Expanding Medical Marijuana Laws: Current Policies and Implications for Public Health
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Expanding Medical Marijuana Laws: Current Policies and Implications for Public Health
Moderator Introduction

Alexander Wagenaar, Ph.D.

- Professor of Health Outcomes and Policy at the University of Florida College of Medicine, Associate Director of the Public Health Law Research Program at Temple University

- M.S.W. in Program Evaluation and Research, and Ph.D. in Health Behavior from the University of Michigan

Research interests/areas of expertise:

- Social and behavioral epidemiology, public health policy, legal evaluations, community intervention trials, alcohol and tobacco studies, violence prevention, traffic safety and injury control.
- Evaluation of public policy changes and community-level interventions, using both randomized trial and controlled time-series research designs and statistical methods.
Panel Introduction

W. Eric Kuhn, J.D.

- Assistant Attorney General, State Services Section, Health Care Unit, Adjunct Professor, University of Denver Sturm College of Law’s Government Externship Seminar
- J.D. from University of Denver Sturm College of Law, B.A. from Colorado College in Colorado Springs
- Research interests/areas of expertise:
  - Legal matters ranging from health care and human services, to environmental and insurance-related agencies.
  - Public Health Fellow, National Attorneys General Training and Research Institute, funded by the Robert Wood Johnson Foundation, studying the collateral public health consequences of marijuana legalization
Panel Introduction

Bob Morgan, J.D.

- General Counsel, Illinois Department of Public Health, Statewide Project Coordinator, Illinois Medical Cannabis Pilot Program

- J.D., Northern Illinois University College of Law, B.A., University of Illinois at Urbana-Champaign

- Research interests/areas of expertise:
  - Legal matters ranging from health care and human services, to environmental and insurance-related agencies.
  - Point person in the Governor’s Office on all legal issues that involved health care and the Affordable Care Act
  - Implementation of federal health care reform and improvements to the workers’ compensation program for state employees, health care consulting and policy, developing and managing health care facilities throughout the country
Panel Introduction

Gordon S Smith, M.B.,Ch.B., M.P.H.

- Professor, Epidemiology & Public Health, University of Maryland School of Medicine, National Study Center for Trauma and EMS, Baltimore, MD

- M.B., Ch.B. (equivalent to M.D. in U.S.), University of Otago Medical School Dunedin, New Zealand, M.P.H., Harvard School of Public Health,

- Research interests/areas of expertise:
  - Public Health Epidemiology, Infectious Disease, Surveillance Systems, Injury Control
  - International Health, Tropical Public Health
Identifying Emerging Public Health Issues in States with State-Level Marijuana Legalization

W. Eric Kuhn
Assistant Attorney General
Office of the Colorado Attorney General

NAGTRI/Robert Wood Johnson Foundation
Public Health Law Fellow
Marijuana and the Endocannabinoid System
Marijuana

- The *Cannabis sativa* plant
- Can be consumed as
  - Dried, shredded flowers, leaves, stems and seeds
  - A concentrated resinous form called hashish
  - Extracted in oil and put into edible products
Endocannabinoid System

- Group of receptors and chemicals in the human body
- Responsible for processes including
  - Mood
  - Memory
  - Appetite
  - Pain suppression
Endocannabinoid Receptors

- CB1
  - Mostly on neurons

- CB2
  - Mostly on immune cells

Central Nervous Systems
- Peripheral Nervous Systems
- Heart
- Uterus
- Testes
- Sperm
- Embryo
- Spleen
Endocannabinoids

- Anandamide (AEA)
- 2-arachidonoyl glycerol (2-AG)
- 4 others identified

Cannabinoids

- $\Delta_9$-tetrahydrocannabinol (THC)
- Cannabidiol (CBD)
- Up to 85 others
Endocannabinoid Action

- THC binds to CB1 Receptors
- Inhibits Release of Neurotransmitters

- Highest CB1 concentration is in centers that influence:
  - Pleasure
  - Memory
  - Thinking
  - Concentration
  - Sensory and Time Perception
  - Coordinated movement
Current State of Marijuana Laws – Federal Law

- Schedule I under Controlled Substances Act
  - Has a High Potential for Abuse
  - No currently accepted medical use in treatment in the United States
  - Lack of accepted safety for use of the drug under medical supervision
Current State of Marijuana Laws
Marijuana Health Effects
Marijuana and Adolescents
Marijuana and Adolescents

- Research shows that many of the health harms are magnified for people who start in adolescence
- Some effects are permanent
Marijuana and Adolescents

Perceived Harm and Annual Use Among 12th Graders

Marijuana and Adolescents

- Testicular Cancer Risk – 3x more likely
- Addiction – 2x more likely
- Greater decrease in IQ from use
- Decrease in IQ irreversible
- Link between use in adolescence and later psychotic experiences
Marijuana and Pregnancy
Marijuana and Pregnancy

- THC crosses placental barrier and accumulates in fetal tissues
- Particularly in developing brain
Marijuana and Pregnancy

- Visual Behavioral Disturbances
  - Neonates
    - Mental, motor, and neurobehavioral deficiencies; aggressive behavior; attention problems
  - 18 months
    - Lower scores in verbal and memory domains
  - 3 Years
    - Lower IQ; social behavioral disorders
  - 6 Years
    - Decrease in learning and academic achievement; ADHD; depressive symptoms
  - 10 Years
    - Long-term cognitive and behavioral problems
  - Young Adult
Marijuana and Frequency of Use
Marijuana and Frequency of Use

- Testicular Cancer Risk – 3x more likely
  - 6.5x more likely if > 10 years
- Addiction – 3-5x more likely with daily use
- Greater decrease in IQ
- Longer exposure to marijuana linked with greater risk of psychotic experiences
Marijuana and Dose, Purity, and Packaging
Marijuana Dose

- Amount of THC or CBD present
- Testing
- Labeling
- Secure packaging
Marijuana Purity

- Pesticides
- Herbicides
- Mold
- Fungus
- Bacteria
- Viruses
- Other contaminants
Marijuana Packaging
Conclusions

- Reduce use by children, adolescents, and pregnant women
- Reduce frequency of use of marijuana by adults
- Reduce drugged driving
Conclusions

- Work to limit marketing to children and accidental access by children
- Work with regulators to address dose, safety, and purity
- Get started!

Illinois Medical Cannabis Pilot Program

Bob Morgan
Statewide Project Coordinator
General Counsel, IDPH

May 15, 2014
Overview of Key Agencies

- **Department of Public Health (DPH):** register tens of thousands of patients, maintain patient registry, set patient/caregiver fees, oversee edibles, patient/community education
- **Department of Financial & Professional Regulation (DFPR):** license up to 60 dispensaries, set registration fees and selection process, enforce violations of rules
- **Department of Agriculture (AGR):** license up to 22 cultivation centers, set registration fees and selection process centers, track plants from “seed to sale”, enforce violation of rules
- **Department of Revenue (DOR):** set tax structure for filing, reporting, and taxing levels of privilege and sales taxes
- **Illinois State Police (ISP):** review security plans for dispensary/cultivation centers, conduct fingerprint background check for patients/caregivers/dispensary/cultivation employees
Who can get medical cannabis?

- Patients with “debilitating medical conditions” as defined by statute – 410 ILCS 130/10(h)

<table>
<thead>
<tr>
<th>Qualifying conditions (41 total)</th>
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<tbody>
<tr>
<td>Cancer</td>
<td>Parkinson’s Disease</td>
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<tr>
<td>Glaucoma</td>
<td>Tourette’s Syndrome</td>
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<tr>
<td>HIV/AIDS</td>
<td>Multiple Sclerosis (MS)</td>
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<tr>
<td>Lou Gehrig's Disease (ALS)</td>
<td>Hepatitis C</td>
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<td>Alzheimer’s</td>
<td>Muscular Dystrophy</td>
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<tr>
<td>Fibromyalgia</td>
<td>Rheumatoid arthritis</td>
</tr>
<tr>
<td>Spinal cord disease</td>
<td>+28 others</td>
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</tbody>
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- What is Illinois missing that other states have?
- Administrative petition process for DPH to add qualifying conditions
- Patients cannot have “excluded offenses”
What can qualifying patients get?

- With physician’s certification:
  - Up to 2.5 ounces of cannabis per patient every 2 weeks
    - Allowance for additional amount when physician requests a waiver
  - Includes cannabis flower, edibles, extracts, and other derivative products
Unique Aspects of the Program

- Limited number of conditions
- DPH authority to add qualifying conditions
- Only bona-fide physician relationships
- Dispensaries based on population distribution
- Employee/employer rights
- 4-year Pilot Program
Implementation Challenges...so far

- Zoning – Patient Access
- IT Infrastructure
  - HIPAA / Privacy
  - Tracking patient use
- Conflict with Federal law
  - Prescription vs. Certification
  - Federal–State partnerships (VA Facilities)
- Multi-agency implementation
Anticipated Challenges

- Additional Qualifying Conditions
- Decriminalization Efforts
- DUI Standards
- Employee/employer rights
- 4–year Sunset Clause
- Research Partnerships?
Marijuana and driving: Evaluating the impact of marijuana-related laws, including medical marijuana on traffic crashes

Gordon S Smith
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National Study Center for Trauma & EMS,
Shock Trauma Center, University of Maryland, Baltimore

Expanding Medical Marijuana Laws: Regulation and Public Health
Background

• Driving under the influence of many drugs increases risk of motor vehicle crashes
  – Marijuana leading drug found in
    • National Roadside Survey
    • Fatally injured drivers

• Marijuana use laws and legal penalties for drug-impaired driving (DID) driving can influence marijuana use and drug-impaired driving

• Evaluation of these laws requires reliable longitudinal data on drugs and driving
Marijuana Use Laws

• Laws regarding marijuana use changing rapidly

• Medical Marijuana
  – 1996: California first made “medical use” legal
  – As of 2014: 21 states and DC, various levels of regulation (e.g. dispensaries)
    • More coming

• Marijuana legalization
  – 2012: Colorado and Washington
    • Being implemented in 2014

• Effects laws on traffic safety unknown
What are the Effects of these Marijuana Laws?

• Reduce perceptions of risk of harm from marijuana use
  – Likely to result in increased use

• Effects of these laws on motor vehicle crashes and drug-impaired driving is unknown

• How can we evaluate these effects?
  – What data are currently available to evaluate the effects of these laws on traffic safety?
Methods

• Examined methods available for evaluating the effect of laws related to marijuana use on drug-impaired driving
  – Availability of data sources on marijuana use and drug-impaired driving
    • Surveys of use
    • Drug testing data
  – Ability to evaluate trends in marijuana related driving
Youth Risk Behavior Survey (YRBS)

• Students in grades 9–12
• Conducted annually at the state level
• Only asks general marijuana use
  • During the past 30 days, how many times did you use marijuana?
• Do not specifically relate use to driving
• State-level data allows comparisons
  • Lynne-Landsman (2013) found no effect medical marijuana laws on 30 day use marijuana
  • Potentially valuable source of for driving and marijuana if questions added
  – Colorado adding questions to Behavioral Risk Factor Survey (BRFS) this year
Monitoring the Future Survey (MFS)

• High school seniors 12th grade
• Nationally representative sample
• Driving after using marijuana and other illicit drugs asked separately.
  – During the last two weeks, how many times have you driven a car, truck, or motorcycle after
  – ... smoking marijuana?
  – ... using other illicit drugs?

• Valuable data on national trends over time
  – From 2001 to 2008, driving after using marijuana past two weeks declined from 14.6% to 10.4% (O'Malley 2013)
  – In 2011, increased to 12.4%

• 2,000 respondents asked re driving annually
• State estimates are not possible.
Trends in Youth Marijuana Use

Past Month Marijuana Use by High School Seniors 1975-2011

- 1978, 37.1%
- 1992, 11.9%
- 1997, 23.7%
- 2006, 18.3%
- 2011, 22.6%
National Survey on Drug Use and Health (NSDUH), SAMHSA

- Respondents aged 12 and older, sample size 70,000 persons/year
- Question about driving under the influence of illicit drugs
  - During the past 12 months, have you driven a vehicle while you were
    - under the influence of a combination of alcohol and illegal drugs used together?
    - while you were under the influence of alcohol only?
    - while you were under the influence of illegal drugs only?
- Does not specifically identify marijuana separately.
- Generates state estimates some variables, usually combining 2 years of data
  - Recent publication estimates drugged driving by state
    - 4 years 2006 to 2009 combined, age 16 and above

Percentages of Persons Aged 16+ Driving under the Influence of Illicit Drugs compared to Alcohol in the Past Year, by State, 2006 to 2009

Driving under the Influence of Illicit Drugs

Driving under the Influence of Alcohol

NOTE: Some estimates may differ from previously published estimates due to updates (see End Note 6).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health (NSDUHs), 2006 to 2009 (Revised March 2012).

SAMHSA 2012 State Estimates of Drunk and Drugged Driving. Rockville,
http://www.samhsa.gov/data/2k10/NSDUH205/sr205-drugged-driving.htm
National Survey on Drug Use and Health (NSDUH), SAMHSA

- Among persons age 16+, 2006-2009 combined
  - 4.3% reported driving under the influence of illicit drugs past year
  - 13.2% reported driving under the influence of alcohol past year.

- Rates of drugged driving varied widely by state,
  - highest rates in Rhode Island (7.8%) and Vermont (6.6%)
  - lowest rates in Iowa (2.9%) and New Jersey (3.2%).

- Rates of reported drunk driving also varied widely
  - Wisconsin (23.7%) and North Dakota (22.4%) highest rates
  - Utah (7.4%) and Mississippi (8.7%) lowest

- Annual estimates by state likely unreliable

http://www.samhsa.gov/data/2k10/NSDUH205/sr205-drugged-driving.htm
Marijuana Involvement Among Drivers

• National Roadside Survey 2007 measured drugs
  – more night-time weekend drivers tested positive for drugs than alcohol
    • 8.6% of drivers positive for marijuana
  – 2014 Survey underway
  – National Sample, not state-based

• Injured drivers
  – No longitudinal data on marijuana use among injured drivers (ED or hospitalized) available

• Fatality Analysis Reporting System (FARS) collects alcohol and drug data on all fatally injured drivers in US
  – Testing rates however vary widely by states
  – No uniform testing for panel of drugs
    • Some do not test for marijuana
Drug testing rates in FARS vary widely

ONDPC. Drug Testing and Drug-Involved Driving of Fatally Injured Drivers in the United State 2005–
Marijuana and Driving Laws

• 15 states have drug per se laws for all drivers (2 for drivers <21).
  – Impaired-driving offense to drive with a measurable amount of certain drugs in body
    • Specific prohibited drugs vary by state
  – Other states rely on evidence of driving impairment

• Can FARS be used to evaluate drug per se laws?
FARS and Drug testing

• Most states do not consistently test fatally injured drivers for drugs
  – especially THC
  – historical data on marijuana is inconsistent

• Among 15 states with drug per se laws
  – 5 drug tested more than 75% of driver fatalities
  – 3 had longitudinal data on THC (available also in 4 comparison states)

• FARS does not distinguish active THC from metabolites
  – Metabolites can persist for weeks
Edibles: New emerging hazards from medical marijuana
Edibles: New emerging hazards from medical marijuana

- To date research on marijuana and driving based on smoked formulation
  - About a 2 fold increased crash risk
    - Alcohol alone or in combination much greater risk
- Edibles pose new and unknown hazards
  - Inability to regulate dose
    - Who eats 1/8th of a chocolate bar
    - Unknown quantity of THC
  - Lack of immediate effect so may overdose
    - Effects may come on while driving and increase uncontrollably
  - Deaths reported due to intoxication and subsequent injuries
  - Accidental poisoning children and pets
    - Child proof caps in Colorado
- Need for more regulation and research
Conclusions and Recommendations

1. Several surveys assess marijuana use but either not in relation to driving, or state-level data is unavailable.
   - Include marijuana and driving in survey questions
     • Colorado added questions for 2014 BRFS
   - Conduct state roadside surveys which can provide data on drug-impaired driving

2. No data from hospital or ED
   - Develop hospital testing program

3. Limited drug testing data in FARS
   - Develop sentinel states with complete testing

4. Lack of reliable longitudinal data on drugs and driving is a major impediment to evaluating the impact of marijuana laws on driving
   - Cost of testing major barrier
   - Edible marijuana an unknown quantity
Please type your questions in the Q&A panel.
Upcoming Webinars

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Please join us for our upcoming webinar:

**Medicaid Waivers: How Are They Transforming the Health System?**

Presented by the Network for Public Health Law and CDC Public Health Law Program
Thursday, June 19 at 1 p.m. (ET)

[networkforphl.org/webinars](networkforphl.org/webinars)