

## Emergency Department Visits for Cannabis Related Adverse Events Oregon, March–December 2015

Jonas Hines, MD  
Epidemic Intelligence Service  
Oregon Public Health Division

Council of State and Territorial Epidemiologists  
Annual Conference  
June 20, 2016



Center for Surveillance, Epidemiology, and Laboratory Services  
Division of Scientific Education and Professional Development

## Cannabis

- Psychoactive properties
- Desirable effects
  - Euphoria
  - Philosophical thinking
  - Appetite stimulation
- Adverse effects
  - Tachycardia and hypertension
  - Nausea and vomiting
  - Anxiety and paranoia
  - Altered sensorium – increased injuries



## Cannabis in Oregon

- 1998: medical cannabis permitted
- 2014: voters approved non-medical use
- July 2015: legal possession permitted
- Use is common in Oregon
  - 1 in 8 Oregonians over age 12 years
  - 1 in 12 nationwide over age 12 years

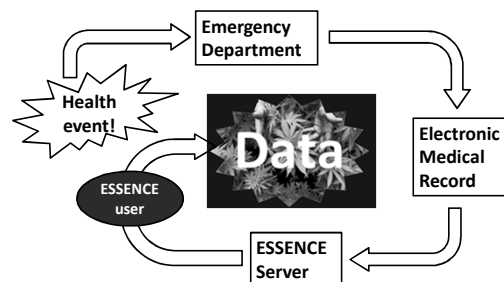
## Objectives

- Identify and characterize emergency department (ED) visits for cannabis-related adverse events
- Determine if ED visits increased after possession was permitted (July 1, 2015)
- Evaluate a syndromic surveillance system

## Emergency Department Surveillance System

- Oregon ESSENCE
  - All 60 non-federal emergency departments
- Excerpts from medical record
  - Chief complaint and clinical impression fields
- Automatically transmitted daily
- Secure web interface

## ESSENCE Data Acquisition



### ESSENCE Query

- Text terms
- Geographic region
- Time range

### ESSENCE Query

- Text terms
  - Marijuana
  - Cannabis
  - THC
  - Smoke pot
  - Smoke weed
  - Hash
  - Brownie
- Geographic region
  - All Oregon EDs
- Time range
  - March 1, 2015–December 31, 2015

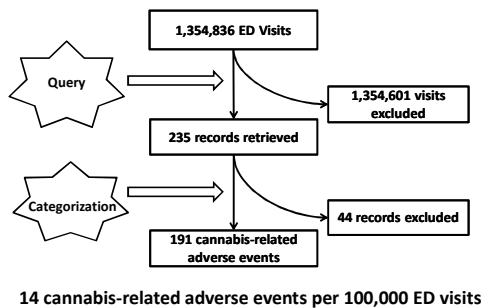
### Visit Categorization

- Reviewed each ESSENCE record
- Adapted categories from SAMHSA
  - Drug Abuse Warning Network (DAWN)
  - Drug-related ED visits
  - Selected metropolitan areas
- Excluded visits if:
  - Incidentally mentioned
  - Insufficient information to categorize
  - False positive

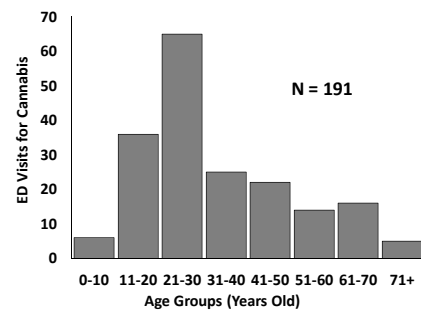
### Statistical Analysis

- Cannabis-related adverse events per month
- July 1, 2015
- Poisson distribution
- Stata

### Query Flow Diagram



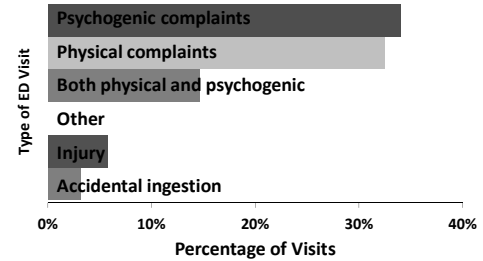
### Visit Characteristics



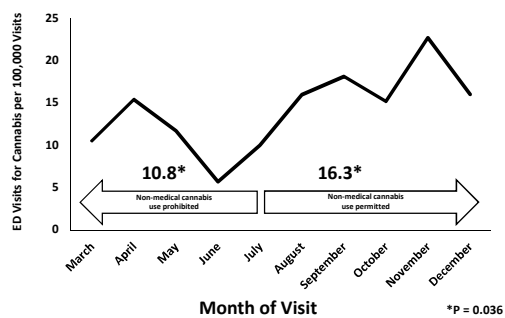
### Visit Characteristics (N=191)

	N	%
<21-years-old	42	22%
Female	96	50%
White	161	84%
Co-substance	73	38%
Hospitalizations	1	<1%

### Visit Categorization



### Cannabis-Related Adverse Events



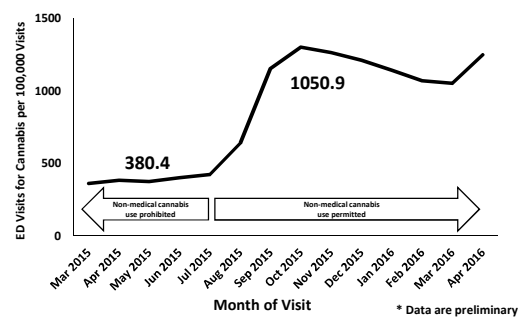
### Cannabis-Related Adverse Events

- 14 cannabis-related adverse events per 100,000 ED visits
- DAWN
  - 334 ED visits involving cannabis per 100,000 ED visits
  - Data from 2011
  - No ED visits in Oregon

### Update – Preliminary Results

- April 2016
- 'Triage Note' searchable
- Repeated query

### ED Visits for Cannabis, Including 'Triage Note'\*



### Summary

- Complaints for acute adverse effects (e.g., anxiety and palpitations) comprised the majority of ED visits
- Following permission of possession, visits increased
- Search terms that identify cannabis were rare
- Recent enhancement may have improved usefulness

### Limitations

- Data in ESSENCE is variable and incomplete
- No comparison to gold standard – medical charts
- Effect of changing social norms on reporting

### Recommendations

- Educate the public about adverse effects of cannabis
- Continue surveillance with ESSENCE
- Work with EDs to improve data quality
- Collaborate with other states using ESSENCE



Oregon Cannabis Universal Symbol

### Acknowledgements

- Katrina Hedberg
- Sean Schafer
- Larry Cohen
- Emily Fisher
- Richard Leman
- Steve Fiala
- Clyde Dent
- Caislin Firth
- Julia Dilley
- Melissa Powell
- Laurel Boyd
- Amy Zlot