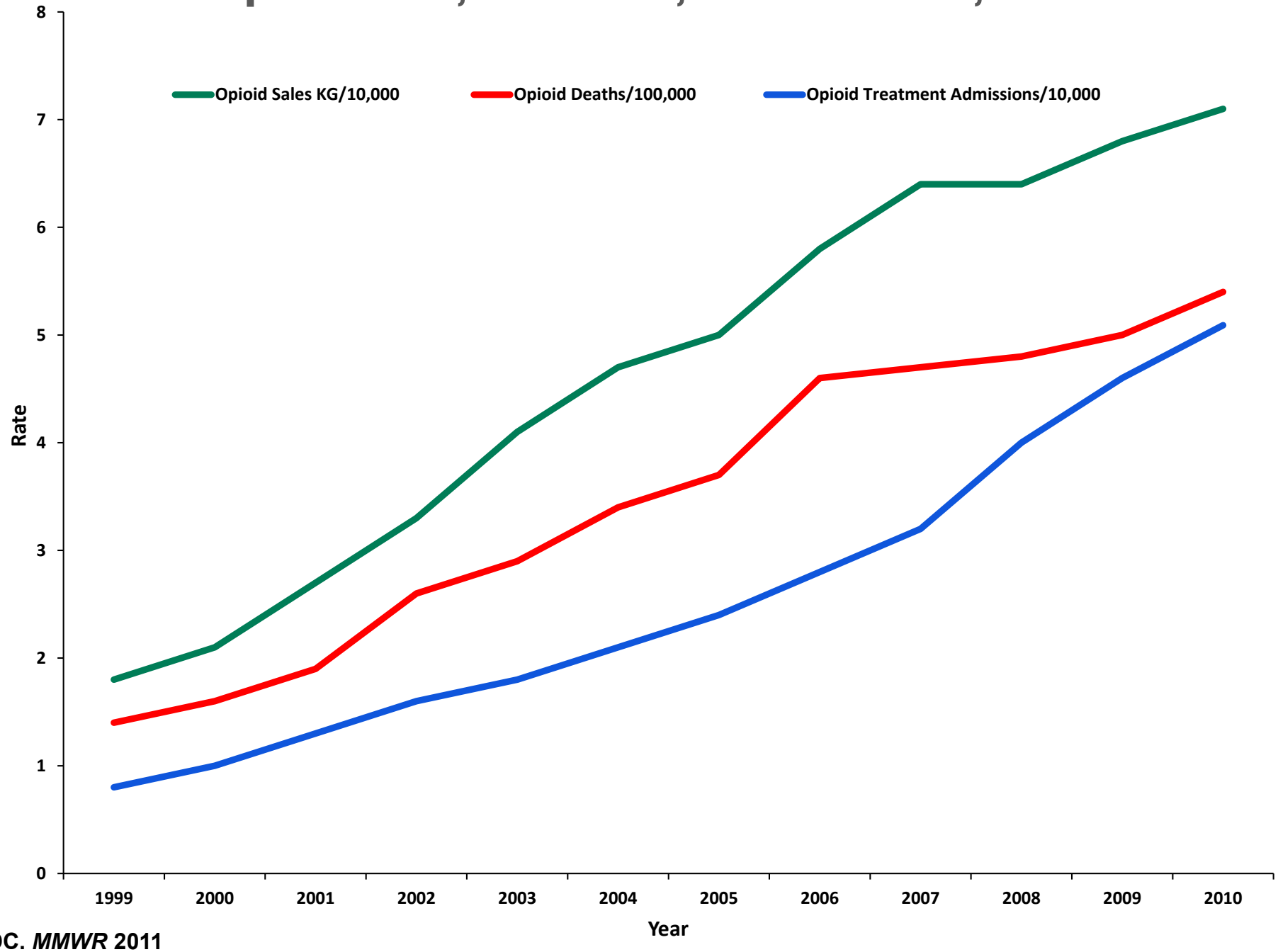
By Steph Machado Globe Staff, Updated November 18, 2026, 2 hours ago

6



Rhode Island State Representative Brian Patrick Kennedy, far right, with American Kratom Association lobbyist Mac Haddow, second from right, and other officials at a meeting in Pontianak, West Kalimantan, Indonesia on July 28, 2023. JESSICA WUYSANG/ANTARA PHOTO

Rates of Opioid Sales, OD Deaths, and Treatment, 1999–2010



CDC. *MMWR* 2011

Conclusion

- Kratom contains opioids.
- The opioid crisis teaches us that increased use of opioids led to an epidemic of OUD.
- State policy evidence suggests that bans on kratom are associated with fewer kratom-related public health problems than regulated kratom

Questions?

Andrew Kolodny, MD
akolodny@brandeis.edu