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Notes from the Field: Kratom (*Mitragyna speciosa*) Exposures Reported to Poison Centers — United States, 2010–2015

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Kratom (*Mitragyna speciosa*) is a plant consumed throughout the world for its stimulant effects and as an opioid substitute (*1*). It is typically brewed into a tea, chewed, smoked, or ingested in capsules (*2*). It is also known as Thang, Kakuam, Thom, Ketum, and Biak (*3*). The Drug Enforcement Administration includes kratom on its Drugs of Concern list (substances that are not currently regulated by the Controlled Substances Act, but that pose risks to persons who abuse them), and the National Institute of Drug Abuse has identified kratom as an emerging drug of abuse (*3,4*). Published case reports have associated kratom exposure with psychosis, seizures, and deaths (*5,6*). Because deaths have been attributed to kratom in the United States (*7*), some jurisdictions have passed or are considering legislation to make kratom use a felony (*8*). CDC characterized kratom exposures that were reported to poison centers and uploaded to the National Poison Data System (NPDS) during January 2010–December 2015. The NPDS is a national database of information logged by the country's regional poison centers serving all 50 United States, the District of Columbia, and Puerto Rico and is maintained by the American Association of Poison Control Centers. NPDS case records are the result of call reports made by the public and health care providers.

During the study period, U.S. poison centers received 660 calls about reported exposure to kratom. The number of calls increased tenfold from 26 in 2010 to 263 in 2015 (Figure). Health care provider reports constituted 496 (75.2%) of calls. Among calls, 487 (73.8%) exposed persons reported intentional exposure, and 595 (90.2%) reported ingestion of the drug. Isolated kratom exposure (single exposure) was reported in 428 (64.8%) cases. Among calls reporting use of kratom in combination with other substances (multiple exposures), the most commonly reported other substances were ethanol, other botanicals, benzodiazepines, narcotics, and acetaminophen. Among 658 (99.7%) calls for which information on sex of the exposed person was available, 472 (71.7%) were male, and among 604 (91.5%) for which information on age was available, the median age was 28 years (range = 2 months–69 years).

Medical outcomes associated with kratom exposure were reported as minor (minimal signs or symptoms, which resolved rapidly with no residual disability) for 162 (24.5%) exposures, moderate (non-life threatening, with no residual disability, but requiring some form of treatment) for 275 (41.7%) exposures, and major (life-threatening signs or symptoms, with some residual disability) for 49 (7.4%) exposures. One death was reported in a person who was exposed to the medications paroxetine (an antidepressant) and lamotrigine (an anticonvulsant and mood stabilizer) in addition to kratom. For 173 (26.2%) exposure calls, no effects were reported, or poison center staff members were unable to follow up again regarding effects. Among exposed persons for whom information on signs and symptoms was available, reported signs and symptoms included tachycardia (n = 165, 25.0%), agitation or irritability (157, 23.8%), drowsiness (128, 19.4%), nausea (97, 14.7%), and hypertension (77, 11.7%). A chi-square test demonstrated a significant association between severity of outcome and multiple versus single exposures ($p<0.001$). Pairwise comparisons (adjusted by the stepdown Bonferroni procedure) indicated a higher likelihood of a report of a severe outcome among persons aged 21–30 years ($p = 0.04$), 31–40 years ($p = 0.02$), and >40 years ($p = 0.02$) compared with persons aged 0–10 years.

Kratom use appears to be increasing in the United States (*2*), and the reported medical outcomes and health effects suggest an emerging public health threat. Members of the public and health care providers should be aware that the use of kratom can lead to severe adverse effects, especially when consumed in combination with alcohol or other drugs.

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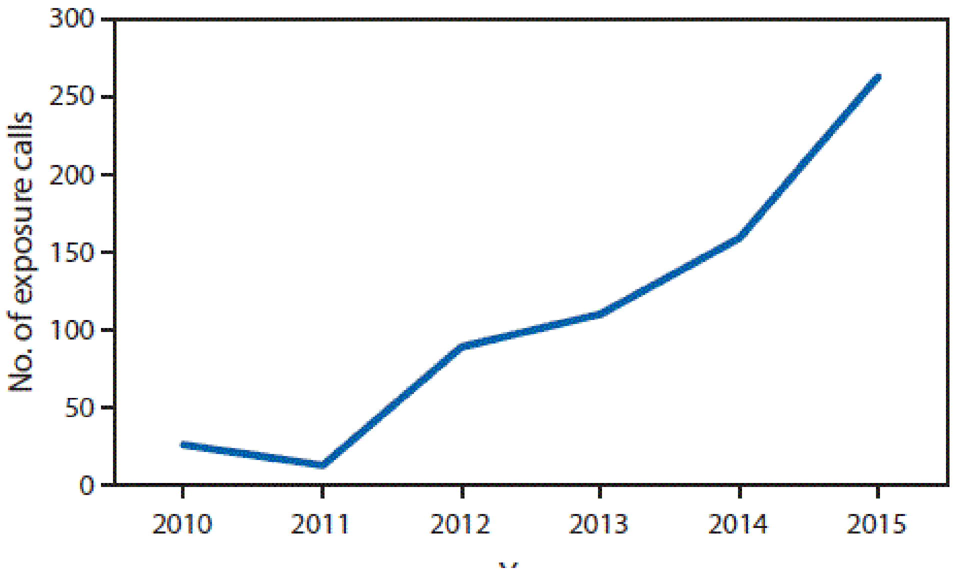
FIGURE. Number of reported exposure calls to poison centers related to kratom use, by year — National Poison Data System, United States and Puerto Rico, January 2010–December 2015



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