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

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Annual Conference
June 20, 2016

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

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
1,354,836 ED Visits
235 records retrieved
1,354,001 visits excluded
191 cannabis-related adverse events
44 records excluded
14 cannabis-related adverse events per 100,000 ED visits

Visit Characteristics
N = 191
ED Visits for Cannabis
Age Groups (Years Old)
Visit Characteristics (N=191)

<table>
<thead>
<tr>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>&lt;21-years-old</td>
<td>42</td>
</tr>
<tr>
<td>Female</td>
<td>96</td>
</tr>
<tr>
<td>White</td>
<td>161</td>
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<tr>
<td>Co-substance</td>
<td>73</td>
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<td>Hospitalizations</td>
<td>1</td>
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</tbody>
</table>

Visit Categorization

- Psychogenic complaints
- Physical complaints
- Both physical and psychogenic
- Other
- Injury
- Accidental ingestion

Percentage of Visits

- Type of ED Visit
- Percentage

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’*

- Data are preliminary
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

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