CORRESPONDENCE

Real-Time Digital Surveillance of Vaping-Induced Pulmonary Disease

TO THE EDITOR: A surge in cases of severe pulmonary disease associated with the use of electronic cigarettes (e-cigarettes), also called vaping, is emerging across the United States. Clinical presentations include shortness of breath, cough, chest pain, and gastrointestinal symptoms of nausea, vomiting, diarrhea, and abdominal pain.[1] These cases represent a public health threat given the increasing popularity and prevalent use of e-cigarettes, which are marketed as a safer alternative to smoking.[2]

This report provides an integrated view of the vaping-related pulmonary disease outbreak since late July 2019. We collected online information from disparate sources including news aggregators, eyewitness reports, and validated official alerts and curated and classified the data by disease case, location, and time.[3] Figure 1 shows the total number of confirmed and suspected cases of severe pulmonary disease from vaping over time across the United States. The first 8 suspected cases were detected by our online mining tool (www.HealthMap.org) on July 25, 2019, in Wisconsin. By August 28, a total of 119 confirmed and suspected cases had been detected in 16 states. Case counts more than doubled by September 6, 2019, reaching a total of 288 cases across 28 states. By September 11, cases had almost tripled to 522, spanning 39 states and the U.S. Virgin Islands. As of September 20, 2019, we identified a total of 908 cases of vaping-associated severe pulmonary disease across 45 states and the U.S. Virgin Islands — 495 confirmed cases and 413 suspected cases. Illinois, with 82 cases, had the highest number of cases, followed by California with 81 cases and New York with 74 cases. A total of 8 deaths were identified in California, Kansas, Illinois, Indiana, Minnesota, Oregon, and Missouri. These findings highlight the emerging epidemic, although expanding case definitions probably result in an underestimation of the true burden of this disease that preceded the first documented case in July 2019.

The definitive pathologic cause of these pulmonary disease cases remains unknown. Possible causes include the aerosolization of flavoring compounds of e-cigarette liquids, adulteration of devices with tetrahydrocannabinol (THC)–based oils or vitamin E, and use of black market vaping products.[1,4] Findings from this report suggest that vaping-associated pulmonary disease cases have reached epidemic proportions. Incident cases continue to rise. Further surveillance is necessary to monitor the development and spread of this vaping-related outbreak.

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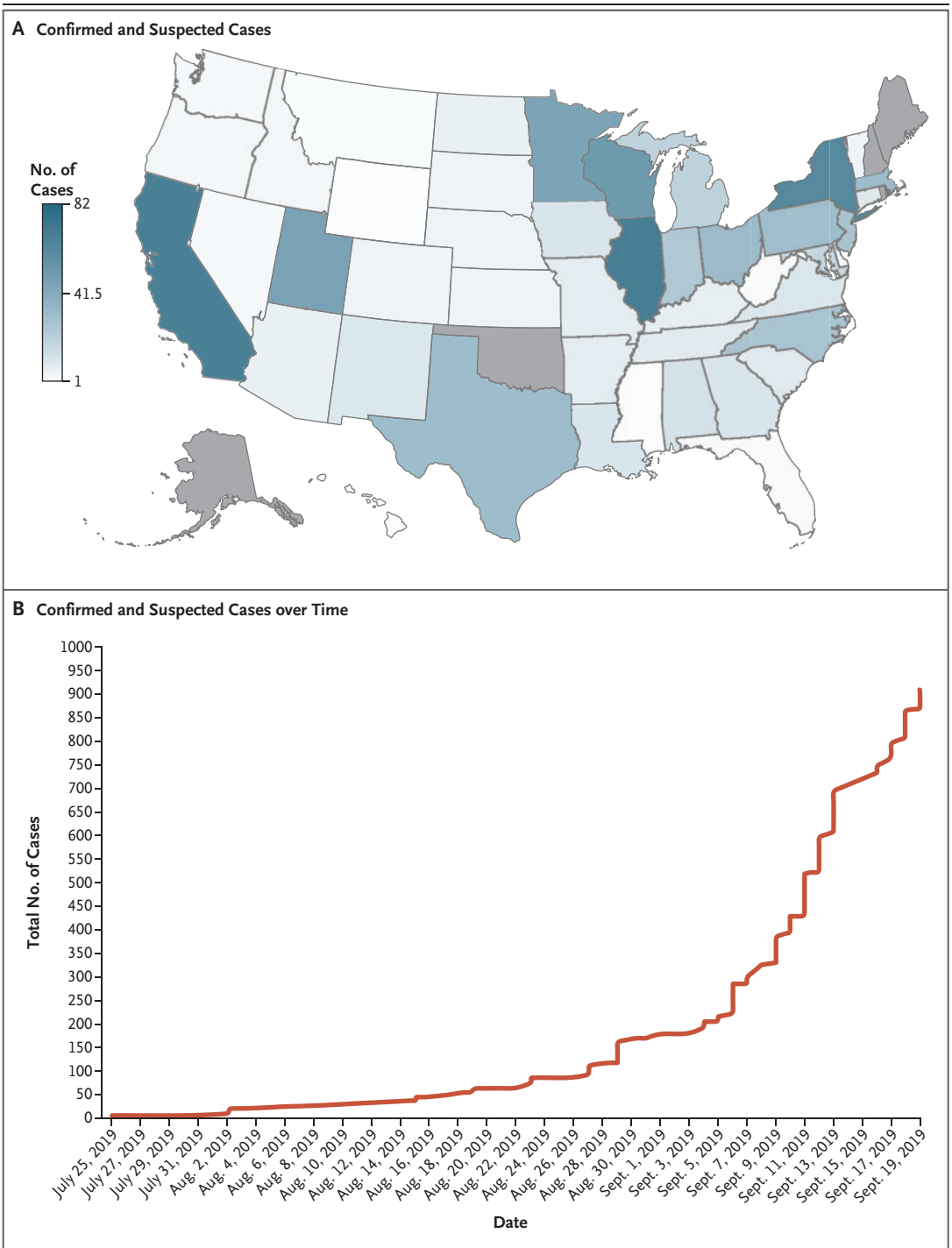

Figure 1. Confirmed and Suspected Cases of Vaping-Associated Pulmonary Disease in the United States.
Data shown are those available as of September 20, 2019.

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