

## Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

Supplement to: Monte AA, Bronstein AC, Cao DJ, et al. An outbreak of exposure to a novel synthetic cannabinoid. *N Engl J Med* 2014;370:389-90. DOI: 10.1056/NEJMc1313655

# **Clinical Characteristics of a Novel Synthetic Cannabinoid (SC) Outbreak in Colorado**

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## 1. Clinical characteristics of the outbreak

Between August 24 and September 13, 2013, 76 confirmed cases of synthetic cannabinoid (SC) exposure presented to 2 academic emergency departments (ED) in Denver and Aurora CO. Fifty-five patients were exposed to SC as a sole agent, 20 either admitted to co-ingestion or had a urine drug of abuse screen positive for another drug (including combinations of marijuana, methamphetamine, methadone, cocaine, hydrocodone/acetaminophen, ecstasy, and alcohol). The median age was 28 (IQR: 23, 35) years and 55 (72.3%) were males. Symptoms included altered mental status (n=48, 67.6%), agitation (n=32, 42.1%), and seizures (n=11, 14.4%). Seven (12.7%) patients were intubated. While initially tachycardic (median heart rate was 100 bpm [IQR: 82, 115]), relative bradycardia developed (median 63 bpm [IQR: 56, 73]) at a median time of 179 minutes (IQR: 121, 291) after presentation; 10% developed a heart rate of < 50 bpm.

Treatment included benzodiazepines (n=32, 42.1%), antipsychotics (n=11, 14.4%), and ketamine (n=2, 2.6%). As providers became experienced with the outbreak, they learned that despite profound altered mental status and occasional seizures most patients did not require intubation. Seizures were self-limited and there was no airway compromise. The QTc was prolonged at >470 msec in 25% and the potassium was < 3.2 mEq in 25%. Given these factors and the relative bradycardia frequently observed, antipsychotics were avoided later in the outbreak due to the fear of further QT prolongation and subsequent torsade de pointes<sup>1</sup>.

Most patients (n=68, 89.5%) were managed in the ED; 1 (1.3%) was admitted to the medical floor, and all 7 (9.2%) intubated patients were admitted to intensive care units. Median length of ED stay was 321 minutes (IQR: 204, 491) for non-admitted cases. All patients recovered.

## 2. References

1. Sauer AJ, Newton-Cheh C. Clinical and genetic determinants of torsade de pointes risk. *Circulation* 2012;125:1684-94.