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## Two Alaska Cases Associated with a Multistate *Salmonella* Outbreak Linked to Kratom

### Background

In February 2018, the Centers for Disease Control and Prevention (CDC) launched a joint investigation with the U.S. Food and Drug Administration (FDA) and several state and local health entities into a multistate outbreak of *Salmonella* infections. The outbreak was linked to the consumption of kratom products contaminated with multiple strains of *Salmonella*.<sup>1</sup> This *Bulletin* summarizes the outbreak investigation and the two cases documented in Alaska.

Although most people infected with *Salmonella* recover without treatment, salmonellosis can result in serious illness, especially for infants, the elderly, and those with impaired immune systems. Symptoms typically occur from 12–72 hours after infection and include diarrhea, fever, and abdominal cramps lasting approximately 4–7 days. Approximately 1.2 million illnesses, 23,000 hospitalizations, and 450 deaths occur annually in the United States.<sup>2</sup> In Alaska, approximately 50–70 cases of salmonellosis are reported to the Alaska Section of Epidemiology (SOE) annually.

Kratom is a tropical tree native to Southeast Asia whose leaves contain the psychotropic compounds mitragynine and 7-*a*-hydroxymitragynine, which interact with opioid and other receptors in the brain to cause a combination of stimulant and opioid-like effects.<sup>3</sup> People take kratom for its psychotropic effects by chewing or smoking the leaves, or by consuming pills, capsules, extracts, or teas. Many people assert that kratom is an effective alternative medicine for a variety of conditions, including mitigating opioid withdrawal symptoms;<sup>3</sup> however, due to its opioid-like effects, kratom use could potentially lead to addiction, abuse, and dependence.<sup>3</sup> Kratom can also cause serious side effects, such as respiratory depression, seizures, and psychosis. The FDA recommends against using kratom as there are no approved uses for the substance.<sup>4</sup> While kratom products are not illegal in much of the United States (including Alaska), six states have banned its use.

### Multistate Outbreak

In February 2018, CDC first announced that an investigation of a multistate outbreak of *Salmonella* infections was underway. Epidemiologists conducting standard interviews found that 76 (74%) of the first 103 patients identified indicated that they had consumed kratom products; most commonly in the powdered form.<sup>1</sup> Subsequent testing of leftover and unopened kratom products by the FDA and state health and regulatory agencies identified multiple *Salmonella* strains (e.g., I4[5],12:b:-, Heidelberg, Javiana, Okatie, Weltevreden, and Thompson).<sup>1</sup> According to CDC, the outbreak began in January 2017 and ended in May 2018.<sup>1</sup> In total, 199 cases were identified in 41 states; 50 people were hospitalized and no one died.<sup>1</sup>

### Alaska Cases

Two Alaska residents were involved in this outbreak. Neither patient was hospitalized; both fully recovered. The first patient (Case 1) reported symptoms that started on March 5, 2018. This adult male had consumed kratom purchased on-line in the form of a powder. The second patient (Case 2), an adult female, reported symptoms that started on April 27, 2018. She bought kratom powder reportedly in unmarked plastic containers at a local store in Anchorage, and regularly consumed smoothies that contained the powder. Neither source of the kratom had labelling information on the source of the product. Because the labeling does not claim that the products are edible or therapeutic, they are not currently subject to oversight from an Alaska regulatory entity.

### Discussion

As in Alaska, a common brand or supplier was not identified for all cases classified as part of the national outbreak, thus representing a product-wide health concern.<sup>1</sup> Kratom products are not regulated by FDA because they are labeled by retailers as herbal supplements or as products for uses other than human consumption. Therefore, FDA is unable to determine if the kratom industry is using good manufacturing practices or taking the necessary steps to ensure that kratom products are safe for consumption.<sup>4</sup> In instances where therapeutic claims were made, the FDA was able to initiate product-specific recalls.<sup>4</sup>

Even though this outbreak investigation is over, contaminated products may still be available for purchase because the investigation was not able to identify a single, common source of contaminated kratom and no general recall was initiated.<sup>1</sup> As such, new illnesses could continue to occur if people consume contaminated kratom. Numerous companies voluntarily recalled their kratom products and FDA instituted a mandatory recall due to this outbreak; the list of FDA-recalled kratom products is available online.<sup>4</sup>

Kratom products continue to be available in some Alaska stores and online. Retailers are responsible for returning or destroying any recalled products. Neither the Municipality of Anchorage (MOA) Food Safety and Sanitation Program nor the Alaska Department of Environmental Conservation (DEC) have regulatory authority over kratom or the retailers that sell it (e.g., smoke shops). The U.S. Drug Enforcement Administration and FDA are assessing the abuse potential of kratom to determine if it should be placed on the federal controlled substance list.<sup>5</sup>

### Recommendations

1. Salmonellosis is reportable to SOE by health care providers and laboratories. Isolates of *Salmonella* must be submitted to ASPHL for molecular typing to aid in the detection of clusters and outbreaks. Reporting details can be found at: <http://dhss.alaska.gov/dph/Epi/Pages/pubs/conditions/default.aspx>
2. Health care providers should inform patients who inquire about kratom that while the multistate *Salmonella* outbreak investigation has officially concluded, kratom products are unregulated by FDA and new *Salmonella* illnesses could continue to occur.<sup>1,4</sup> Moreover, clinicians should inform their patients of the other potential hazards associated with kratom use, such as addiction, seizures, and psychosis.
3. Contact surfaces and any containers that previously held kratom should be thoroughly cleaned to prevent cross-contamination.<sup>4</sup>

### Acknowledgements

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### References

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