Seeing through the smoke: Cannabis policy, health effects, epidemiology, and overlap with other substances

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The findings and conclusions in this presentation are my own and do not necessarily represent the official position of any of the agencies with whom I consult.
Presentation Overview

- Policy Landscape
- How has policy change impacted utilization?
- What do we know about the health effects?
- Similarities/differences from other products
- Seven areas of overlap with tobacco prevention and control
- Public health implications, challenges, and future directions
Quick Primer on Terminology

>90 Cannabinoids

THC
Quick Primer on Terminology

Recreational Marijuana Use

= Adult Use / Non-Medical Use / Retail Use
Marijuana Policy in the U.S.

The Washington Post
Marijuana wins big on election night

The New York Times
Californians Legalize Marijuana in Vote That Could Echo Nationally

The Boston Globe
Mass. voters say ‘yes’ to legalizing marijuana

CNN
Alaska becomes latest state to legalize marijuana use
Marijuana policy, by state, 2015
Marijuana policy, by state, 2018

- Non-medical and medical
- Medical
- CBD-only/low-THC
States that may be next….

States voting on adult use in November: MI, ND

States voting on medical use in November: MO, UT
How has policy change impacted utilization?
Past Month Marijuana Use (any), by Age – National Survey on Drug Use and Health (NSDUH)

Trends in youth marijuana use in Colorado –

- Have used marijuana at least once in their lifetime
- Have used marijuana at least once in the last 30 days
Trends in Past 30 Day Marijuana Use – Washington State, 10th Graders, Healthy Youth Survey
Past month substance use, reported by 12th Graders, Monitoring the Future, 1991-2016
What do we know about the health effects?
Health risks of marijuana include:

- Youth psychosocial outcomes
- Abuse / dependence
- Respiratory effects
- Pregnancy outcomes
- Mental health outcomes
- Injury-related outcomes
Why don’t we know more?
Therapeutic Effects

- **Schedule I substance**
  - No currently accepted medical use in treatment.

- **Anecdotal evidence**
  - Vocal advocacy community

- **Increasing scientific evidence** for medical use of cannabis or components of cannabis plant:
  - Most promising for pain relief, nausea relief, patient-reported symptoms from MS; some evidence for sleep.
  - 3 FDA approved synthetic THC drugs; 1 FDA approved cannabis-derived CBD drug (and related rescheduling)
How is cannabis similar/different from other substances?
Isn’t cannabis just like…..

**Tobacco**

*Similarities:*
- Populations
- Mode of use/products
- Policy overlap
- Industry

*Differences:*
- No accepted medical uses for commercial tobacco
- Not impairing
- > Addiction potential
- > Morbidity and Mortality

**Alcohol**

*Similarities:*
- Prohibition → Legality
- Policy overlap
- Industry
- Impairing
- Addiction potential

*Differences:*
- Mode of use
- > Morbidity and Mortality

**Opiates**

*Similarities:*
- Medical uses
- Produced by our bodies
- Impairing
- Industry

*Differences:*
- Respiratory depression
- > Addiction potential
- > Morbidity and Mortality
Seven major ways tobacco and cannabis overlap
~70% of past month adult cannabis users have past month Tobacco use

~20% of past month adult tobacco users have past month cannabis use

Universe of Cannabis Users

Universe of Tobacco Users

Source: Schauer, Berg, Kegler, Donovan, & Windle, 2016 (Data from the National Survey on Drug Use and Health)
Which tobacco products do adult marijuana users consume?

Prevalence of past 30-day tobacco product use among adults age 18 and older, by past 30-day MJ use, NSDUH, 2011-2012

- Current cigarette use (any): 60.1% (Past month marijuana user: 20.8%, Non Past month marijuana user: 20.6%)
- Current cigar use (any): 4.2% (Past month marijuana user: 3.4%)
- Current blunt use: 42% (Past month marijuana user: 39.8%)
- Polytobacco use

Adjusted trends in co-use, marijuana-only use, and tobacco-only use among youth 12-17 years – NSDUH, 2005-2014

Where Co-use of marijuana and tobacco = past month use of both marijuana and tobacco, Marijuana-only use= past month use of marijuana only (no tobacco), and Tobacco-only use = past month use of tobacco only (no marijuana).

a Linear increase in MJ only use (p<.0001)
b Linear decrease in tobacco only use (p<.0001)

Citation: Schauer & Peters (2018) Correlates and trends in youth co-use of marijuana and tobacco in the United States, 2005-2014, Drug Alcohol Depend, 185: 238-244.
Substance use behaviors among high school students, by marijuana use status, National Youth Risk Behavior Survey, 2013-2015

Current marijuana users
- Tobacco: 51.7%
- Polytobacc: 25.2%
- Alcohol: 75.6%
- Binge: 51.6%
- NMUPD: 43.0%
- Hallucinog: 22.9%
- Ecstasy/M: 18.2%
- Inhalants: 16.6%
- Cocaine: 16.6%
- Heroin: 6.3%

Not current marijuana users
- Tobacco: 10.6%
- Polytobacc: 3.9%
- Alcohol: 10.0%
- Binge: 9.5%
- NMUPD: 1.7%
- Hallucinog: 1.7%
- Ecstasy/M: 5.0%
- Inhalants: 1.6%
- Cocaine: 0.5%
- Heroin: 1.7%

All comparisons are significant at p<0.0001

Unpublished data, Schauer et al., 2018, from YRBS
#2: Methods of use and products overlap
Marijuana Products and Modes of Use

- **Combusted products**
  (e.g., joints, pipes, bongs, bowls, blunts, spliffs)

- **Vaporizers**
  (e.g., electronic vaping devices, or older models that are heat-not-burn)

- **Edibles**
  (e.g., brownies, cookies, candies)

- **Drinks**
  (e.g., elixirs, syrups, hot chocolates)

- **Dabbing**
  (e.g., using concentrates and waxes)

- **Other ways**
Overlapping Methods of Use and Products

Methods of use:
• Both primarily smoked\textsuperscript{1,2}
• Vaping and electronic products
• Heat not burn (dry herb vaping)

Implications:
• For surveillance
• For policy
• For enforcement
• For messaging, public education

#3: Compounding health effects
Compounding Health Effects

Lack of information about compounding health effects....

Using cannabis and tobacco can:¹,²,³,⁴

• Exacerbate respiratory effects

• Possibly compound mental health and cognitive development effects

• Presents an additive risk of exposure to carcinogens and toxicants

#4: Potential Impacts on dependence and quitting
Possible Mechanisms Impacting Quitting

- THC and nicotine **may interact to enhance the rewarding effects**, making quitting harder.¹

- Stronger evidence that nicotine makes quitting cannabis harder; inconclusive for the reverse.²,³,⁴

- **Menthol**: May be present in blunts, spliffs, or in cigarettes/cigarillos often used as blunt “chasers”⁵,⁶ → Don’t know the impact of increased menthol intake.

- Cues for relapse or substitution?

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#5: Potential Impacts on Smokefree Air Laws
What do we know about secondhand marijuana smoke?

- THC has not been found to be carcinogenic, but cannabis smoke has\(^1\)

- Marijuana smoke $\rightarrow$ many of the same constituents as tobacco smoke; some in higher concentrations.\(^2\)

- CA Office of Environmental Health Hazard Assessment added marijuana as carcinogen and reproductive toxin in 2009 (w/at least 33 carcinogens present in the smoke).\(^3\)

- American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) considers marijuana smoke and indoor pollutant.

1: WHO, 2016; 2: Moir et al., 2008; 3: Reproductive and Cancer Hazard Assessment Branch, Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. August 2009
Why is this a complicated landscape?

Equity issues
- Public and rented housing
- Disparities in law enforcement (that continue)
- Criminalized history

Science still unclear, lacking surveillance data

Cannabis ≠ Commercial Tobacco:
- Valid medical uses
- Science unclear on comparative harms of various modes of use
- Non-combusted products are often high potency, carry different harms and externalities
#6: Potential Impacts on Social Norms and Youth Use
Impact on youth tobacco initiation and use?

- Perceived risk is declining…

- Gateway or reverse gateway effect?
  - In 2012, 41.5% of Black youth and 24% of White youth used marijuana before tobacco.¹
  - Use of marijuana before tobacco has increased since 2005.¹
  - Findings that using cigars, in particular, may lead to concurrent blunt use.²

- Implications of new and emerging devices?

- Implications of cannabis advertising, use?

#7: Potential Industry Overlap
A range of cannabis policies

Citation: Kilmer, B. Recreational Cannabis – Minimizing the Health Risks from Legalization (2017) New England Journal of Medicine; 376 (8): 705-707
Similarities to Big Tobacco

- Commercial industry
- Youth Appeal
- Advertising
- Harm reduction language
- Marketing, point of sale issues

Citation: Richter, K. P., and Levy, S. (2014) Big Marijuana – Lessons from Big Tobacco. NEJM, 371:399-401
Will Big Tobacco and Big Marijuana merge?

- Federal prohibition and state laws are limiting now....

- Big tobacco has long been interested in the marijuana industry¹

- **Evidence of current interest:**
  - Cannabis industry people moving onto tobacco industry boards
  - Name changes to broaden brand potential
  - Acquisitions of stakes in cannabis companies
  - Acquisitions of patents on specific cannabis strains/products


**THIS IS NOT A REAL PRODUCT**
Main take-aways for prevention and public health

• Cannabis policy is rapidly changing and largely ahead of the science...

• Both health-related concerns and benefits are possible

• While cannabis overlaps with a number of substances, it’s different, too

• In terms of tobacco prevention and control work: overlap is most pronounced in populations, products, policies, and industry.

• Most important thing health related professionals can do: get a seat at the table, share learnings, make science-based decisions, acknowledge differences from other substances.
Questions?

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