Addressing Marijuana Use on College Campuses in a Changing Legal Climate

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Division of Student Life

Overview of this presentation

- Thank you to Lori Uerz, Amy Livingston, Tom Fontana, and Catherine Diduck
- What I will try to do:
  - Present findings from scientific research most relevant to college students and college campuses
  - Review lessons learned
  - For each point, make suggestions/recommendations (that you can do with as you wish)

First, we have to consider that research on cannabis needs to “catch up” with what people are actually using, since potency is at never before seen rates

Average potency (nation) = 13.18%
Average potency (Seattle) = 21.62%
Concentrates average potency (nation) = 55.85%
Concentrates average potency (Seattle) = 71.71%
Second, we have to separate out placebo effects from pharmacological effects
Loflin, et al. (2017)

- Asked participants to refrain at least 8 hours before study
- Told to plan for a variable end (1.5-6 hours depending on dose they would receive)
- Told they would be in one of three rooms (no dose, low THC, high THC)
- Cubicles (no interaction), and had to rate music and comedy clips, color designs, and compute math problems

Loflin, et al. (2017)

- Used Hemp Pops
  - Hemp seed oil (no active elements of THC or CBD), glucose syrup, citric acid, sugar, natural flavors, and colors #2 and #5
Placebo effects need to be explored

- For example...
  - Sativa – typically described as uplifting and energetic
  - Indica – typically described as relaxing and calming
- "We would all prefer simple nostrums to explain complex systems, but this is futile and even potentially dangerous in the context of a psychoactive drug such as cannabis" (Piomelli & Russo, 2016, Cannabis and Cannabinoid Research)
- Differences in observed effects could be due to other content (which is rarely assayed) or what is reported to potential consumers

Scientific findings most relevant on college campuses:

- Cognitive effects
- Academic outcomes
- Mental health effects
- Addiction risk
- Driving under the influence
- Impact on athletic performance

Impact on attention, concentration, and memory
Marijuana and cognitive abilities

- Effects on the brain
  - Hippocampus
    - Attention, concentration, and memory
    - Research with college students shows impact on these even 24 hours after last use (Pope & Yurgelun-Todd, 1996)
    - After daily use, takes 28 days for impact on attention, concentration, and memory to go away (Pope, et al., 2001)
  - Hanson et al. (2010):
    - Deficits in verbal learning (takes 2 weeks before no differences with comparison group)
    - Deficits in verbal working memory (takes 3 weeks before no difference with comparison group)
    - Deficits in attention (still present at 3 weeks)

Meier, et al. (2012)
Scientific findings most relevant on college campuses:

**Cognitive effects**
**Academic outcomes**
**Mental health effects**
**Addiction risk**
**Driving under the influence**
**Impact on athletic performance**

Marijuana use trajectories: relationship to “discontinuous” enrollment

- 40.8% stop-out
- 36.1% stop-out
- 24.9% stop-out

Students with chronic/heavy marijuana use and those with "minimal use" were 2.0 times as likely as those with "no use" to have discontinuous enrollment... even after controlling for demographics, personality, and high school GPA.

Source: Arria, 2013

More frequent marijuana use is associated with more discontinuous enrollment, skipping more classes, and lower GPAs (Arria, et al., 2013, 2015)

Any marijuana use is associated with lower GPA, and decreasing and frequent marijuana use over time is associated with less current enrollment and being less likely to graduate on time (Suerken, et al., 2016)
Relationship Between Cannabis Use, Alcohol Use, and Academic Success

- Alcohol and marijuana are both associated with lower GPA; when entered in same regression, effects of alcohol became non-significant (Bolin, Pate, McClintock, 2017)
- Students using both marijuana and alcohol at moderate to high levels have significantly lower GPAs over two years (Meda, et al., 2017)
- Students who moderate or curtail substance use improved GPA (Meda, et al., 2017)

Health and Mental Health

- Top student-identified factors affecting academic performance:
  - 33.5% Stress
  - 26.2% Anxiety
  - 22.9% Sleep difficulties
  - 17.6% Depression
  - 14.7% Cold/Flu/Sore throat
  - 13.2% Work
  - 11.2% Concern for a troubled friend/family member
  - 11.0% Participation in extracurricular activities
  - 3.3% Alcohol use (20th of 31 factors)
  - 1.7% Drug use (25th of 31 factors)

American College Health Association, 2018

With marijuana, two things happen... Extension of Stage 4 or "deep" sleep and REM deprivation

Angarita, et al., 2016
Next day, increase in:
- Daytime sleepiness
- Anxiety
- Irritability
- Jumpiness

Angarita, et al., 2016

Health and Mental Health
n = 26,139 students at 52 institutions in the undergraduate reference group from Fall 2017

- Top student-identified factors affecting academic performance:
  - 33.5% Stress
  - 26.2% Anxiety
  - 22.9% Sleep difficulties
  - 17.6% Depression
  - 14.7% Cold/Flu/Sore throat
  - 13.2% Work
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American College Health Association, 2018

Scientific findings most relevant on college campuses:
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Cannabis Use Associated with Risk of Psychiatric Disorders (Hall & Degenhardt, 2009; Hall, 2009; Hall, 2013)

- **Schizophrenia**
  - Those who had used cannabis 10+ times by age 18 were 2-3 times more likely to be diagnosed with schizophrenia
  - “13% of schizophrenia cases could be averted if cannabis use was prevented” (Hall & Degenhardt, 2009, p. 1388)

- **Depression and suicide**
  - “Requires attention in cannabis dependent” (Hall, 2013)

[Graph showing percentage endorsing items as a function of past year marijuana use](https://www.samhsa.gov/data/sites/default/files/NSDUH-DR-FFR3-2015/NSDUH-DR-FFR3-2015.pdf)

[Graph showing percentage endorsing items as a function of having (or not having) a substance use disorder](https://www.samhsa.gov/data/sites/default/files/NSDUH-DR-FFR3-2015/NSDUH-DR-FFR3-2015.pdf)
**Screening**

**Screening suggestions**

- Cannabis Use Disorder Identification Test-Revised (CUDIT-R)

The Cannabis Use Disorder Identification Test - Revised (CUDIT-R)

<table>
<thead>
<tr>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you used any cannabis in the past 30 days?</td>
<td>0-4</td>
</tr>
<tr>
<td>How often do you use cannabis?</td>
<td></td>
</tr>
<tr>
<td>Weekly</td>
<td>1</td>
</tr>
<tr>
<td>Monthly</td>
<td>2</td>
</tr>
<tr>
<td>Quarterly</td>
<td>3</td>
</tr>
<tr>
<td>Number of users</td>
<td>4</td>
</tr>
<tr>
<td>How many times per week did you use cannabis?</td>
<td>0-7</td>
</tr>
<tr>
<td>Less than 1</td>
<td>1</td>
</tr>
<tr>
<td>1-2</td>
<td>2</td>
</tr>
<tr>
<td>3-5</td>
<td>3</td>
</tr>
<tr>
<td>6-8</td>
<td>4</td>
</tr>
<tr>
<td>9-12</td>
<td>5</td>
</tr>
<tr>
<td>13 or more</td>
<td>6</td>
</tr>
<tr>
<td>How often during the past 30 days did you find that you were unable to stop using cannabis?</td>
<td>0-4</td>
</tr>
<tr>
<td>Never</td>
<td>1</td>
</tr>
<tr>
<td>Less than daily</td>
<td>2</td>
</tr>
<tr>
<td>Daily</td>
<td>3</td>
</tr>
<tr>
<td>How often during the past 30 days did you find that you were not able to stop using cannabis?</td>
<td>0-4</td>
</tr>
<tr>
<td>Never</td>
<td>1</td>
</tr>
<tr>
<td>Less than daily</td>
<td>2</td>
</tr>
<tr>
<td>Daily</td>
<td>3</td>
</tr>
</tbody>
</table>

This scale is in the public domain and is free to use with appropriate citation.

Source: Washington Recovery Helpline
MARIJUANA USE – effects after use

- With high doses, may experience acute toxic psychosis
  - Hallucinations
  - Delusions
  - Depersonalization
- Seem more likely when high dose is consumed in food/drink rather than smoked
- Specific causes of symptoms unknown

Scientific findings most relevant on college campuses:
- Cognitive effects
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Mild: 2-3 symptoms
Moderate: 4-5 symptoms
Severe: 6+ symptoms
and controlled and uncontrolled case series, case reports, and expert opinion. They were able to identify only a handful of controlled studies reported in the literature, and they included a meta-analysis of the evidence as an appendix. The total number of subjects enrolled in those studies was 64 (11–16). While only four studies and a letter to the editor were in the actual analysis, the authors included a complete reference listing of all articles reviewed for inclusion.

These reports suffered from a number of design flaws, including incomplete baseline quantification of baseline seizure frequency, telephonic seizure-free periods for outcome determinants, and, in some cases, base-line recognition testing that was not verified. However, the authors were able to evaluate and interpret the findings, limitations aside, in their studies. All reports found administration of adjunctive CBD did not result in meaningful changes in seizure frequency (11). The first phase of a phase II study of CBD was placebo in normal volunteers and patients with epilepsy. No secondarily generalized epilepsy (10). In the first phase, normal volunteers received CBD or placebo in a double-blind fashion, at a dose of 1 mg/kg for 30 days. The second phase was also double-blinded in 111 patients with epilepsy using 200 mg/day of CBD or placebo for 15 days. The authors did find a trend toward higher frequency of adverse events (11). While no serious adverse events occurred, 21 of the 28 patients receiving CBD were no symptom of cannabis use for the duration of the study. These three other patients receiving CBD had a partial

Welty, et al., 2014 (p. 251) GMP = “Good Manufacturing Practices”

Challenges with medical cannabis research

- Schedule I substance
- Lack of dosing guidelines
  - Ideally, research would need to find a dose that provides maximum relief with minimal side effects
  - As it is, optimal doses seem to vary person to person
  - Often are taking many other treatments (medical, herbal, or otherwise)
- Generalizability is challenging (e.g., 3 of the 5 studies had less than 50 participants)
- Trials need to consider differences in cannabinoid pharmacokinetics and pharmacodynamics among individuals
- Standardized and validated evaluation and reporting of side-effects is warranted

Side effects documented across the five studies evaluated in Blake, et al., (2017), p. 220

Only recommending for neuropathic pain, palliative and end-of-life pain, chemotherapy-induced nausea and vomiting, and spasticity due to multiple sclerosis or spinal cord injury...

AND

If tried traditional therapies/treatments first...
**Birth outcomes with co-use of cannabis and tobacco (or use of either alone)**

- Significant differences in:
  - 1) head circumference (marker of brain development, and smaller head circumference associated with cognitive impairment)
    - Co-use group had a 5.7 times greater odds of having a small head circumference than no-use group
  - 2) occurrence of birth defects
    - Co-use group had a 3 times greater odds of having birth defects than no-use group
  - 3) stillbirth/miscarriage
    - Cannabis only group had 12 times greater odds of a stillbirth or miscarriage compared to the no-use group

Separating reported medical use from management of withdrawal

**Motivations for Use**

- Research team utilized qualitative open-ended responses for using marijuana among incoming first year college students to identify which motivations were most salient to this population.

Lee, Neighbors, & Woods (2007)

**Motivations for Use**

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Enjoyment/Fun</th>
<th>Social enhancement/Borderline</th>
<th>Altered perception</th>
<th>Activity enhancement</th>
<th>Image enhancement/Celebration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enjoyment/ Fun</td>
<td>62.14%</td>
<td>42.81%</td>
<td>13.74%</td>
<td>10.86%</td>
<td>0.81%</td>
</tr>
<tr>
<td>Social enhancement/Borderline</td>
<td>35.30%</td>
<td>35.48%</td>
<td>25.93%</td>
<td>29.13%</td>
<td>8.99%</td>
</tr>
<tr>
<td>Altered perception</td>
<td>13.74%</td>
<td>9.04%</td>
<td>3.14%</td>
<td>0.81%</td>
<td>0.81%</td>
</tr>
<tr>
<td>Activity enhancement</td>
<td>13.74%</td>
<td>9.04%</td>
<td>3.14%</td>
<td>0.81%</td>
<td>0.81%</td>
</tr>
</tbody>
</table>

Lee, Neighbors, & Woods (2007)
Motivations for Use

<table>
<thead>
<tr>
<th>Motive Category</th>
<th>Proportion of relaxation purposes</th>
<th>Proportion of coping purposes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relaxation/to relax, feel good</td>
<td>24.5%</td>
<td>11.6%</td>
</tr>
<tr>
<td>Social enhancement</td>
<td>20.6%</td>
<td>20.9%</td>
</tr>
<tr>
<td>Relieve stress</td>
<td>40.9%</td>
<td>41.0%</td>
</tr>
<tr>
<td>Anxiety reduction</td>
<td>48.2%</td>
<td>50.6%</td>
</tr>
<tr>
<td>Medical use (physical pain, improve health)</td>
<td>8.6%</td>
<td>6.4%</td>
</tr>
</tbody>
</table>

Withdrawal: Cannabis

<table>
<thead>
<tr>
<th>Diagnostic Criteria</th>
<th>292.0 (F12.280)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Cessation of cannabis use that has been heavy and prolonged (i.e., usually daily or almost daily use over a period of at least a few months).</td>
</tr>
<tr>
<td>B.</td>
<td>Thrice (or more) of the following signs and symptoms develop within approximately 1 week after cessation.</td>
</tr>
<tr>
<td>1.</td>
<td>Irritability, agitation, or aggression.</td>
</tr>
<tr>
<td>2.</td>
<td>Nervousness or anxiety.</td>
</tr>
<tr>
<td>3.</td>
<td>Sleep disturbance (e.g., insomnia, disturbing dreams).</td>
</tr>
<tr>
<td>4.</td>
<td>Appetite or weight loss.</td>
</tr>
<tr>
<td>5.</td>
<td>Tachycardia.</td>
</tr>
<tr>
<td>6.</td>
<td>Agitated mood.</td>
</tr>
<tr>
<td>7.</td>
<td>At least one of the following physical symptoms causing significant distress or impairment in social, occupational, or other important areas of functioning:</td>
</tr>
<tr>
<td>8.</td>
<td>The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication or withdrawal from another substance.</td>
</tr>
</tbody>
</table>

Scientific findings most relevant on college campuses:

- Cognitive effects
- Academic outcomes
- Mental health effects
- Addiction risk
- Driving under the influence
- Impact on athletic performance
**Impaired driving and duration of effects**

- **Effects on the brain**
  - Authors of I-502 set DUI at 5 ng THC/ml of blood for those over 21 (any positive value for those under 21)
  - Why 5 ng? Similarities in impairment to .08% for alcohol
  - How long does it take to drop below 5 ng?
  - Grotenhermen, et al., (2007) suggest it takes 3 hours for THC levels to drop to 4.9 ng THC/ml among 70 kg men
  - From a public health standpoint, Hall (2013) recommends waiting up to 5 hours after use before driving
  - New article encourages waiting at least 6 hours after use (Fischer, et al., 2017)

### Driving within 3 hours of use

**Driving after marijuana use**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>50.19%</td>
<td>56.29%</td>
<td>58.19%</td>
<td>58.56%</td>
</tr>
<tr>
<td>1 time</td>
<td>14.13%</td>
<td>13.13%</td>
<td>12.50%</td>
<td>12.85%</td>
</tr>
<tr>
<td>2-3 times</td>
<td>12.86%</td>
<td>12.34%</td>
<td>11.97%</td>
<td>11.98%</td>
</tr>
<tr>
<td>4-5 times</td>
<td>6.42%</td>
<td>4.90%</td>
<td>3.44%</td>
<td>4.40%</td>
</tr>
<tr>
<td>6 or more times</td>
<td>15.57%</td>
<td>14.88%</td>
<td>13.85%</td>
<td>12.13%</td>
</tr>
</tbody>
</table>

**Note:** There are declines in driving after marijuana use between cohort 3 and cohort 1 (p<.05) and between cohort 4 and cohort 1 (p<.01), as well as a significant linear trend (p<.01). **

Source: Young Adult Health Survey, 2017 data report

**AMONG 21-25 YEAR OLDS ONLY**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>57.99%</td>
<td>59.61%</td>
<td>57.99%</td>
<td>61.00%</td>
</tr>
<tr>
<td>1 time</td>
<td>13.08%</td>
<td>10.26%</td>
<td>11.44%</td>
<td>11.81%</td>
</tr>
<tr>
<td>2-3 times</td>
<td>13.38%</td>
<td>13.08%</td>
<td>11.30%</td>
<td>10.02%</td>
</tr>
<tr>
<td>4-5 times</td>
<td>7.31%</td>
<td>9.61%</td>
<td>10.24%</td>
<td>4.08%</td>
</tr>
<tr>
<td>6 or more times</td>
<td>14.46%</td>
<td>15.70%</td>
<td>15.89%</td>
<td>13.08%</td>
</tr>
</tbody>
</table>

**Note:** There are declines in driving after marijuana use between cohort 4 and cohort 1 (p<.01), as well as a significant linear trend (p<.01). **

Source: Young Adult Health Survey, 2017 data report
More pot use found in fatal crashes, data says

Marijuana use appears to have increased as a factor in deadly crashes last year in Washington.

By Bob Hussey

Marijuana use appears to have increased as a factor in deadly crashes last year in Washington.

Some data shows the Washington Traffic Safety Commission shows the number of drivers involved in fatal crashes with THC in their blood increased from 70 in 2015 to 104 in 2016, which includes alcohol.

Scientific findings most relevant on college campuses:

- Cognitive effects
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- Impact on athletic performance
29 = beats per minute increase in heart rate after marijuana use

Showed marijuana use decreased physiological work capacity and reduced maximal exercise duration
What do the scientists conclude?

“The use of marijuana by the elite athlete prior to competition may result in danger to that particular athlete or others as a result of impairment of response or inappropriate decision making.” (Hilderbrand, 2011, p. 628)

Because of...“decreased exercise performance, possibly secondary to increases in heart rate and blood pressure, which may alter perceived exertion, marijuana may be considered an ergolytic agent.” (Pesta, et al., 2013, p. 10)

Kennedy (2017)

- Found 15 published studies that looked at effects of THC and exercise
  - Number that showed improvement in aerobic performance?
    - ZERO.
  - No evidence of increased strength or endurance, and “may impair abilities in extreme situations” (p. 829)
  - No data to support claims of analgesic or muscle relaxing properties for athletes.
Policy Inventory

- Measuring Enforcement Consistency
- DOE/HEC recommends submitting a chart that ID’s each case and presents particulars of each offense
- Documenting level of effort expended to detect violations
- Document level of expertise of those responsible for detecting/adjudicating AOD offenses

Source: Eric Davidson (slide shown with permission from author)

Minor In Possession Violation

<table>
<thead>
<tr>
<th>Case</th>
<th>Athlete</th>
<th>Fine</th>
<th>Paper</th>
<th>Educational Class</th>
<th>BASICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>N</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Y</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>N</td>
<td>X</td>
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<td>5</td>
<td>N</td>
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<tr>
<td>11</td>
<td>N</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Eric Davidson (slide shown with permission from author)
What are some lessons learned in Washington?

Use among those with legal means of access is going up

Data Source: DMBH/UW Washington Young Adult Health Survey 2017 data report

Past year personal marijuana use by age group

** Significant interaction (p<.05) – no change for those under 21, but for those over 21, there is an increasing linear trend in marijuana use over time/cohort (p<.05); additionally, the difference is statistically significant for cohort 4 vs. cohort 1 (p<.01)**
** Past month personal marijuana use by age group **

** More young adults are initiating use **

** Age of initiation **

Data Source: DBHR/UW Washington Young Adult Health Survey 2017 data report

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** Past month personal marijuana use by age group **

** More young adults are initiating use **

** Age of initiation **

Data Source: DBHR/UW Washington Young Adult Health Survey 2017 data report

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Although most 18-25 year olds do not use, there are large misperceptions of prevalence

Data Source: DBHR/UW Washington Young Adult Health Survey 2017 data report

Simultaneous alcohol and marijuana use is increasing

** norms

<table>
<thead>
<tr>
<th>PERCEPTIONS OF RECREATIONAL MARIJUANA</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>2.41%</td>
<td>2.42%</td>
<td>1.61%</td>
<td>2.31%</td>
</tr>
<tr>
<td>Once a year</td>
<td>1.82%</td>
<td>2.10%</td>
<td>1.74%</td>
<td>1.92%</td>
</tr>
<tr>
<td>2 to 3 times a year</td>
<td>8.22%</td>
<td>10.12%</td>
<td>6.73%</td>
<td>6.40%</td>
</tr>
<tr>
<td>Every other month</td>
<td>6.98%</td>
<td>7.29%</td>
<td>5.32%</td>
<td>4.99%</td>
</tr>
<tr>
<td>Once a month</td>
<td>9.74%</td>
<td>12.13%</td>
<td>10.41%</td>
<td>9.97%</td>
</tr>
<tr>
<td>2 to 3 times a month</td>
<td>17.98%</td>
<td>19.68%</td>
<td>19.83%</td>
<td>18.51%</td>
</tr>
<tr>
<td>Once per week</td>
<td>13.65%</td>
<td>12.72%</td>
<td>15.43%</td>
<td>13.89%</td>
</tr>
<tr>
<td>More than once a week</td>
<td>22.08%</td>
<td>20.70%</td>
<td>21.43%</td>
<td>23.94%</td>
</tr>
<tr>
<td>Every other day</td>
<td>9.27%</td>
<td>6.67%</td>
<td>8.56%</td>
<td>8.63%</td>
</tr>
<tr>
<td>Every day</td>
<td>8.84%</td>
<td>6.95%</td>
<td>8.96%</td>
<td>10.11%</td>
</tr>
</tbody>
</table>

** In ordinal logistic models, Cohort 4 has higher recreational marijuana norms compared to cohort 1 (p<.05), but cohort 2 has lower norms compared to cohort 1 (p<.05) **

** Overall, a significant increasing linear trend over time (p<.001) **
Simultaneous alcohol and marijuana use

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>49.5%</td>
<td>48.0%</td>
<td>49.0%</td>
</tr>
<tr>
<td>1 time</td>
<td>20.9%</td>
<td>27.3%</td>
<td>22.7%</td>
</tr>
<tr>
<td>2-5 times</td>
<td>21.6%</td>
<td>21.7%</td>
<td>20.0%</td>
</tr>
<tr>
<td>6 or more</td>
<td>3.0%</td>
<td>6.2%</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

There is a significant increasing trend in simultaneous alcohol and marijuana use (p < .001)

Drug Interactions

- **Potentiation**
  - Occurs when one has used two drugs that work in the same direction
    - Alcohol + Marijuana
  - Instance where 1+1 > 2
  - Marijuana and alcohol used at the same time “can result in excessive CNS depression” (Seamon, et al., 2007, p. 1041)

There is decreasing perceived risk of occasional and regular marijuana use
Perceived risk: Occasional use

Perceived risk from use

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>No risk</td>
<td>32.5%</td>
<td>36.0%</td>
<td>30.6%</td>
<td>38.0%</td>
</tr>
<tr>
<td>Slight risk</td>
<td>46.0%</td>
<td>44.2%</td>
<td>43.0%</td>
<td>41.6%</td>
</tr>
<tr>
<td>Moderate risk</td>
<td>18.7%</td>
<td>15.4%</td>
<td>17.8%</td>
<td>16.3%</td>
</tr>
<tr>
<td>Great risk</td>
<td>3.8%</td>
<td>4.6%</td>
<td>6.0%</td>
<td>8.0%</td>
</tr>
</tbody>
</table>

** Cohort 4 is significantly different than Cohort 1 (p<.005), and there’s decreasing perceived risk over time (p<.005) **

Psychological/emotional risk of occasional marijuana use

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>No risk</td>
<td>26.0%</td>
<td>27.5%</td>
<td>26.6%</td>
<td>31.6%</td>
</tr>
<tr>
<td>Slight risk</td>
<td>37.2%</td>
<td>41.7%</td>
<td>38.2%</td>
<td>36.6%</td>
</tr>
<tr>
<td>Moderate risk</td>
<td>24.4%</td>
<td>21.5%</td>
<td>24.7%</td>
<td>29.2%</td>
</tr>
<tr>
<td>Great risk</td>
<td>12.4%</td>
<td>9.8%</td>
<td>12.5%</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

** Cohort 4 is significantly different than Cohort 1 (p<.005), cohort 4 is marginally different than cohort 1 (p<.005), and cohort 4 is significantly different than cohort 1 (p<.005). The linear trend toward decreased perceived risk is significant (p<.005). **

Parents need to be partners in prevention

Perceived risk: Regular use

Physical risk of regular marijuana use

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>No risk</td>
<td>9.2%</td>
<td>7.5%</td>
<td>7.5%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Slight risk</td>
<td>25.7%</td>
<td>23.0%</td>
<td>24.2%</td>
<td>25.4%</td>
</tr>
<tr>
<td>Moderate risk</td>
<td>41.2%</td>
<td>38.6%</td>
<td>41.8%</td>
<td>40.6%</td>
</tr>
<tr>
<td>Great risk</td>
<td>19.9%</td>
<td>20.8%</td>
<td>17.8%</td>
<td>16.2%</td>
</tr>
</tbody>
</table>

** Each cohort is significantly different from cohort 1 (Cohort 2, p<.01; Cohort 3, p<.05; Cohort 4, p<.05), and the linear trend toward decreased perceived risk is significant (p<.005). **

Psychological/emotional risk of regular marijuana use

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>No risk</td>
<td>8.8%</td>
<td>8.5%</td>
<td>8.7%</td>
<td>12.2%</td>
</tr>
<tr>
<td>Slight risk</td>
<td>22.4%</td>
<td>24.8%</td>
<td>26.2%</td>
<td>26.7%</td>
</tr>
<tr>
<td>Moderate risk</td>
<td>31.4%</td>
<td>33.5%</td>
<td>35.3%</td>
<td>32.8%</td>
</tr>
<tr>
<td>Great risk</td>
<td>38.4%</td>
<td>33.2%</td>
<td>35.8%</td>
<td>26.0%</td>
</tr>
</tbody>
</table>

** Each cohort is significantly different from Cohort 1 (Cohort 2, p<.05; Cohort 3, p<.01; Cohort 4, p<.05), and the linear trend toward decreased perceived risk is significant (p<.005). **
Launched February 2017

GOT IT FROM PARENTS WITH THEIR PERMISSION

Data Source: DBHR/UW Washington Young Adult Health Survey 2016 data report

GOT IT FROM FAMILY

Data Source: DBHR/UW Washington Young Adult Health Survey 2016 data report
Where 18-20 year olds get marijuana

<table>
<thead>
<tr>
<th>WHERE DO PEOPLE GET MARIJUANA, 18-20 year olds</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>From friends</td>
<td>23.3%</td>
<td>26.47%</td>
<td>24.12%</td>
<td>21.45%</td>
</tr>
<tr>
<td>Got it from someone w/medical mg. card</td>
<td>17.66%</td>
<td>16.12%</td>
<td>4.34%</td>
<td>5.24%</td>
</tr>
<tr>
<td>Got it from a med. disp.</td>
<td>10.63%</td>
<td>10.89%</td>
<td>5.16%</td>
<td>4.72%</td>
</tr>
<tr>
<td>Got it at a party</td>
<td>22.99%</td>
<td>23.14%</td>
<td>23.08%</td>
<td>24.32%</td>
</tr>
<tr>
<td>Got it from friends</td>
<td>5.65%</td>
<td>5.16%</td>
<td>5.85%</td>
<td>5.94%</td>
</tr>
<tr>
<td>Got it some other way</td>
<td>11.64%</td>
<td>4.11%</td>
<td>6.12%</td>
<td>9.07%</td>
</tr>
<tr>
<td>Bought from retail store</td>
<td>6.90%</td>
<td>4.58%</td>
<td>1.73%</td>
<td>1.92%</td>
</tr>
<tr>
<td>Got it from parent(s)</td>
<td>0.51%</td>
<td>0.60%</td>
<td>1.45%</td>
<td>0.74%</td>
</tr>
<tr>
<td>Grew it themselves</td>
<td>1.91%</td>
<td>1.56%</td>
<td>1.45%</td>
<td>0.38%</td>
</tr>
<tr>
<td>Stole it from store/disp.</td>
<td>0.05%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

Source: DBHR/UW Washington Young Adult Health Survey 2017 data report

Relationship between Marijuana Use and Perceived Parental and Community Norms, Grade 10, 2016

Source: Healthy Youth Survey, 2016

Statewide Relationship between Regular* Marijuana Use and Living with a Marijuana User, Grade 10, 2016

Source: Healthy Youth Survey, 2016
Consistent and immediate enforcement of new laws will be a step in the right direction, and that enforcement needs to be maintained
Seattle police to hand out Doritos to Hempfest attendees instead of public consumption tickets

By William Breathes in News, Say what?
Thursday, August 15, 2013 at 11:20 am

Seattle Police won’t be ticketing people for public consumption at this weekend’s Hempfest. Instead, they’ll be issuing munchies along with information on the newly-passed marijuana laws in Washington state.

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THIS STICKER IS NOT A LAWYER AND CANNOT PROVIDE YOU WITH LEGAL ADVICE

HEMPFESTERS! We thought you might be hungry. We also thought now might be a good time for a refresher on the do’s and don’ts of I-502.

DON’TS Don’t drive while high. Don’t give, sell, or shotgun weed to people under 21. Don’t use pot in public. You could be cited but we’d rather give you a warning. DO’S Do listen to Dark Side of the Moon at a reasonable volume. Do enjoy Hempfest.

Remember: respect your fellow voters and familiarize yourself with the rules of I-502 at seattle.gov/police/marijwhatahow

WARNING: THE CONTENTS OF THIS PACKAGE ARE AS DELICIOUS AS THEY APPEAR.
On 4/21/15 from Seattle Times:

“City officials and business leaders say they are embarking on an ambitious effort to shut down open-air drug dealing and associated crime in Seattle’s downtown core with its new ‘9½ Block Strategy.’”

From Seattle Times, April 21, 2015

“Seattle residents and visitors should not be forced to navigate a dangerous open-air drug market between the downtown retail core and Pike Place Market,” Murray said.

From Seattle Times, April 21, 2015

The arrests, dubbed “Operation Crosstown Traffic,” involved undercover officers who made 177 purchases of heroin, meth, marijuana, crack cocaine and other drugs from 186 street dealers.”

From Seattle Times, April 21, 2015
20 suspected dealers arrested in U District drug sting

“Seattle police arrested 20 alleged drug dealers this week...along University Way.

Eight of the suspects have been arrested more than 25 times”
During targeted crackdown, different crime trends
In the wake of the legalization of the drug marijuana, the state has seen a surge in drug-related crimes, such as theft and violence, that are associated with the illegal drug market.

Source: Seattle Times, September 4, 2016

Local News: Marijuana

4 pot stores sold marijuana to underage buyers in state sting

In the state’s first crackdown on recreational marijuana stores, four of 12 stores sold pot to underage buyers, according to the Liquor Control Board.

By Evan Bush

In the state’s first crackdown on recreational marijuana stores, four of 12 stores sold marijuana to underage buyers, according to the Liquor Control Board.

The state has vowed to reduce the use of marijuana by minors, who are under 21, and to reduce the number of marijuana stores. The move comes as a response to a growing number of marijuana stores, which have been opening in the state.

If asked for identification, the buyers were directed either to say they did not have ID or to present a real state-issued identification. Parents must be on site when minors buy marijuana.

Source: Seattle Times

Local News: Marijuana

State sting finds 19 pot shops selling to minors

In a sting using undercover investigators, the Liquor Control Board found that 19 of 47 recreational pot stores in the state sold marijuana to minors.

By Bob Young

In a sting using undercover investigators, the Liquor Control Board found that 19 of 47 recreational pot stores in the state sold marijuana to minors.

State law requires that marijuana be sold to minors who are under 21. The law also requires that the marijuana be sold in a pharmacy. The state has also vowed to reduce the number of marijuana stores.

Source: Seattle Times
Wrapping up: Implications for campuses
Opportunities and lessons learned:
How you talk about marijuana matters...a lot!

Discussing marijuana...word choice matters
- "Do you smoke marijuana?"
  - A person who uses edibles daily can honestly say “no”
  - If screening with a yes/no, consider “do you use marijuana?”
- "Do you use marijuana?" or “have you used marijuana?” followed by, “What does your marijuana use look like?”

Finding potential hooks: An Example
- “What are the good things about ________ use for you?”
- “What are the ‘not-so-good’ things about ________ use?”
- “What would it be like if some of those not-so-good things happened less often?”
- “What might make some of those not-so-good things happen less often?”
(1) Nothing should change on campus – enforce laws/policies, and be mindful of mixed messages.

(2) Screening and brief interventions show promise, so consider opportunities to screen, provide brief interventions, and refer to treatment where indicated.

(3) If considering harm reduction approaches, be aware of recommendations for “lower risk” rather than “low risk” use.
# Lower-Risk Cannabis Use Guidelines: A Comprehensive Update of Evidence and Recommendations

**Brenda Pitzer, PhD, Carly Brod, MD, REE, Paulette Schulz, PhD, Win van den Brink, MD, PhD, Irina Levy, MD, PhD, Wexler-Heil, PhD, Jorge Ribeiro, PhD, and Robine Bouw, PhD**

**Background:** Cannabis use is common in the United States, especially among young adults, and is associated with a wide range of acute and chronic adverse health outcomes. Cannabis control policies are evolving, for example toward national legalization in Canada and several U.S. states, and the term responsible cannabis use and its revenue have become increasingly common. In response, evidence-based interventions, such as related health outcomes, may be influenced by behavioral patterns that may be modifiable by users, and the body of research regarding responsible cannabis use has become more robust and critical. This consensus statement is intended to provide a framework for responsible cannabis use and to offer valuable, targeted prevention to reduce adverse health outcomes.

**Objectives:** To systematically review, update, and quality grade evidence on featured factors determining adverse health outcomes from cannabis that may offer reductions in specific targets to reduce adverse health outcomes.

**Results:** For most recommendations, there was not intensive evidence. New recommendations for lower-risk use were developed in response to evolving evidence and changes in U.S. cannabis use policies. All recommendations are context-dependent and are intended for use in specific settings.

### Recommendations

#### 1. The most effective ways to avoid the risks of cannabis use are to abstain from use. Those who decide to use need to carefully evaluate the risks of their behaviors and determine how to maximize safe use.

- Early initiation of cannabis use is associated with multiple subsequent adverse health and social effects in young adults. These effects are particularly pronounced in users who engage in high levels of use and frequent heavy use. There may be an association between frequent cannabis use and the development of brain development. Prevention messaging should emphasize that the earlier cannabis use is initiated, the lower the risks will be for adverse effects on the user’s general health and well-being throughout their life. ([Evidence Grade: Substantial](#))

- High THC content products are generally associated with higher risks of adverse health and social outcomes. Therefore, they should not be used by mental health problem users, i.e., those with a history of depression or schizophrenia, and should be avoided by individuals who are at risk for adverse effects. ([Evidence Grade: Substantial](#))

- Regular or frequent use of cannabis by adults who do not have mental health problems is associated with a range of adverse health and social outcomes. ([Evidence Grade: Substantial](#))

- When using cannabis, it is important to avoid combining it with other substances, such as alcohol, which can have synergistic effects on the body and increase the risk of adverse outcomes. ([Evidence Grade: Substantial](#))

- Users should avoid certain contexts that may increase the risk of adverse outcomes, such as driving or operating heavy machinery. ([Evidence Grade: Substantial](#))

- It is recommended that users categorically refrain from using cannabis for at least 4 hours, and ideally 8 hours, following its use. ([Evidence Grade: Substantial](#))

- There are some populations at a higher risk of cannabis-related adverse effects, such as those with pre-existing mental health conditions. ([Evidence Grade: Substantial](#))

- It is recommended that users engage in responsible cannabis use, which includes avoiding risky contexts and adhering to evidence-based behavioral recommendations. ([Evidence Grade: Substantial](#))

### References

For more information, please refer to the full text of the consensus statement. ([Full Text](#))
(4) Consider the overlap of marijuana use with other substance use

Project PHARM: Collecting the data

- Partnered with 7 colleges/universities during 2015-2016 academic year
  - 2,989 undergraduates between 18-25 years of age
  - 17.2% reported past year use of a prescription ADHD stimulant medication not prescribed to them

Kilmer, et al., (in preparation); information presented at NASPA 2017

Marijuana use

- Among those with no past year non-medical use of prescription stimulants
  - Past year marijuana use: 38.8%
  - Past 30-day marijuana use: 23.0%

- Among those with past year non-medical use of prescription stimulants
  - Past year marijuana use: 86.0%
  - Past 30-day marijuana use: 66.2%

Kilmer, et al., (in preparation); information presented at NASPA 2017
(5) Consider event-specific prevention and/or enforcement

High-risk events

Bravo et al (2017) found:
• More people used on 4/20 than weekdays or weekends
• People reported more unique sessions of use on 4/20 than weekdays or weekends
• People used more grams on 4/20 than weekdays or weekends

Staples & Redelmeier (2018)
• Obtained data from US NHTSA’s Fatality Analysis Reporting System
• Began first full year after High Times popularized 4/20 up to most recent year with complete data (1992 through 2016)
• Analyzed drivers involved in fatal crashes between 4:20 p.m. and 11:59 p.m. on 4/20 compared to same interval on 4/13 and 4/27
• Controlled for weekday, season, year, and minimized bias from changes in vehicle design, travel distances, medical care, etc.
Drivers involved in fatal crashes on 4/20: 1,369 (7.1 per hour)
Drivers involved in fatal crashes on control days: 2,453 (6.4 per hour)

The risk of a fatal crash was significantly higher on April 20 (relative risk 1.12, p<.001)

Staples & Redelmeier (2018)

(6) Correct misperceived norms

How Can We Use This Information to Prevent & Reduce Harm from Marijuana?

Correct Normative Misperceptions

- Most people are not using
- Most people are not driving under the influence
- The more people use, the more they think others are using:
  - Opportunity for positive community norms (e.g., Jeff Linkenbach's Montana Institute)
(7) Increase risk perception, and support prevention/intervention efforts that could impact motivation to change

How Can We Use This Information to Prevent & Reduce Harm from Marijuana?

- Increase Risk Perception
  - Target consequences your students report they do not like
    - “The Munchies”
      - Those using 2-3 times per month or less: 77.2%
      - Those using weekly or more: 95.1%
    - Low motivation
      - Those using 2-3 times per month or less: 38.2%
      - Those using weekly or more: 61.6%
    - Trouble remembering
      - Those using 2-3 times per month or less: 40.2%
      - Those using weekly or more: 64.9%
  - Provide information relevant to their individual concerns

Data Source: DBHR/UW Washington Young Adult Health Survey
Slide content: Kilmer & Larimer presentation to Strategic Prevention Enhancement Meeting (July 2016)

How Can We Use This Information to Prevent & Reduce Harm from Marijuana?

- Reduce Motivation to Use/Misuse
  - Already signs of some efforts of wanting to change:
    - Tried to set limits on use
      - Those using 2-3 times per month or less: 34.1%
      - Those using weekly or more: 54.0%
    - Tried to cut down
      - Those using 2-3 times per month or less: 27.0%
      - Those using weekly or more: 39.5%
  - Effective coping: healthy alternatives

Data Source: DBHR/UW Washington Young Adult Health Survey
Slide content: Kilmer & Larimer presentation to Strategic Prevention Enhancement Meeting (July 2016)
How Can We Use This Information to Prevent & Reduce Harm from Marijuana?

- Increase Motivation to Change for those using more heavily
  - Brief Motivational Interventions show promise
  - Pilots of brief interventions with mandated students (e.g., Marijuana and Other Drug workshop)
  - In-person, personalized feedback interventions with facilitators trained in motivational interviewing (e.g., Lee, et al., 2013)
  - Chance to provide education about addiction and withdrawal

Data Source: DBHR/UW Washington Young Adult Health Survey
Slide content: Kilmer & Larimer presentation to Strategic Prevention Enhancement Meeting (July 2016)

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(8) Collect data to evaluate emerging trends, needs, and issues

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Washington Marijuana Impact Report,
Volume 2, August, 2017, p. 117:

Of the promises made while Initiative 502 was on the ballot, only one has come to pass. Legalization did not empty the state’s correctional facilities. It did not diminish or eliminate the black market. And it did not ameliorate racial disparities in the criminal justice system. But it has, and will likely continue to do one thing very well: generate sales and revenue.
October 1, 2018:

More on Marijuana: Considering Norms and Emerging Science

Jason R. Kilmer, Ph.D.
University of Washington
Associate Professor
Psychiatry & Behavioral Sciences
Assistant Director of Health & Wellness for Alcohol & Other Drug Education
Division of Student Life

Social norms: Perception versus reality

- People are influenced by their subjective interpretation of situations rather than by the actual situation (Lewin, 1943).
- We are influenced by our perception of others’ attitudes, behaviors, and expectations rather than by their actual attitudes, behaviors, or expectations.
- Our perceptions and interpretations are often inaccurate.

Source: Neighbors & Kilmer (2008)
• Examines people’s perceptions about:
  ▫ Acceptability of excessive behavior
  ▫ Perceptions about the prevalence of drinking among peers
  ▫ Perception about the rates of drinking by peers

NORM PERCEPTION

• In survey of 5990 participants, 67.4% of students said the hadn’t used MJ in the past year
  ▫ Thus, “most” students don’t use marijuana
• Only 2% of students got this right!
  ▫ 98% of students perceived the typical student to use at least once per year
• Misperceptions were related to use and consequences

Kilmer, et al. (2006)

Personal marijuana use (assessed separately from medical use)

**Any Personal Marijuana, past year**

Cohort 1 (2014):  43.51%
Cohort 2 (2015):  46.29%
Cohort 3 (2016):  44.76%

No significant overall trend, nor differences across cohorts
No significant differences in frequency of use

Data Source:  DHHS/ UW Washington Young Adult Health Survey 2016 data report
Personal marijuana use (assessed separately from medical use)

Perception remains that the typical person uses:
Percentage of cohort who perceive typical person to use 1x/year or more:
- Cohort 1 (2014): 97.59%
- Cohort 2 (2015): 97.58%
- Cohort 3 (2016): 98.39%
Percentage of cohort who perceive typical person to use 1x/week or more:
- Cohort 1 (2014): 52.84%
- Cohort 2 (2015): 47.24%
- Cohort 3 (2016): 54.37%

Data Source: DBHR/UW Washington Young Adult Health Survey 2016 data report

What are some of the things that contribute to norms related to marijuana in Washington?

“It’s just weed...”
or
“It’s not addictive...”
From a state legislator outside of Washington:

"Low dependence rates:

A study by researchers at the National Institute on Drug Abuse (Anthony, Warner, & Kessler 1994) found that among people who had ever used marijuana, 9% had experienced marijuana dependence at some point in their life."

DSM-I: 1952
DSM-II: 1968
DSM-III: 1980
DSM-III-R: 1987
DSM-IV: 1994
DSM-IV-TR: 2000
DSM-5: 2013

Comments from influential individuals

Impact of advertisements, billboards, and other media needs to be assessed

Media

Potential role of media

- Impact of media exposure related to alcohol (including television, advertisements, and movie content)
  - In a review of 13 studies, 12 of the 13 showed media exposure was associated with increased likelihood of:
    - Initiating drinking among abstainers
    - Increased consumption among those already drinking


Impact of articles in the news likely need to be assessed, too, particularly alongside pro-health messages (and possible impact on these)

Presence of other pro-marijuana content outside of designated stores
Trash/debris

Garbage from Washington state’s booming pot industry clogs gutters, sewers and landfills

Originally published August 14, 2018 at 11:30 am | Updated August 14, 2018 at 1:32 pm

In this April 20, 2018, photo, a man prepares a marijuana joint at a party celebrating weed in Seattle. (AP Photo/Ted S. Warren, File)

By Kristen Mullen Young
The Washington Post

SEATTLE — Washington state’s penchant for getting high is taking its toll.

Plastic “doo-dah tubes” and small Mylar bags used to package pot are moldering in gutters, bloating out in landfills and bobbing in waterways.

Concentrated nutrients and fertilizers left over from cannabis-growing operations are being dumped in public sewers and making their way past wastewater treatment plants into Puget Sound. And millions of pounds of used harvest waste that could be composted are instead getting trucked to landfills.

This, in a part of the country that prides itself on being environmentally friendly.

“We’re seeing a lot of marijuana packaging in our public spaces,” said Heather Titin, executive director of Zero Waste Washington, which organizes litter cleanups.

“Cannabis packaging is adding to our load, which then gets washed into our lakes and Puget Sound.”
**Considering why norms matter in Young Adult Health Survey**

**Weighted Analyses of DBHR Young Adult Health Survey**

**Cohort 1 change from Year 1 (2014) to Year 3 (2016)**

Select findings that demonstrate potential shifts within cohort over time

**ODDS RATIOS:**
Predicting Year 3 marijuana use by five factors at time 1

<table>
<thead>
<tr>
<th>Predictor</th>
<th>OR</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical risk of regular marijuana</td>
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<td>Psychological risk of regular marijuana</td>
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</tr>
<tr>
<td>Perceived ease of access</td>
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<td>&lt;.001</td>
</tr>
<tr>
<td>Injunctive norms for regular marijuana</td>
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<tr>
<td>Descriptive norms for marijuana</td>
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</table>

All models adjusted for age, sex, and baseline level of the outcome

Data Source: DBHR/UW Washington Young Adult Health Survey 2016 data report
ODDS RATIOS:
Predicting Year 3 marijuana use by five factors at time 1

• AT LEAST WEEKLY MARIJUANA USE, YEAR 3

<table>
<thead>
<tr>
<th>Predictor</th>
<th>OR</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical risk of regular marijuana</td>
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<tr>
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</tr>
<tr>
<td>Descriptive norms for marijuana</td>
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<td>&lt;.022</td>
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</tbody>
</table>

• The more risky they see regular marijuana use, the less likely they are to use
• The more risky they see regular marijuana use, the less likely they are to use
• The more difficult to obtain marijuana, the less likely they are to use
• The more they see marijuana use as unacceptable, the less likely they are to use
• The higher they perceive norms to be, the more likely they are to use

All models adjusted for age, sex, and baseline level of the outcome

Data Source: DBHR/UW Washington Young Adult Health Survey 2016 data report

ODDS RATIOS:
Predicting Year 3 marijuana use by five factors at time 1

• NUMBER OF MARIJUANA-RELATED CONSEQUENCES, YEAR 3

<table>
<thead>
<tr>
<th>Predictor</th>
<th>OR</th>
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<tbody>
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<td>Perceived ease of access</td>
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<tr>
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</tbody>
</table>

• The more risky they see regular marijuana use, the less likely they are to experience consequences
• The more risky they see regular marijuana use, the less likely they are to experience consequences
• The more difficult to obtain marijuana, the less likely they are to experience consequences
• The more they see marijuana use as unacceptable, the less likely they are to experience consequences
• The higher they perceive norms to be, the more likely they are to experience consequences

All models adjusted for age, sex, and baseline level of the outcome

Data Source: DBHR/UW Washington Young Adult Health Survey 2016 data report

Opportunity #1:
Correct misperceived norms
How Can We Use This Information to Prevent & Reduce Harm from Marijuana?

- **Correct Normative Misperceptions**
  - Most people are not using
  - Most people are not driving under the influence
  - The more people use, the more they think others are using:
    - Opportunity for positive community norms (e.g., Jeff Linkenbach’s Montana Institute)
Personalized Feedback Interventions
individualized College Health for Alcohol and Marijuana Project
(R21DA025833)

**Consequences Associated with Marijuana Use**

**Consequences You Endured**

- Missed school or other things because you spent too much money on marijuana
- Lost interest in school or other things
- Missed deadlines due to mood swings or irritability
- Inability to think clearly or make decisions

**Consequences Related to Abuse/Dependence**

- The consequences below are possible signs that a pattern of use could be associated with marijuana abuse or dependence:
- In the past year, you.......

- **3 Month Outcomes**
  - # Days in last 30
  - # Joints per week
  - Hours high per week
  - Consequences

- **6 Month Outcomes**
  - # Days in last 30
  - # Joints per week
  - Hours high per week
  - Consequences

**Feelings About Reducing Use or Quitting Marijuana**

You noticed the conflict enough in reducing or not using it out of 3 out of 20 situations.

- You had the confidence in our ability to avoid smoking in these situations:
- Having to do some recreational things
- Getting home
- Finding time

**Family History**

We consider your risk based on family history to be:

- Low
- Medium
- High

**Our Findings**
At 3 months, intervention participants reported 24% fewer joints smoked per week relative to control participants.

At 3 months, intervention participants reported 21% fewer hours being high per week relative to control participants.

**Impacting norm perceptions and impacting perceived harm WILL pay dividends down the road**
Opportunity #2: Involve parents

http://learnaboutrubianawa.org/parents.htm

Opportunity #3: Enforce laws and policies
• Enforce policy restrictions on access, public use
  - NIAAA's College Alcohol Intervention Matrix (CollegeAIM) emphasizes importance of environmental approaches, including enforcement

Margaret Mead

• “What is the first sign you look for to tell you of an ancient civilization? How do you know they were civilized? Was it some instrument, a tool, an article of clothing?”
  - “A healed femur.”

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  - Lori Uerz
  - Amy Livingston
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  - NASPA/CPAMM
  - NIAAA

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http://livewell.uw.edu/