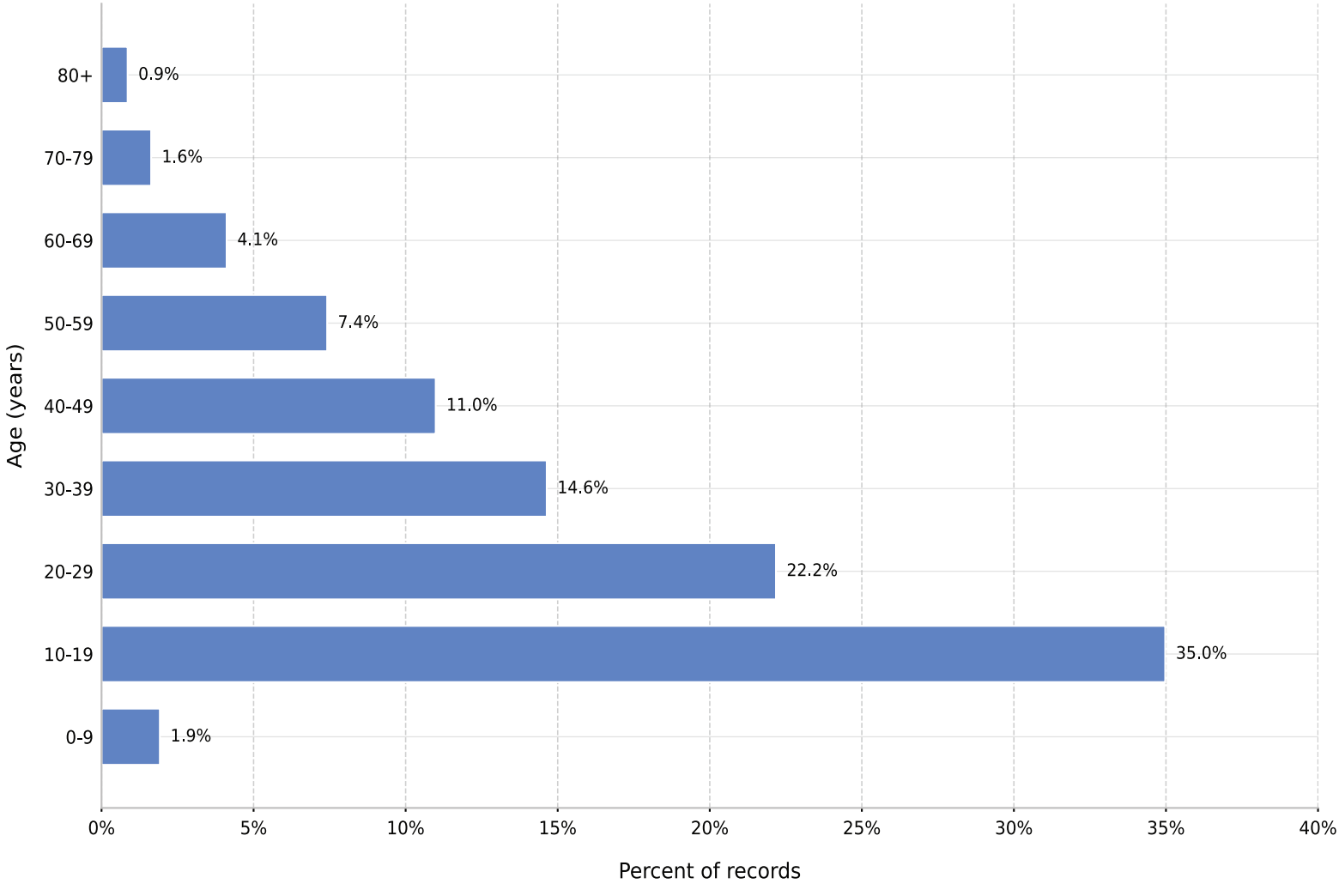
NDEWS Special Report

National trends and demographics of EMS encounters for suspected nonfatal overdoses with diphenhydramine indicated in the record January 1, 2023 - June 30, 2026

Published in NDEWS Weekly Briefing Issue 297: August 7, 2026

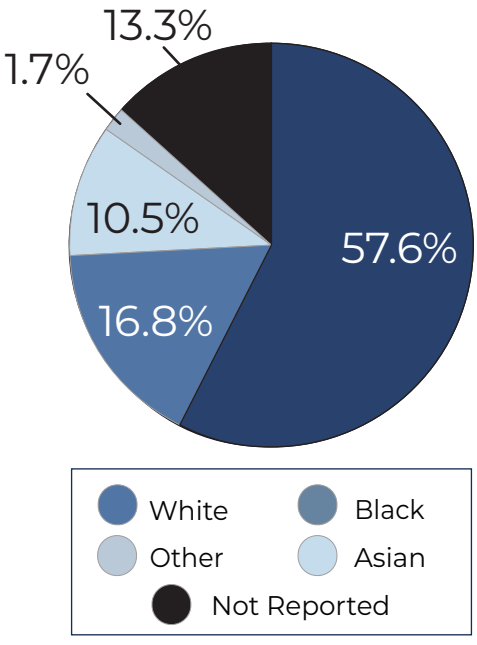
Nationally, 21,995 nonfatal EMS encounters were reported for suspected nonfatal overdose with diphenhdryamine indicated in the record from January 1, 2023 to June 30, 2026. The dispatch reasons being evaluated included Overdose/Poisoning/Ingestion or Psychiatric Problem/Abnormal Behavior/Suicide Attempt. The national trends and demographics of these EMS encounters are shown below including age, sex, and race.

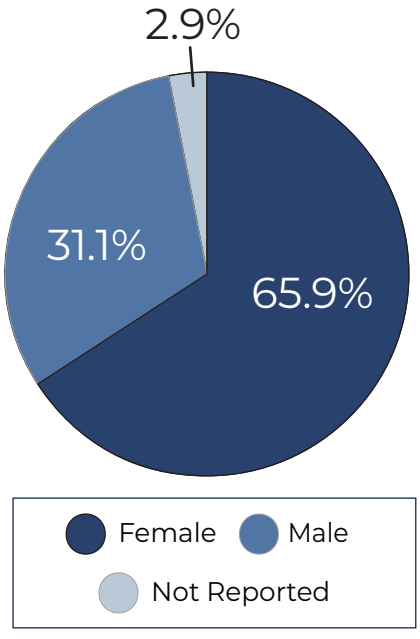
Age Distribution of EMS encounters
2023-Jan-01 to 2026-Jun-30
n=21,995 (280 with age not reported)



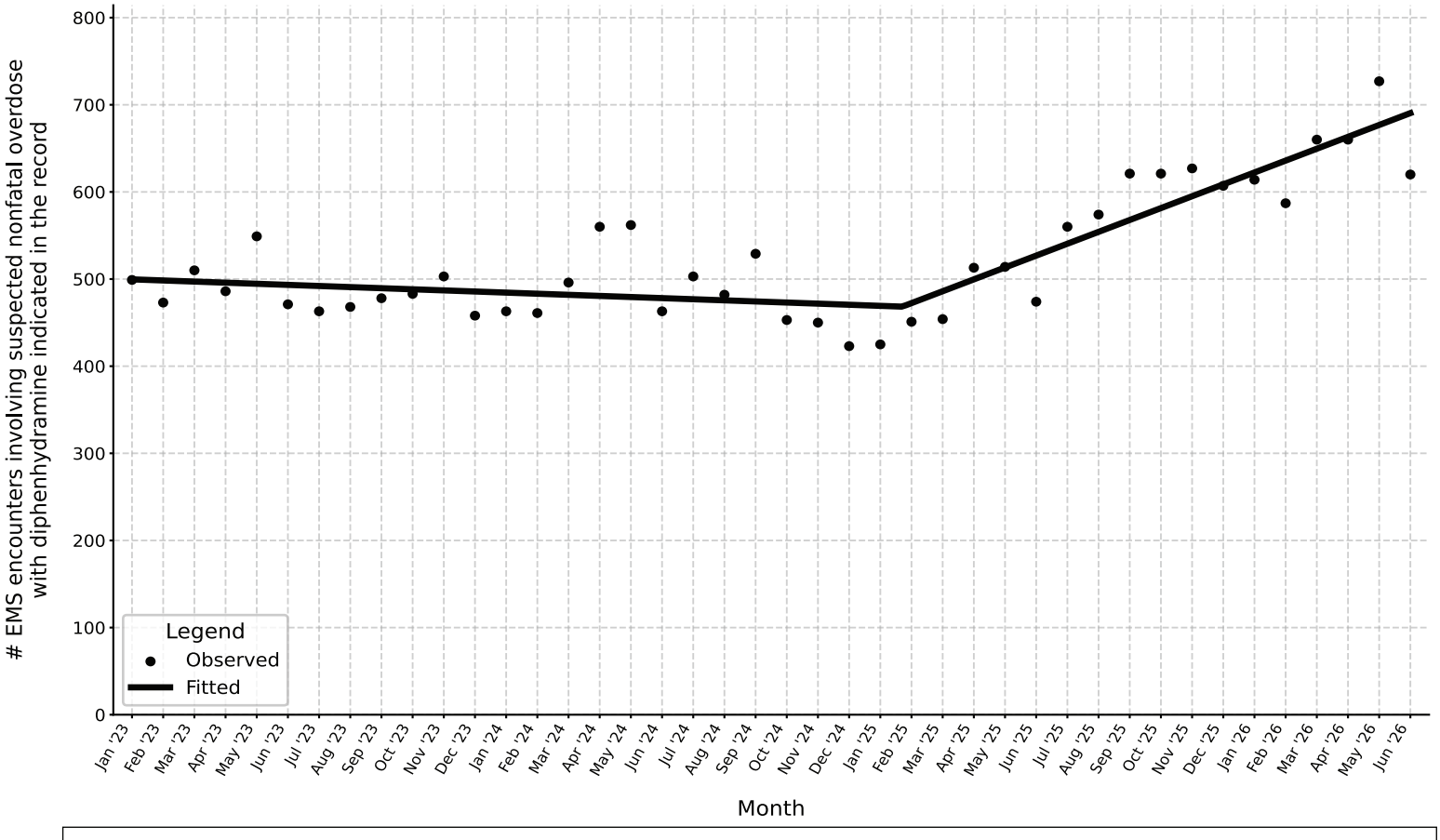
See page 2 for plots detailing trends and demographical information from EMS encounters for suspected drug-related overdoses involving diphenhydramine

National trend and demographic distribution of suspected nonfatal EMS encounters with diphenhydramine indicated in the record January 1, 2023 - June 30, 2026





National trend in EMS encounters involving suspected nonfatal overdose with diphenhydramine indicated in the record across the United States January 1, 2023–June 30, 2026 (n = 21,995)



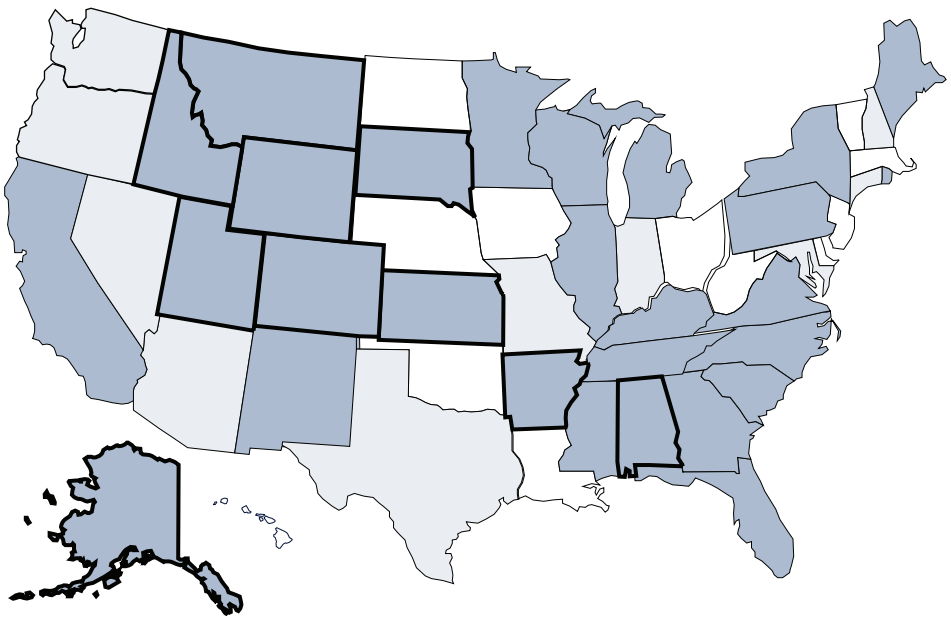
Nationally, EMS encounters involving suspected nonfatal diphenhydramine overdoses showed a statistically significant increase from February 2025 through June 2026 ($\beta = 0.02$, $p < 0.001$).

See page 3 for map top US states with highest rates of EMS encounters for suspected drug-related overdoses involving diphenhydramine

10 US states with the highest rates of suspected nonfatal EMS encounters with diphenhydramine indicated in the record per 10,000 population
January 1, 2023 - June 30, 2026

State	Encounters per 10,000 population
Alaska	1.31
Alabama	1.18
Kansas	0.84
Colorado	0.78
Wyoming	0.77
South Dakota	0.73
Utah	0.70
Montana	0.69
Idaho	0.65
Arkansas	0.58

*States sharing a color are in the same region.



Legend: Underlying Event Coverage* No Coverage | 1%-33% | 34%-66% | 67%-99%

*The Underlying Event Coverage (UEC) metric is the ratio of submitted records received by biospatial to the estimated number of all EMS events in a geographic region.

Methodology: Trends in EMS encounters involving suspected nonfatal diphenhydramine 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 suspected nonfatal diphenhydramine overdoses were included if the encounter involved an emergency response with patient contact, contained a documented mention of diphenhydramine or a medication containing diphenhydramine 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 and the Florida ESOOS overdose syndrome. EMS encounters where diphenhydramine was administered by EMS were omitted. Dispatch reasons other than Overdose/Poisoning/Ingestion or Psychiatric Problem/Abnormal Behavior/Suicide Attempt were not taken into consideration.

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

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 suspected nonfatal overdoses with indication of diphenhydramine use may be underreported, overreported, or misclassified. Underlying Event Coverage varies by state, with not all states being reported on. Only those specified are represented in this report.

75% of the data reported within 24 hours of event. Source: biospatial.io, 2026. NDEWS is funded by the National Institute on Drug Abuse to the University of Florida (MPI: Cottler (contact), Co-Is: Goldberger, Nixon, Striley), NYU Langone Health (MPI: Palamar), and Florida Atlantic University (Co-I: Barenholtz). Recommended citation: National Drug Early Warning System (NDEWS). (2026). Special Report (May 22, 2026). (NDEWS-2026-SR00039.5). Retrieved from https://ndews.org.