

Public Health Approach

□ Health Impact Assessment

- A process to evaluate plans or policies based on their potential effects on the health of a population, and the distribution of those effects within the population.*

□ Questions

- What are the potential health impacts of regulating marijuana use?
- What lessons can be learned from tobacco and alcohol policy?
- What are the ways we can mitigate any potential negative health effects and enhance any health benefits?

Literature Review

- ❑ Systematic search of PubMed and PsychINFO
- ❑ Searched for any mention of [marijuana or cannabis] and [health or youth or driving]
- ❑ Search included positive, negative and neutral health outcomes
- ❑ Did not include medical marijuana
- ❑ Over 180 articles reviewed
- ❑ Excluded medical marijuana and decriminalization of marijuana – already in place in Vermont
- ❑ Literature review focused on health effects of use (health impact assessment focused on regulation)

From the Literature Review: Strong Evidence

Impact of non-medical marijuana use on health indicator	Does indicator get better, worse, or stay the same?	Strength of evidence on the indicator
Psychosis/Psychotic symptoms	Worse	Very strong evidence
Psychosocial functioning	Worse	Strong evidence
Motor vehicle accidents	Worse	Very strong evidence
Short-term air flow	Better	Strong evidence
Chronic bronchitis	Worse	Strong evidence
Pregnancy	Worse	Strong evidence
Future dependence	Worse	Very strong evidence
Academic performance	Worse	Strong evidence
Dependence on marijuana	Worse	Strong evidence

From the Literature Review: Less Evidence

Impact of non-medical marijuana use on health indicator	Does indicator get better, worse, or stay the same with non-medical marijuana use?	Strength of evidence on the indicator
Depression	Worse	Fair evidence
Schizophrenia	Worse	Fair evidence
Anxiety	Worse	Fair evidence
Brain function	Worse	Fair evidence
Child poisoning	Worse	Not well researched
Skiing safety (snowboarding)	No studies	No research
Long-term air flow	Worse	Fair evidence
Cancer	Unclear	Fair evidence
Cancer (non-lung)	Unclear	Not well researched
Stroke/heart attack	Worse	Fair evidence

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From the Literature Review: Very Little Evidence

	Does indicator get better, worse, or stay the same under marijuana regulation?	Strength of evidence on the indicator
Impact of regulation on youth		
Access	Increases	Fair evidence
Use	Unclear	Not well researched
Impact of regulation on adults		
Dual use	Worse	Fair evidence
Treatment	Unclear	Not well researched
Future use	Unclear	Not well researched

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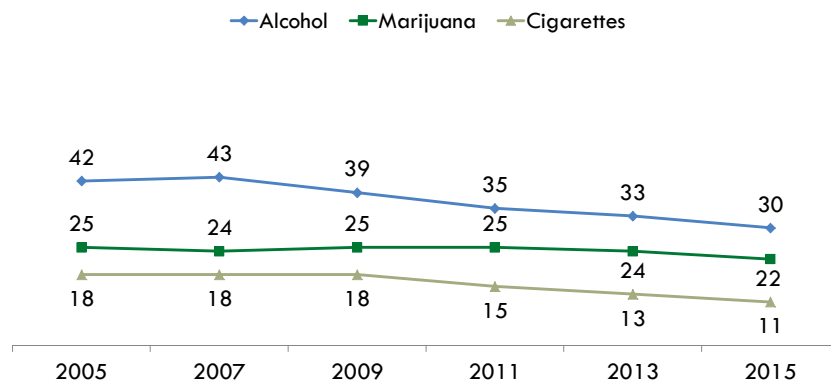
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Estimating health impact under regulation

- Critical unknowns:
 - ▣ Age at which consumers begin using
 - ▣ Number of consumers
 - ▣ Number of days each consumer uses
 - ▣ Number of times a day each consumers uses
 - ▣ Potency of dose each consumer uses

High school student substance use over time

Percent of Vermont high school students who report past 30-day substance use by substance and year



HIA Questions

Stakeholders proposed a series of questions to guide the analysis. Findings were based on the literature review and Vermont-specific data.

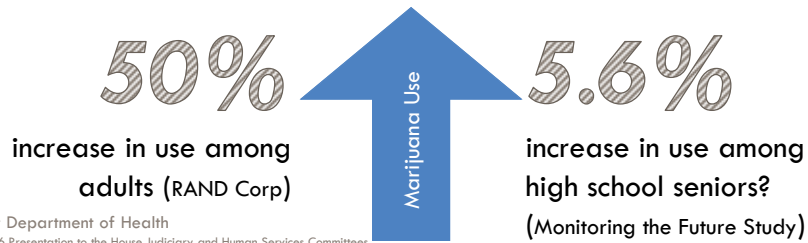
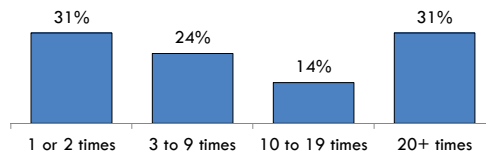
HIA Questions

- If Vermont regulated marijuana what would happen to:
 - ▣ Prevalence of marijuana use?
 - ▣ Traffic safety?
 - ▣ Mental health?
 - ▣ Psychosocial outcomes?
 - ▣ Substance use disorders and treatment?
- What do we know from tobacco and alcohol policy that is applicable to marijuana regulation

What would happen to the prevalence of marijuana use?



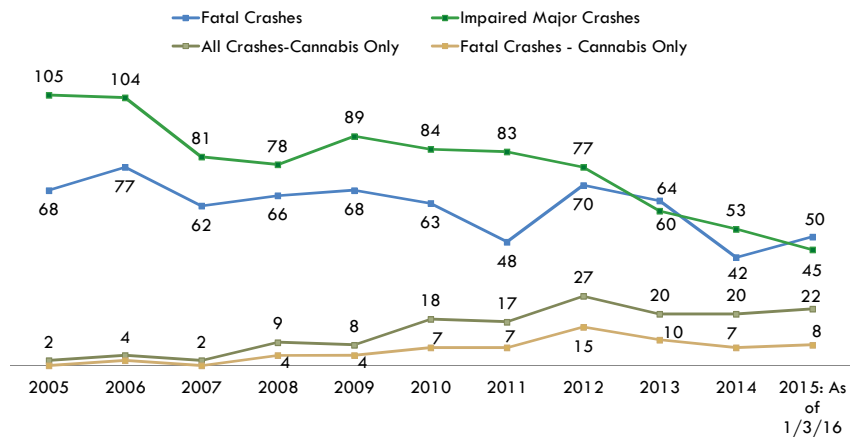
Of those high school students who report past 30 day marijuana use, the frequency with which they reported using marijuana in the past 30 days



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Would traffic safety change?

Major Crashes:
Crash Comparison vs. Cannabis Crashes 2005-2015 (to date)



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Source: VTrans VCSG dbase and FARS. Data as submitted by law enforcement. 12

What would be the impact on mental health?

- Early and persistent use of marijuana:
 - ▣ can lead to the development of anxiety disorders later in life
 - ▣ may lead to development of depressive disorders
 - ▣ may increase the risk of or reduce the age of onset for psychotic symptoms and disorders among those with an existing elevated risk for these disorders
- Marijuana use may impact the physical structure of the brain. The exact effect, whether it is reversible, and what the potential health implications are, remains unknown.

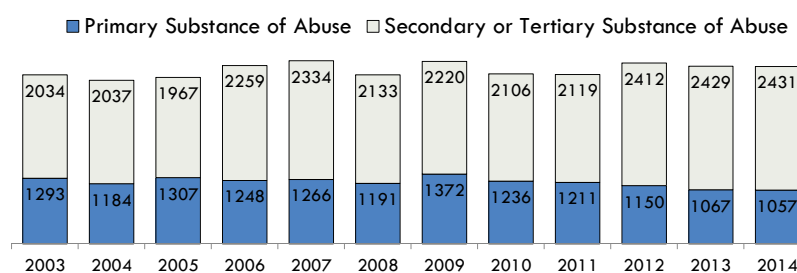
What would change in psychosocial outcomes (e.g. life satisfaction, interpersonal relationships)?

- Early and persistent use of marijuana significantly increases risk of:
 - ▣ lower educational achievement level (e.g. not completing high school, not completing college, lower grades)
 - ▣ lower income
 - ▣ unemployment and welfare dependence as an adult
 - ▣ premature work force retirement due to disability
 - ▣ reduction in IQ in middle adulthood

What might change in substance use disorders and treatment?

- 1 in 10 users become dependent
- 1 in 6 young users become dependent

Number of Vermonters using marijuana or hashish admitted for treatment by fiscal year and age



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Source: Vermont Alcohol and Drug Abuse Programs Treatment Data

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Lessons from tobacco and alcohol that could apply to marijuana regulation

- Smoke-free policies/open container restrictions
- Limiting access (where, how, when, age)
- Increasing taxes
- Allowing local control
- Child-resistant packaging
- Limiting tobacco and alcohol advertising
- Enforcing laws
- Strong prevention efforts (messaging and education)

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Recommendations

Stakeholders reviewed the findings and made a series of recommendations should policymakers consider regulating marijuana. Recommendations are aimed at mitigating potential negative health effects.

Infrastructure

- ❑ Put infrastructure in place before sales begin.
- ❑ Expand existing tobacco laws.
- ❑ Do not allow use of marijuana in public places.
- ❑ Fully fund enforcement and oversight.
- ❑ Standardize and test packaging and potency.

Protect Youth and Young Adults

- Restrict age of access.
- Fund prevention.
- Restrict advertising.
- Do not allow infused products on the regulated market.
- Never allow infused products that could appeal to children.

Prevent Motor-Vehicle Crashes

- Set a blood level operating limit for THC.
- Build driver testing infrastructure.
- Implement a public education strategy about the dangers of driving under the influence of THC.

Reduce Access and Protect Local Control

- Limit sales to adult-only outlets statewide.
 - ▣ Allow local governments to further restrict sale, outlet density/location and advertising.
- Consider statewide “buffer zones” (e.g. around areas frequented by young people).

Protect Adults & Monitor the Future

- Expand screening in primary care practices.
- Get providers the information they need.
- Fund surveillance and research.