

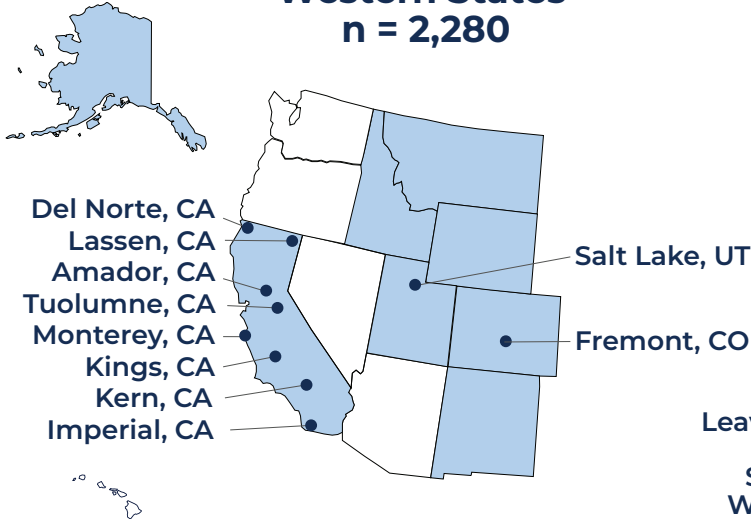
## NDEWS Special Report

### Top 10 US counties per region with the highest rates of EMS encounters involving nonfatal synthetic cannabinoid overdoses per 10,000 population January 1, 2023 - February 28, 2026

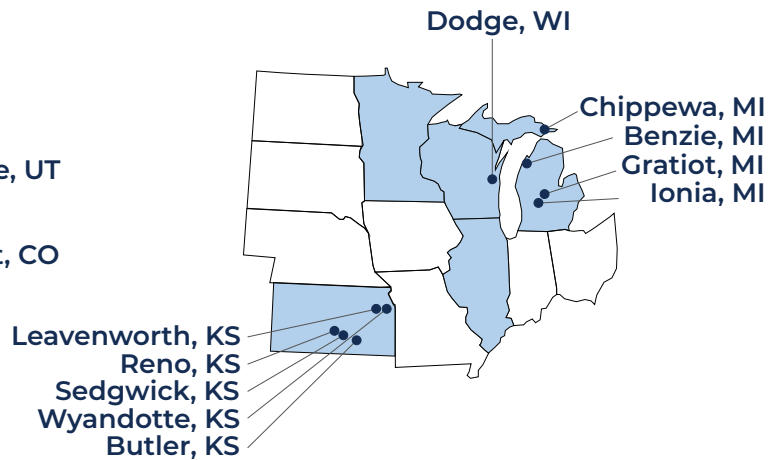
Nationally, 19,688 nonfatal EMS encounters involving synthetic cannabinoid overdoses were recorded from January 1, 2023 to February 28, 2026. Of these, 2,280 (11.6%) occurred in Western states, 1,380 (7.0%) in Midwestern states, 8,890 (45.2%) in Southern states, and 7,138 (36.3%) in Northeastern states. Counties with  $\geq 10$  encounters are presented below as encounters per 10,000 population; counties with fewer than 10 encounters have been suppressed.

### Top 10 US counties per region with the highest rates of EMS encounters involving nonfatal synthetic cannabinoid overdoses per 10,000 population January 1, 2023 - February 28, 2026

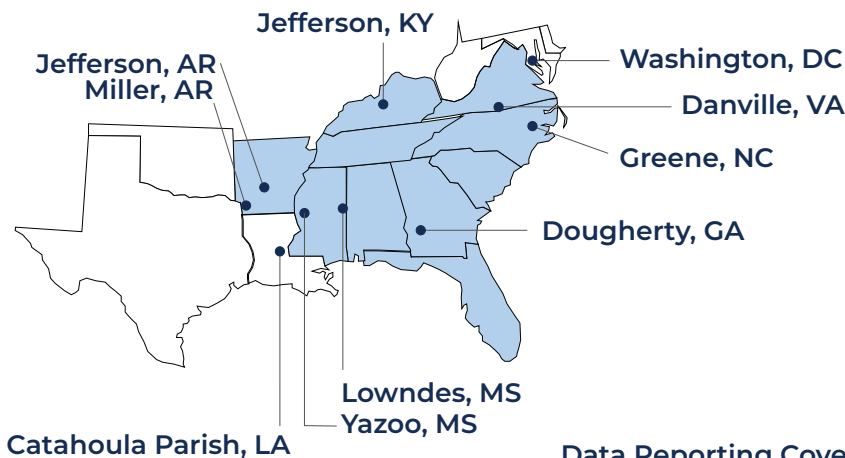
#### Western States n = 2,280



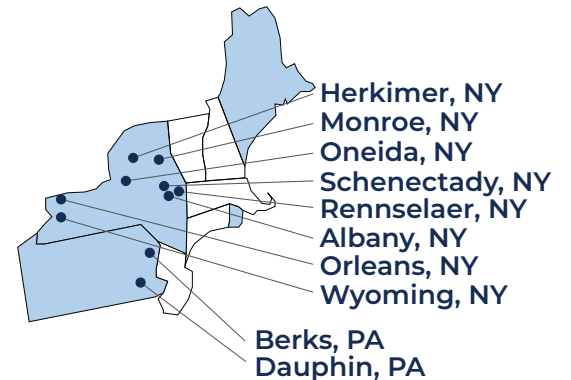
#### Midwestern States n = 1,380



#### Southern States n = 8,890



#### Northeastern States n = 7,138



Data Reporting Coverage:

< 61%      $\geq 62\%$

**Top 10 US counties per region with the highest rates of EMS encounters involving nonfatal synthetic cannabinoid overdoses per 10,000 population**  
**January 1, 2023 - February 28, 2026**  
**n = 19,688**

**Western States**  
**n = 2,280**

**Midwestern States**  
**n = 1,380**

County*	EMS encounters per 10,000 population	County*	EMS encounters per 10,000 population
Amador, CA	18.96	Reno, KS	12.30
Lassen, CA	17.66	Chippewa, MI	8.93
Del Norte, CA	13.94	Wyandotte, KS	6.96
Kings, CA	9.24	Benzie, MI	5.60
Tuolumne, CA	5.50	Sedgwick, KS	5.25
Salt Lake, UT	3.41	Leavenworth, KS	4.99
Monterey, CA	3.04	Gratiot, MI	2.73
Imperial, CA	2.34	Ionia, MI	2.63
Fremont, CO	2.09	Dodge, WI	1.83
Kern, CA	1.23	Butler, KS	1.64

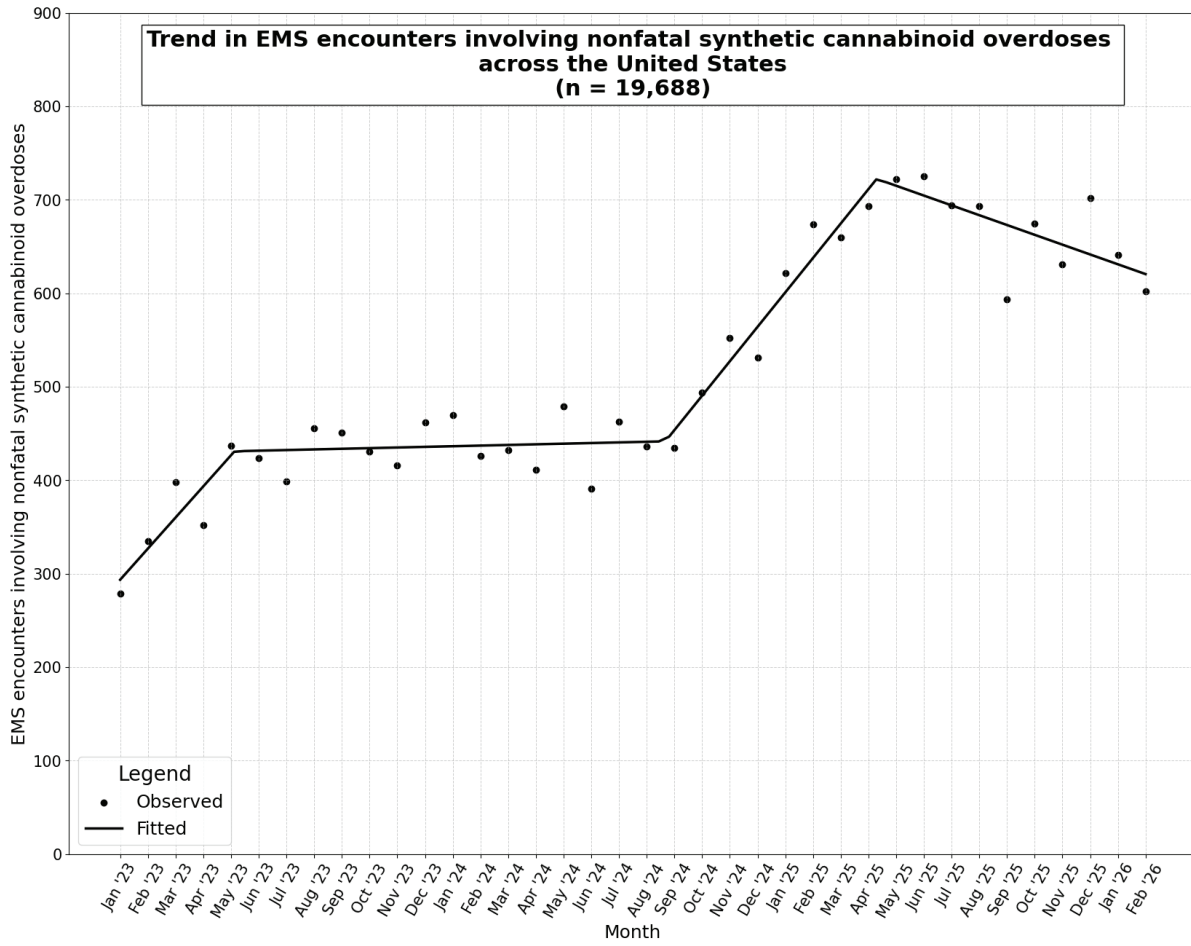
**Southern States**  
**n = 8,890**

**Northeastern States**  
**n = 7,138**

County*	EMS encounters per 10,000 population	County*	EMS encounters per 10,000 population
Washington, DC	46.51	Albany, NY	34.61
Catahoula Parish, LA	21.68	Oneida, NY	16.19
Jefferson, AR	10.71	Schenectady, NY	13.71
Jefferson, KY	10.58	Monroe, NY	10.64
Danville, VA	8.03	Wyoming, NY	8.11
Dougherty, GA	6.82	Berks, PA	5.77
Greene, NC	6.69	Orleans, NY	5.75
Lowndes, MS	5.49	Dauphin, PA	5.72
Miller, AR	5.1	Herkimer, NY	5.25
Yazoo, MS	4.82	Rensselaer, NY	4.30

\*Colors reflect EMS encounters grouped by state.

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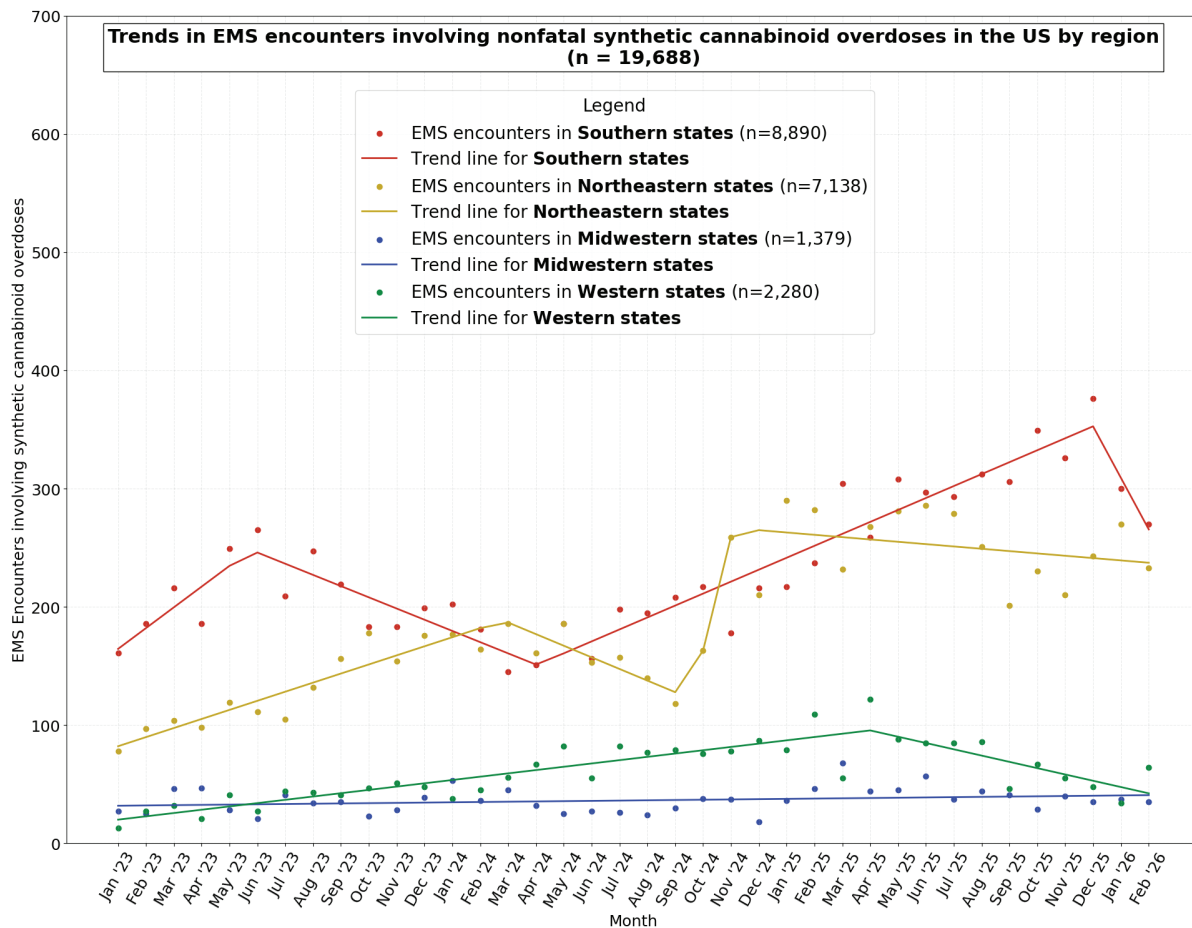


Nationally, encounters increased from January 2023 through April 2023 ( $\beta = 0.09, p < 0.001$ ). From August 2024 to April 2025, encounters again increased ( $\beta = 0.06, p < 0.001$ ). Encounters subsequently decreased in May 2025 through February 2026 ( $\beta = -0.01, p = 0.05$ ).

**\*\*Methodology:** Trends in EMS encounters involving nonfatal synthetic cannabinoid overdoses were examined using joinpoint regression. This method fits weighted least-square regression models to EMS encounters on a log transformed scale. It also uses Monte Carlo permutation tests with a Bonferroni correction for multiple testing and identifies models with the best-fit set of joinpoints. These are points (or knots) in trends that indicate significant shifting points. Poisson models were specified under the assumption of non-constant variance or heterogeneity over time. National and regional models were run and produced statistically significant results.

**EMS encounters involving nonfatal synthetic cannabinoid overdoses** were included if the encounter involved an emergency response with patient contact, contained a documented mention of synthetic cannabinoids ("spice" OR "K2" OR "synthetic marijuana" OR "synthetic cannabis" OR "herbal incense" OR "herbal smoking blends" OR "mojo") in the patient complaint or narrative (including common misspellings). The EMS encounters were identified according to the state of Virginia's definition of a non-opioid overdose.

All dispatch types above follow the guidelines set by the National Emergency Medical Services Information System (NEMSIS).



#### Southern Region:

EMS encounters involving nonfatal synthetic cannabinoid overdoses showed a statistically significant increase from January 2023 to June 2023 ( $\beta = 0.08$ ,  $p = 0.01$ ) where encounters then decreased through March 2024 ( $\beta = -0.05$ ,  $p = 0.001$ ). They increased again from April 2024 through December 2025 ( $\beta = 0.04$ ,  $p < 0.001$ ).

#### Northeastern Region:

Encounters increased from January 2023 through February 2024 ( $\beta = 0.07$ ,  $p < 0.001$ ). Encounters then increased from September through December 2024 ( $\beta = 0.17$ ,  $p = 0.05$ ), followed by a decline from January 2025 through February 2026 ( $\beta = -0.16$ ,  $p = 0.04$ ).

#### Midwestern Region:

Encounters remained stable from January 2023 through February 2026 without any statistically significant trends.

#### Western Region:

Encounters increased from January 2023 through March 2025 ( $\beta = 0.05$ ,  $p < 0.001$ ) before decreasing from April 2025 through February 2026 ( $\beta = -0.08$ ,  $p < 0.001$ ).

**Limitations:** Biospatial.io data reflect pre-hospital EMS encounters and do not include hospital outcomes, or toxicology confirmation. Much of the data relies on clinical impressions, self-report, or bystander accounts. Additionally, EMS encounters involving nonfatal synthetic cannabinoid overdoses may be underreported, overreported, or misclassified.