Marijuana Legalization:

Implications for the Public Behavioral Health Treatment System in California

Peter Banys, MD, MSc
Clinical Professor of Psychiatry, UCSF
Private Practice, General & Addiction Psychiatry
Past-President, California Society of Addiction Medicine

2016 California Behavioral Health Policy Forum
California Institute for Behavioral Health Solutions
Doubletree Hilton Hotel, Sacramento
February 17-19, 2016
### Obligatory Discourse in an Evolving Regulatory Landscape

<table>
<thead>
<tr>
<th>Current Models</th>
<th>Alternative &amp; Additional Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catholic Justice</td>
<td>Public Health</td>
</tr>
<tr>
<td></td>
<td>Harm Reduction</td>
</tr>
<tr>
<td>Harm to Society</td>
<td>Harm to Self</td>
</tr>
<tr>
<td></td>
<td>Harms of Arrest</td>
</tr>
<tr>
<td>Hard Drugs</td>
<td>Soft Drugs</td>
</tr>
<tr>
<td></td>
<td>Personal Possession Amounts</td>
</tr>
<tr>
<td>Zero-Tolerance School Policies</td>
<td>Student Assistance Programs (SAPs)</td>
</tr>
<tr>
<td></td>
<td>Early Intervention</td>
</tr>
<tr>
<td>Ideological Assumptions</td>
<td>Evidence-Based Policies</td>
</tr>
<tr>
<td>Juvenile Justice Treatment</td>
<td>Public Sector Community-Based Treatment</td>
</tr>
<tr>
<td>Physician Recommendations for</td>
<td>Standard Physician Prescriptions</td>
</tr>
<tr>
<td>Marijuana</td>
<td>Higher standards for Youth Rx’s</td>
</tr>
</tbody>
</table>
Cannabis / Marijuana

Cannabis is the basis for “soft” and “hard” defections from international conventions and for “outlaw” international and domestic drug policy reforms.
Soft Defections from International Conventions

- 1961 Vienna Consensus: Dutch argue against the convention, that cannabis is no worse than alcohol.
- 1970 Baan Commission (Netherlands): 
- 1971 Hulsman Commission (USA): 
- 1972 Shafer Commission (USA): 
- 1973 LeDain Commission (Canada): 
- 1977 Senate Social Comm. on Social Welfare (Aus) 
- 2013 OAS Organization of American States
Hard Defections from International Conventions

- **Netherlands**: Brown Cafes
- **Portugal**: Dissuasion commissions
- **Spain**: Cannabis growers’ clubs
- **Canada**: Vancouver Insite Heroin Maintenance
- **USA**: Medical Marijuana in 23 states & D.C. California MMJ in 1996
- **Uruguay**: Regulations/Taxation (2013-15)
Worldwide Cannabis Use (2014 or later)

Cannabis use
15- to 64-year-olds* who have used cannabis in the past year, % of total, 2014 or latest

*Or similar age range

Source: UNODC
Since 2011, Over Half of Americans Favor Marijuana Legalization

**Graphics Source:** The Economist (13 Feb 2016); Legalising cannabis: Reffe regulatory challenge.

A growing number of countries are deciding to ditch prohibition. What comes next?
42.8% of the US population over 12 years old has a personal use history of cannabis.

About 7% appear to be regular users.

Source: Substance Abuse and Mental Health Services Administration survey of the United States.
Marijuana is rising in popularity...
Recreational users outnumber medical users. Despite the risk to their developing brains, a third of teens say they’ve used marijuana in the past month.

U.S. marijuana use, 12 and older
- Recreational
- Medical

<table>
<thead>
<tr>
<th>Year</th>
<th>Use regularly</th>
<th>Believe it’s harmful</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>26%</td>
<td>36%</td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td>36%</td>
</tr>
</tbody>
</table>

2002: 15 million
2013: 21 million

and increasingly available in U.S. states...
As states loosen restrictions, one politically appealing option is cannabidiol (CBD) oil, which has some of marijuana’s health effects without the high.

States where medical marijuana is legal
- All forms
- CBD oil only

States where recreational marijuana laws have changed
- Legal**
- Decriminalized†
Incarceration

The healthcare industry (treatment) competes for the same raw materials for processing (drug users) as the incarceration industry (criminal justice).
Incarceration: A Growth Industry

The U.S. penal population of 2.2 million adults is the largest in the world. In 2012, close to 25 percent of the world’s prisoners were held in American prisons, although the United States accounts for about 5 percent of the world’s population.

The U.S. rate of incarceration, with nearly 1 of every 100 adults in prison or jail, is 5 to 10 times higher than rates in Western Europe and other democracies.

Conclusion: The growth in incarceration rates in the United States over the past 40 years is historically unprecedented and internationally unique.

National Academy of Sciences (2014)

The Growth of Incarceration in the United States: Exploring Causes and Consequences (2014), Jeremy Travis and Bruce Western, Editors; Committee on Causes and Consequences of High Rates of Incarceration; Committee on Law and Justice; Division of Behavioral and Social Sciences and Education; National Research Council, National Academy of Sciences.
Lifetime Risk of Imprisonment

- **All Men**: 1 in 9
- **White Men**: 1 in 17
- **Black Men**: 1 in 3
- **Latino Men**: 1 in 6

- **All Women**: 1 in 56
- **White Women**: 1 in 111
- **Black Women**: 1 in 18
- **Latina Women**: 1 in 45


FIGURE 2-4 Total adult correctional population, including state and federal prison, local jail, and probation and parole populations, 1972 to 2010.

SOURCE: See Appendix B.
Number of People in Prison and Jail for Drug Offenses: 1980 and 2011

1980: 41,000 drug offenders
2011: 501,500 drug offenders

Correctional Spending

California 2015-16:
The Governor’s budget proposal for 2015-16 includes just over $10 billion in General Fund spending on state corrections, an increase from 2014-15, accounting for 9% of total General Fund expenditures.

2013-14: California State Prisons $60,032 / inmate / yr.

National Research Council (2014), The Growth of Incarceration in the United States, National Academy of Sciences

FIGURE 11-1 Trends in state, local, and federal spending for corrections, 1980-2010.
NOTE: Amounts shown are adjusted to 2011 dollars.
SOURCE: Data from U.S. Census Bureau (n.d.-a).
The Unvanquishable Economics of Drug Production
Production Costs and Wholesale Prices for Cannabis Under Various Scenarios

LSE Expert Group on the Economics of Drug Policy (2014), *Ending the Drug Wars*
Marijuana smoking is perceived as safer than cigarette smoking

Large higher risk cohort of regular and daily marijuana users in California
Past Month Marijuana Use among Youths in NSDUH, MTF, and YRBS: 1971-2013

25%
Since 2009 in US, more 18 Year-Olds Smoke Marijuana than Cigarettes

Past Month Cigarette and Marijuana Use among 12th Graders, 1975-2012

Source: 2012 Monitoring the Future Study, University of Michigan
California Healthy Kids Survey (CHKS) 2011-13

During the past 30 days, on how many days did you use alcohol...marijuana?

<table>
<thead>
<tr>
<th>CHKS 2011-13</th>
<th>Grade 7</th>
<th>Grade 9</th>
<th>Grade 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marijuana</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>93%</td>
<td>85%</td>
<td>76%</td>
</tr>
<tr>
<td>1-2 Days</td>
<td>3%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>3-9 Days</td>
<td>1%</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>10-19 Days</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>20 or more</td>
<td>1%</td>
<td>4%</td>
<td>8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alcohol</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>89%</td>
<td>80%</td>
<td>67%</td>
</tr>
<tr>
<td>1-2 Days</td>
<td>8%</td>
<td>12%</td>
<td>17%</td>
</tr>
<tr>
<td>3-9 Days</td>
<td>2%</td>
<td>4%</td>
<td>10%</td>
</tr>
<tr>
<td>10-19 Days</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>20 or more</td>
<td>1%</td>
<td>3%</td>
<td>3%</td>
</tr>
</tbody>
</table>
## Estimated Monthly Marijuana Use in California High Schools 2015-16

<table>
<thead>
<tr>
<th>California High School Marijuana Use</th>
<th>Grade 9</th>
<th>Grade 10</th>
<th>Grade 11</th>
<th>Grade 12</th>
<th>Graduates</th>
<th>Total Gr. 9-12:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estim. Enrollment 2015-16</td>
<td>496,021</td>
<td>489,532</td>
<td>470,944</td>
<td>489,939</td>
<td>416,058</td>
<td>1,946,436</td>
</tr>
<tr>
<td></td>
<td>1,325 schools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marijuana Use per month</th>
<th>CHKS</th>
<th>Estimate</th>
<th>CHKS</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent 3-9 Days</td>
<td>4%</td>
<td>4%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Number 3-9 Days</td>
<td>19,841</td>
<td>19,581</td>
<td>23,547</td>
<td>24,497</td>
</tr>
<tr>
<td></td>
<td>87,466</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent 10-19 days</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Number 10-19 days</td>
<td>9,920</td>
<td>9,791</td>
<td>14,128</td>
<td>14,698</td>
</tr>
<tr>
<td></td>
<td>48,538</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent 20 or more days</td>
<td>4%</td>
<td>6%</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td>Number 20 or more days</td>
<td>19,841</td>
<td>29,372</td>
<td>37,676</td>
<td>44,095</td>
</tr>
<tr>
<td></td>
<td>130,983</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Students using >3 days/mo.: 266,987
- Students using >10 days/mo.: 179,520
- Students using >20 days/mo.: 130,983
Medical Harms of Marijuana Use

Risks to School-Age Learning

vs.

Risks for Addiction
Marijuana Use & Psychosis

- **Vulnerability to Psychosis**
  - Increased risk (2X) for onset of psychotic symptoms, however a doubled rate is still low.
  - Worsening of existing psychotic conditions.
  - Unclear causal mechanism. Possibilities include:
    - **Association**: Psychosis and cannabis use caused by something else
    - **Early Release**: Pre-existing psychotic disorder is released early by cannabis.
    - **Direct Cause**: Cannabis directly produces psychosis.
    - **Secondary Use**: Cannabis may be a self-medication for early psychosis.


Early Use = Vulnerability

- It is clear that the earlier an individual begins using marijuana the more likely dependence will occur quickly.
- Individuals who delay onset of marijuana use after age 21 show a remarkably low rate (0.5%) of dependence within the first two years of use.

<table>
<thead>
<tr>
<th>Onset of Marijuana Use [17]</th>
<th>Age 11-13</th>
<th>Age 14-15</th>
<th>Age 16-17</th>
<th>Age 18-20</th>
<th>Age 21 &amp; Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recent Active Users</td>
<td>21.3%</td>
<td>27.1%</td>
<td>23.8%</td>
<td>16.0%</td>
<td>7.8%</td>
</tr>
<tr>
<td>Dependent within 2 years</td>
<td>5.4%</td>
<td>6.0%</td>
<td>4.4%</td>
<td>1.9%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

Brain Maturation: The developing brain in adolescence may be particularly sensitive to environmental inputs such as drugs.

Cognitive Dysfunction: Many studies, including...
- Prospective New Zealand (Dunedin) Study (birth-to-38 y.o.)
  - Persistent use is correlated with decline in cognitive abilities
  - Decline greater for those who started cannabis use before age 18
  - Deficits persisted > 1 year for early users

Estimated Lifetime Addiction Risk:
- ~09% of adults.
- ~17% for early-onset adolescents.


Lifetime data overestimate the risk of persistent addiction; however, transient addiction in school age kids can derail their education.
Risks to Educational Progress are Greater than Long-Term Risks of Addiction

- Cognitive inefficiency during periods of use.
- Controversy over long-term impact on IQ and mechanisms for executive and memory performance decrements.
  - There are many confounds and co-factors in studying cognitive function in marijuana users.
- Poorer academic performance.
- Higher rates of school dropout.
- Associated behavioral and family problems.

*Note:* A major NIH prospective study (ABCD Study) will seek to clarify nature of long-term developmental risks in youth.
Legal Harms of Marijuana Use

Universal Decriminalization vs Adult Legalization
Relative Harms of Cannabis Criminalization

- Criminal arrest records, juvenile justice probation and juvenile hall.
- Incarceration subculture, “crime school,” psychological and re-entry costs.
- Ineligibility for federal school loans.
- School expulsions and suspensions.
- Employment screening problems.
- Racial disparities in arrest and adjudication.
- Fines and attorney’s fees.
- Immigration/naturalization problems.
School Zero-Tolerance Policies (Expulsion/ Suspension)

Although zero-tolerance policies were originally products of the *Gun-Free Schools Act of 1994*, such policies were rapidly and popularly expanded to a wide range of behavioral violations.

The *Zero-Tolerance Task Force Report* (2008) of the American Psychological Association found that schools with higher rates of suspension tend to have lower academic quality, pay less attention to school climate, and receive lower ratings on school governance measures.

An extensive [APA] review of the literature found that, despite a 20-year history of implementation, there are surprisingly few data that could directly test the assumptions of a zero tolerance approach to school discipline, and the data that are available tend to contradict those assumptions. Moreover, zero tolerance policies may negatively affect the relationship of education with juvenile justice and appear to conflict to some degree with current best knowledge concerning adolescent development. To address the needs of schools for discipline that can maintain school safety while maximizing student opportunity to learn, the report offers recommendations for both reforming zero tolerance where its implementation is necessary and for alternative practice to replace zero tolerance where a more appropriate approach is indicated.
Juvenile Felony Arrests in California (2008-13)

Felony Arrests CA – Juveniles (ages 10-17) - 2008-2013

- **2011 New Infraction Law:**
  - Major Reduction in Possession Arrests

Source: FBI, Uniform Crime Reporting Program
Juvenile Felony Arrests in California (2008-13)

Felony Arrests CA – Juveniles (ages 10-17) – 2008-2013

Source: Harris, KD. Crime in California 2013. Calif. Attorney General, Calif. Dept. of Justice, 2014, from Table 22 (p.25)
Juvenile Misdemeanor Arrests in California (2008-13)

Misdemeanor Arrests CA – Juveniles (ages 10-17) – 2008-2013

Number of marijuana infractions 2011-2013 is not available

14,991 misdemeanor arrests for marijuana in 2010.

5,831 misdemeanor arrests for marijuana in 2011.

Source: Harris, KD, Crime in California 2013, Calif. Attorney General, Calif. Dept. of Justice, 2014, from Table 26 (p.29)
Implications for Public Policy in California

- Ongoing Regulatory Improvements after AUMA (or other) Initiative Passage.
- School-Based Student Assistance Programs (SAPs).
- Community-Based Treatment Programs.
- New Protective Structures in Medical Marijuana System.
- Extended Funding for Long-Term Research.
Youth-First Initiative:
Cermak & Banys (2011), California Society of Addiction Medicine

- **State of California**
  - Tax revenue priority earmarks for school assistance programs (SAPs), health education, youth treatment, and regular outcomes evaluations by University of California researchers.

- **Schools**
  - Priority funding of School Assistance Programs (SAPs)
  - Include Learning/Cognitive Assessments. Focus on school retention, a key outcomes measure. Reduce numbers of suspensions and expulsions.

- **Professional Treatment**
  - Treatment for small minority of youth harmfully involved with marijuana.
  - Co-pay insurance resources to supplement family private insurance, MediCal, and Affordable Health Care Act for professional care.

http://www.csam-asam.org/evidence-based-marijuana-info-0
## Implications of Youth Vulnerability for Rational Policy

<table>
<thead>
<tr>
<th>Key Findings:</th>
<th>Implications</th>
</tr>
</thead>
</table>
| 1. Early onset (ages 13-16) of marijuana use is a significant risk factor. | a) Universal and selected prevention activities that seek to delay initiation of marijuana use.  
   b) Engagement of cohesive peer groups.  
   c) Family engagement for at-risk youth. |
| 2. Regular (10-19 days/mo.) and heavy users (more than 20 days/mo.) are more likely to show cognitive slippage than occasional users.  
   3. There will likely be 49,000 regular users (3%) and 130,000 heavy users (9%) in California high schools (2015-16), before any change in access or use attributable to a legalization initiative. | a) Indicated intervention by Student Assistance Programs (SAPs)  
   b) SAPs need to include cognitive and learning assessments.  
   c) SAP referral mechanisms for learning skills training and professional assistance for drug dependence. |
| 4. Regular and heavy users are more likely to skip school, drop out, and not proceed to further education. | a) Evidence-based programs to improve school climate  
   b) Engagement methods for school disaffiliated kids. |
| 5. Transitions out of marijuana use are common after high school, but are poorly studied. | a) Recovery support  
   b) Long-term outcome research needs to be funded by new marijuana tax revenues. |
Student Assistance Programs (SAPs): Core Principles

- District-level organization and staffing.
- Science-based drug and alcohol education for all students.
- Privacy/Confidentiality protections.
- Family engagement, no privacy protections from parental notification.
- No random toxicology testing of general students
- Elimination of zero-tolerance (suspension & expulsion) policies
- Staff will have training in cognitive/learning and drug abuse assessments
- Relapses do not equal intervention failures
- Community-based referrals for support systems and/or professional care.
- Stable funding for long-term outcomes evaluations and standardization of outcomes metrics for the state as a whole
Specific Recommendations: 1
Department of Education

- **Zero-Tolerance School Policies:**
  - Elimination of zero-tolerance for simple possession should be one of several qualifying criteria for a school to receive SAP funding from MJ Tax revenue.

- **Student Assistance Programs**
  - Structured multi-modal programs organized on district basis, but not merely re-naming of school counselor functions. One national design is *Project Success*.
  - Training and recruitment of SAP staff in:
    - Adolescent Psychology
    - Cognitive/Learning assessment capabilities
    - Clinical treatment liaisons
    - Parental and student engagement
    - Peer support
Specific Recommendations: 2
Attorney General & Department of Justice

- **Possession Charges:** Attorney General clarification of criteria for juvenile possession-related arrests.
  - Clear defining criteria between infractions and misdemeanors.

- **Juvenile Infractions:** Annual tracking of juvenile possession infraction arrests.
  - Non-criminal Fixit tickets for SAP and/or drug education.
  - Higher education/engagement penalties for recidivist juveniles.

- **Upcharging:** Analysis of upcharging to qualify for probation-based treatment.

- **Criminal Justice Outcomes:** Analysis of long-term outcomes for in-custody and probation-based treatments. Analysis of recidivism rates for juvenile criminal distribution/sales.
Specific Recommendations: 3
Department of Health Care Services

- **DHS Advisory Board:** Additional external-expert advisory/oversight board, including clinicians, public health, researchers, and educators.

- **Community-Based Treatment:** Development of public-sector treatment programs for juveniles with drug problems. (CSAM White Paper on State of the Art Treatment for Juveniles in California is in preparation)

- **Long-Term Research on Outcomes >>10 years:**
  - Multi-decade studies of outcomes, particular emphasis on youth users, ER presentations, and intoxicated driving.
  - Annual COLA’s to account for inflation
  - Elimination of AUMA pipelining of research funds to a UCSD research institute and the California Highway Patrol in favor of an open-competition Request for Proposal (RFP) system.
Specific Recommendations: 4
Department of Health Care Services

- Revised Medical Marijuana System: Legislation
  - Bifurcation of Dispensaries: Physically separate medical and recreational marijuana dispensaries.
  - Conversion to Rx: Convert current recommendation system to a standard medical prescription system.
  - CURES Tracking: Track all medical MJ Rx’s via CURES 2.0, the privacy-protected California pharmacy database already tracks potentially abusable prescriptions (opioids, stimulants, sedatives, sleeping pills).
  - Youth Rx Protections: Medical Marijuana Rx’s for youth ≤18 y.o. should require:
    - Second Medical Opinion from treating family physician or pediatrician.
    - Parental notification
Selected References

- Cermak & Banys (2011), Youth First, California Society of Addiction Medicine
  http://www.csam-asam.org/evidence-based-marijuana-info-0

  https://www.safeandsmartpolicy.org/reports/

- California Society of Addiction Medicine Evidence-Based Marijuana Policy, and ten cannabis policy briefings (2015) by Timmen Cermak, MD, and Peter Banys, MD.
  http://www.csam-asam.org/evidence-based-marijuana-information

- Management of Cannabis Use Disorder and Related Issues: A Clinician’s Guide (2009), National Cannabis Prevention and Information Centre (NCPI, Australia)

- The California SAP Resource Center. SAP Models (2015); Available from: http://casapresources.org/about/models.php

- Help is Down the Hall: A Handbook on Student Assistance (2007), SAMHSA; Available from www.nacoa.org/pdfs/SAP%20HANDBOOK.pdf
End