Legalization Trends

Growing Support for Marijuana Legalization

% saying marijuana should be ...

- Illegal: 12, 30, 84, 81, 66, 63, 60, 52, 54
- Legal: 16, 31, 32, 41, 42


Growing Support for Marijuana Legalization

% saying use of marijuana should be made legal

- 69% Millennial (born 1981-99)
- 53% Gen X (born 1965-80)
- 52% Boomer (born 1948-64)
- 30% Silent (born 1928-45)

Note: Generational lines shown when significant sample is available.


PEW RESEARCH CENTER
Potentially 15 states with marijuana legalization ballot questions or legislation in 2015 & 2016:

Arizona  Michigan
California Missouri
Delaware Nevada
Florida New Hampshire
Hawaii Ohio
Maine Rhode Island
Maryland Vermont
Massachusetts

Establish your baseline data now!
Data Collection & Tracking

Choose It
Get It
Display It
Use It
Choose It

- Budget & Revenue
- Environmental Impacts
- Industry Trends
- Legalization Trends
- Occupational Safety
- Operational Metrics
- Public Health
- Public Safety
- Youth Impacts
Leverage other’s work where possible. Otherwise:

- Many Data Owners
- Many Databases
- Many Data Tracking Processes
- Many Data Integrity Issues
- Non-Existent Data
- Dashboards
- Reports
- Newsletters
- Bulletins
- Presentations
- E-mails
Denver implements data driven policies

- Compliance Metrics $\rightarrow$ Enforcement Tactics
- Crime Metrics $\rightarrow$ Policing Tactics
- Industry Trends $\rightarrow$ Command Economics
- Youth Usage Metrics $\rightarrow$ Education Campaigns
Marijuana Business Licenses in Denver 11/03/15

- **Grows**: 565
- **Stores**: 341
- **MIPs**: 123
- **Testing**: 9

**Denver Marijuana Gross Sales 2014-2015**

- **Retail Gross Sales**
- **Medical Gross Sales**

**1038 Active Licenses**

**446 Distinct Locations**

**2014 Gross Sales $332 million**
Minimum Number of MJ Inspections Completed by Agency
Last 12 Months

- Building: 692
- Environmental Quality: 692
- Excise & Licenses: 692
- Fire Prevention: 882
- Public Health: 552
- Zoning: 692

* Does not include referral inspections or reinspections
Marijuana DUIDs by Gender
2015

MJ DUID Offenders by Age
2015

Under 21 | 21-25 | 26-35 | 36-55 | 56+
---|---|---|---|---
6 | 26 | 20 | 12 |
Monitoring the Public Health Impact of Marijuana in Denver

November 6, 2015
Kathryn DeYoung, MS
Kathryn.deyoung@dhha.org
Denver Public Health
• **Purpose:** Inform Denver Office of Marijuana Policy and other partners about marijuana trends and opportunities to protect or restore the health of people living in and visiting Denver

• **Populations of concern**
  – Infants and children
  – Teenagers
  – Pregnant and breastfeeding women
  – The general population

• **Questions / metrics**
  – What is the frequency of the measured outcome and is it changing?
  – Who is affected (demographics, geography)?
  – What are the medical characteristics of people with a marijuana-related medical encounter or concern (e.g. symptoms, severity, duration)?
Goals: How We’ll Measure Public Health Impacts

• Colorado Hospital Association (CHA)
  – Denver residents treated at a participating Colorado hospital
  – Age, approximate residence, diagnoses, procedures, month/year treated

• National Syndromic Surveillance Program (NSSP)
  – Participating EDs in Adams, Arapahoe, Denver, and Douglas counties
  – Age, chief complaint (text), diagnoses (codes), date treated, hospital

• Healthy Kids Colorado Survey (HKCS)
  – Youth behaviors, opinions, and experiences
  – Administered each odd year
  – Denver, Colorado, and USA versions
  – 2013 Denver-level data
    • Weighted to be representative of all Denver public high school and middle school students
Goals: How We’ll Measure Public Health Impacts

- Rocky Mountain Poison and Drug Center (RMPDC)
  - Marijuana-related calls made from within Colorado to the RMPDC
  - 2000-2015
  - Age, zip code, date of call, route of exposure (starting in 2015), symptoms, severity, concurrent exposures

- Driving Under the Influence of Drugs (DUIDs) in Denver
  - DUID charges (related and unrelated to marijuana) made by Denver Police Department

- Denver Public Schools safety & disciplinary events
  - School-level aggregate reports on disciplinary events, including separate categories for alcohol, tobacco, and drug violations (anecdotally, mostly marijuana)
  - Denver Public Schools recording specific drugs in 2014-2015 school year
Considerations

• Access
  – We get data through agreements with data owners
  – Little control over what we get (which variables), when we get it, quality (accurate? complete?), and who it includes
  – Data owners retain right to review, give feedback, and limit release

• Timing and completeness
  – CHA: still waiting on 2014 data
  – HKCS: only have 2013 data
  – NSSP: real-time reporting, incomplete data until Sept 2015, missing Children’s Hospital
  – DPS disciplinary events: delayed, potentially biased, and only an approximate measure of marijuana-related events
215 cases total

Case definition:

- Chief complaint field contains a search term related to marijuana (e.g. THC, cannabis, marijuana) AND / OR
- Diagnosis field contains a diagnosis related to marijuana (e.g. cannabis dependence, nondependent cannabis abuse, poisoning by psychodysleptics)

*Caveat*: chief complaint referencing marijuana does not indicate that marijuana was absolutely related to the visit – Denver Public Health, Tri-County Health Department, and CDC collaborating to refine and validate case identification.

Source: 2015 NSSP (Adams, Arapahoe, Denver, Douglas county hospitals, excluding Children’s Hospital)
**Pre-Legalization Findings: CHA**

- **Case definition:** 1+ marijuana-related diagnoses in the first 3 diagnoses listed
- **Number of hospitalizations relatively stable**
- **Number of ED visits increased 59% between 2011-2013**

**Number of MJ-related encounters among Denver residents**

- Most ED visits and hospitalizations among 20-39, 40-59, and 15-19 y/o
  - Adolescents & young adults: prevention opportunity
- Less than 3 encounters per year among under-10 y/o

Source: 2004-2013 Colorado Hospital Association
Denver residents had an average of 216,421 visits per year for any reason
• 1,078 MJ-related ED visits per year
  • 4.3% of substance-related encounters (including alcohol)
  • 0.5% of all ED encounters
• Alcohol-related encounters: 37% of substance-related encounters

Source: 2009-2013 Colorado Hospital Association
**Pre-Legalization Findings: HKCS**

### Percent of high school students who used marijuana one or more times in their life

<table>
<thead>
<tr>
<th></th>
<th>Percentage of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denver</td>
<td>49%</td>
</tr>
<tr>
<td>Colorado</td>
<td>37%</td>
</tr>
</tbody>
</table>

### Percent of high school students who used marijuana one or more times in the past 30 days

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marijuana</td>
<td>27%</td>
</tr>
<tr>
<td>Alcohol</td>
<td>37%</td>
</tr>
<tr>
<td>Cigarettes</td>
<td>11%</td>
</tr>
</tbody>
</table>

**Ever use:**
- Significantly higher for Denver vs Colorado
- No significant difference among males vs females
- Grade
  - Significantly higher for 11th grade vs 9th grade
  - Significantly higher for 12th grade vs 9th grade
  - No significant difference for any other grades

**Past 30 day use:**
- 27% compared to 49% ever use of marijuana
- No significant difference between marijuana and alcohol
- Significant difference between marijuana and cigarettes

*Note: * indicates that a group is significantly different from at least one other group*

© 2015 Denver Public Health

Source: 2013 Healthy Kids Colorado Survey
Other organizations who are tracking public health impacts of marijuana policies

• Denver Office of Drug Strategy
  – Online dashboard and semi-annual reports: https://denverdrugstrategy-public.sharepoint.com/ → Data

• Colorado Department of Public Health and Environment
Recommendations for Those Considering Marijuana Epidemiology / Public Health Impact Monitoring

• Start ASAP
  – Without comparable baseline data, no way to assess impact of policies
  – Establish questions, data sources, data use agreements, partnerships, legal authority, funding opportunities

• Map out the landscape
  – Stakeholders, subject matter experts
  – What are the important questions and what data can be used to answer them?
  – What work is already being done?
  – Who is best suited to take on different efforts?
  – Divide the data collection, analysis, and communication work thoughtfully
  – Identify and resolve gaps in available data

• Inform policy makers
  – Participate in creation of legal mandate to monitor public health impacts
  – Which analyses are feasible and which are impractical?
Colorado Marijuana: Data Challenges and Baseline Findings

JACK K. REED
COLORADO DEPARTMENT OF PUBLIC SAFETY
NOVEMBER 2015
Public Health Impacts

- Usage trends by county and race/ethnicity
- Emergency room visits & Poison Control calls
- Adverse health impacts
- Treatment admissions
Youth Marijuana Usage Rates

Past 30 day marijuana use, 12-17 year olds

<table>
<thead>
<tr>
<th>Year</th>
<th>Colorado</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>10.3</td>
<td>7.4</td>
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<tr>
<td>2000</td>
<td>10.8</td>
<td>7.2</td>
</tr>
<tr>
<td>2001</td>
<td>11.0</td>
<td>7.6</td>
</tr>
<tr>
<td>2002</td>
<td>9.9</td>
<td>8.2</td>
</tr>
<tr>
<td>2003</td>
<td>9.8</td>
<td>8.0</td>
</tr>
<tr>
<td>2004</td>
<td>9.8</td>
<td>8.0</td>
</tr>
<tr>
<td>2005</td>
<td>9.2</td>
<td>7.7</td>
</tr>
<tr>
<td>2006</td>
<td>7.6</td>
<td>7.2</td>
</tr>
<tr>
<td>2007</td>
<td>8.1</td>
<td>6.7</td>
</tr>
<tr>
<td>2008</td>
<td>9.1</td>
<td>6.7</td>
</tr>
<tr>
<td>2009</td>
<td>10.2</td>
<td>6.7</td>
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<tr>
<td>2010</td>
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<tr>
<td>2011</td>
<td>10.7</td>
<td>7.4</td>
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<tr>
<td>2012</td>
<td>10.5</td>
<td>7.6</td>
</tr>
<tr>
<td>2013</td>
<td>11.2</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Source: Substance Abuse and Mental Health Services Administration, *National Survey on Drug Use and Health*. 
Past 30 day marijuana use, 18-25 year olds

<table>
<thead>
<tr>
<th>Year</th>
<th>Colorado</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
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<td>19.4</td>
<td>14.2</td>
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<tr>
<td>2000</td>
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<td>13.7</td>
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<td>14.6</td>
</tr>
<tr>
<td>2002</td>
<td>23.8</td>
<td>17.3</td>
</tr>
<tr>
<td>2003</td>
<td>21.7</td>
<td>17.2</td>
</tr>
<tr>
<td>2004</td>
<td>18.9</td>
<td>16.6</td>
</tr>
<tr>
<td>2005</td>
<td>21.0</td>
<td>16.4</td>
</tr>
<tr>
<td>2006</td>
<td>21.2</td>
<td>16.4</td>
</tr>
<tr>
<td>2007</td>
<td>21.8</td>
<td>16.5</td>
</tr>
<tr>
<td>2008</td>
<td>23.4</td>
<td>17.4</td>
</tr>
<tr>
<td>2009</td>
<td>24.2</td>
<td>18.4</td>
</tr>
<tr>
<td>2010</td>
<td>26.4</td>
<td>18.8</td>
</tr>
<tr>
<td>2011</td>
<td>27.3</td>
<td>18.9</td>
</tr>
<tr>
<td>2012</td>
<td>26.8</td>
<td>18.9</td>
</tr>
<tr>
<td>2013</td>
<td>29.0</td>
<td>18.9</td>
</tr>
</tbody>
</table>

Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health.
## Adult Marijuana Usage Rates

### Past 30 day marijuana use, 26 years or older

<table>
<thead>
<tr>
<th>Year</th>
<th>Colorado</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
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<td>2000</td>
<td>5.2</td>
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<tr>
<td>2001</td>
<td>4.5</td>
<td>3.1</td>
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<tr>
<td>2002</td>
<td>6.2</td>
<td>4.0</td>
</tr>
<tr>
<td>2003</td>
<td>6.0</td>
<td>4.0</td>
</tr>
<tr>
<td>2004</td>
<td>5.0</td>
<td>4.1</td>
</tr>
<tr>
<td>2005</td>
<td>4.9</td>
<td>4.1</td>
</tr>
<tr>
<td>2006</td>
<td>5.4</td>
<td>4.1</td>
</tr>
<tr>
<td>2007</td>
<td>5.8</td>
<td>4.0</td>
</tr>
<tr>
<td>2008</td>
<td>6.8</td>
<td>4.1</td>
</tr>
<tr>
<td>2009</td>
<td>7.3</td>
<td>4.4</td>
</tr>
<tr>
<td>2010</td>
<td>8.9</td>
<td>4.7</td>
</tr>
<tr>
<td>2011</td>
<td>8.2</td>
<td>4.8</td>
</tr>
<tr>
<td>2012</td>
<td>7.6</td>
<td>5.1</td>
</tr>
<tr>
<td>2013</td>
<td>10.1</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Source: Substance Abuse and Mental Health Services Administration, *National Survey on Drug Use and Health.*
Treatment Admissions
Rate reporting marijuana as drug of abuse

Source: Data Provided by Colorado Department of Human Services, Office of Behavioral Health.
Note: Marijuana could be noted as the primary, secondary, or tertiary drug of abuse.
Public Safety Impacts

- Marijuana-initiated law enforcement contacts
- Marijuana arrests
- Crime around marijuana establishments
- Marijuana-related traffic accidents and DUID
- Organized crime & money laundering
- Probation infractions
- Illegal cultivation on public land
- Diversion out-of-state
- Transfer using parcel services
Marijuana Arrest Rates by Race/Ethnicity

Marijuana arrest rates (per 100,000) by race

Source: Colorado Bureau of Investigation, National Incident-Based Reporting System data.
Marijuana Arrests by Age

Marijuana arrest rates (per 100,000) by age group

Source: Colorado Bureau of Investigation, National Incident-Based Reporting System data.
Driving Under the Influence

Colorado State Patrol DUI Citations

Note: Citation type is classified according to the trooper’s impressions of the reason for impairment. Total Marijuana citations include marijuana alone, marijuana plus alcohol, and marijuana plus other drugs.
Source: Data provided by Colorado State Patrol, 7/9/2015.
Colorado Youth Impacts

- Diversion to minors
- Marijuana arrests
- Comprehensive school information
- Usage trends
- Drug-endangered children
School Discipline

Total and drug suspension rate, per 100,000 students

<table>
<thead>
<tr>
<th>Year</th>
<th>Drug Suspension Rate</th>
<th>Total Suspension Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2005</td>
<td>443</td>
<td>13,445</td>
</tr>
<tr>
<td>2005-2006</td>
<td>437</td>
<td>13,267</td>
</tr>
<tr>
<td>2006-2007</td>
<td>414</td>
<td>13,618</td>
</tr>
<tr>
<td>2007-2008</td>
<td>400</td>
<td>12,796</td>
</tr>
<tr>
<td>2008-2009</td>
<td>391</td>
<td>12,632</td>
</tr>
<tr>
<td>2009-2010</td>
<td>506</td>
<td>11,542</td>
</tr>
<tr>
<td>2010-2011</td>
<td>551</td>
<td>11,094</td>
</tr>
<tr>
<td>2011-2012</td>
<td>534</td>
<td>10,454</td>
</tr>
<tr>
<td>2012-2013</td>
<td>500</td>
<td>9,301</td>
</tr>
<tr>
<td>2013-2014</td>
<td>538</td>
<td>8,396</td>
</tr>
<tr>
<td>2014-2015</td>
<td>509</td>
<td>9,058</td>
</tr>
</tbody>
</table>

Source: Colorado Department of Education.
School Discipline

Total and drug expulsion rate, per 100,000 students

Source: Colorado Department of Education.
Marijuana Offenses by Location

Marijuana Offenses in Colorado, by School Status

Source: Colorado Bureau of Investigation, National Incident-Based Reporting System data.
Note: In 2012 there were 43 cases where the type of school could not be determined.
Data Sources
1. No data
   - Drug endangered children, marijuana-initiated law enforcement contacts

2. No state-level data
   - DUID, crime around marijuana establishments

3. No trend data or very short-term trend data
   - Agency-level DUID, arrests, offenses

4. Data silos
   - Hospitalization, ED visits, poison control, treatment, justice system

5. Marijuana not specified as drug
   - School discipline

6. Marijuana impairment not determined
   - Fatalities, DUID, hospitalization, ED visits
Additional data

- Revenue
- Marijuana extraction explosions and burns (butane & other explosive methods)
- Law enforcement training
- Source of marijuana: home grow, medical, retail, black/gray market
- Type of ingestion and amount: smoked, vaped, dabbed, edibles
- Homelessness
- Testing information
Contact Information

Jack Reed
Colorado Division of Criminal Justice
700 Kipling St., Suite 1000
Lakewood, CO 80215

Jack.Reed@state.co.us
303-239-4330
Marijuana Legalization
Data Collaboration
Open Data

06 Nov 2015
Understanding Impacts to City Operations

➢ There was no roadmap
➢ The City developed thoughtful regulations and processes
➢ There was a need to understand the impact to City operations through data and analysis
➢ Collaborative approach
➢ bridging technology service, Marijuana governance and agency operations
➢ Used existing Business Intelligence and data warehouse tools to produce a dashboard
➢ No previously-collected Marijuana data
➢ The need to alter and implement business processes for Fire Department, Police, Excise and Licenses, Courts, Environmental Health, and Finance
➢ Data impacts from policy and process changes
➢ Goal was to provide actionable intelligence
➢ Data Integrity
➢ Highly visible data and the need to be consistent and accurate is critical
Data Challenges continued

➢ Data provided in various formats from several domains
   ➢ SQL Server, Oracle, CSV, Excel, Web services
➢ Dependency on data being entered accurately – no constraints in place
➢ Inconsistent coding and data collection mechanisms
➢ Data Availability
➢ Had to find data stakeholders and subject matter experts
➢ Source system knowledge transfer critical for accurately representing data
➢ Sensitive Police and Fire data concerns
Next Steps

– Once the data had been fully reviewed, analyzed and vetted internally, an effort was implemented to make the data public-facing

– Publish more Information to educate Citizens, City operations and the Industry
  • Continue to improve on existing openly-published data and visualization and analysis tools
  • Include new data points
  • Researching new approach for making data public facing
    – Mitigating security concerns
    – Enhancing User experience internally and externally
    – Incorporating the look and feel of current DenverGov branding
On May 9, 2013, President Obama signed an executive order that made open and machine-readable data the new default for government information. Making information about government operations more readily available and useful is also core to the promise of a more efficient and transparent government.

Over the past few years, the Administration has launched a number of Open Data Initiatives aimed at scaling up open data efforts across the Health, Energy, Climate, Education, Finance, Public Safety, and Global Development sectors.

The White House has also launched Project Open Data, designed to share best practices, examples, and software code to assist federal agencies with opening data. These efforts have helped unlock troves of valuable data — that taxpayers have already paid for — and are making these resources more open and accessible to innovators and the public.
• Which data sets are most widely used? By whom?
  – Parcels, and crime. While we don’t know who uses this data, from what we can gather it is for university students, real estate companies, and researchers.

• How does the city determine which data sets to add?
  – We encourage all agencies to add data, but they need to meet our basic standards and have metadata. One factor that limits the data that we make available through the ODC is standards compliance. When a new data source comes available (application, GIS layer, etc.), it is evaluated for potential placement ODC. We are in the process of building this in to our Project Management intake.
• Name a couple of unique projects/successes that have grown out of local open data efforts.
  • Code for America initiatives - marijuana crimes and tax revenue).
  • Data in the Open Data Catalog is currently being used for the Procurement and Travel webpage (Budget) and the Open Checkbook
  • Street sweeping app is using open data to notify citizens if requested, via email or text
  • The State of Colorado downloads our GIS data to help create State-wide GIS layers
  • Our neighboring municipalities download our data to help create regional GIS layers
  • The media uses the “Open Checkbook” to research City spending on various projects
  • Researchers use the data on the ODC for various studies:
Open Data continued

Open Data Catalog
Making city government accessible through open access to data

Results

2011 Budget
Last updated 6/25/2016
The City and County of Denver’s 2011 budget provides detailed information about estimated revenues and expenditures for the fiscal year. The budget also serves as a work plan for the City and its departments, including a framework for setting priorities, strategic initiatives and performance measure.

Tags: budget finance

2012 Budget
Last updated 6/28/2016
The City and County of Denver’s 2012 budget provides detailed information about estimated revenues and expenditures for the fiscal year. The budget also serves as a work plan for the City and its departments, including a framework for setting priorities, strategic initiatives and performance measure.

Tags: budget finance

2013 Budget
Last updated 6/28/2016
The City and County of Denver’s 2013 budget provides detailed information about estimated revenues and expenditures for the fiscal year. The budget also serves as a work plan for the City and its departments, including a framework for setting priorities, strategic initiatives and performance measure.

Tags: budget finance

311 Service Requests
Last updated 10/23/2015
311 Service Requests - current data and previous 12 months.
Data.denvergov.org
Data.opencolorado.org

http://www.denvergov.org/content/denvergov/en/city-of-denver-home.html
http://www.denvergov.org/content/denvergov/en/denver-marijuana-information.html