



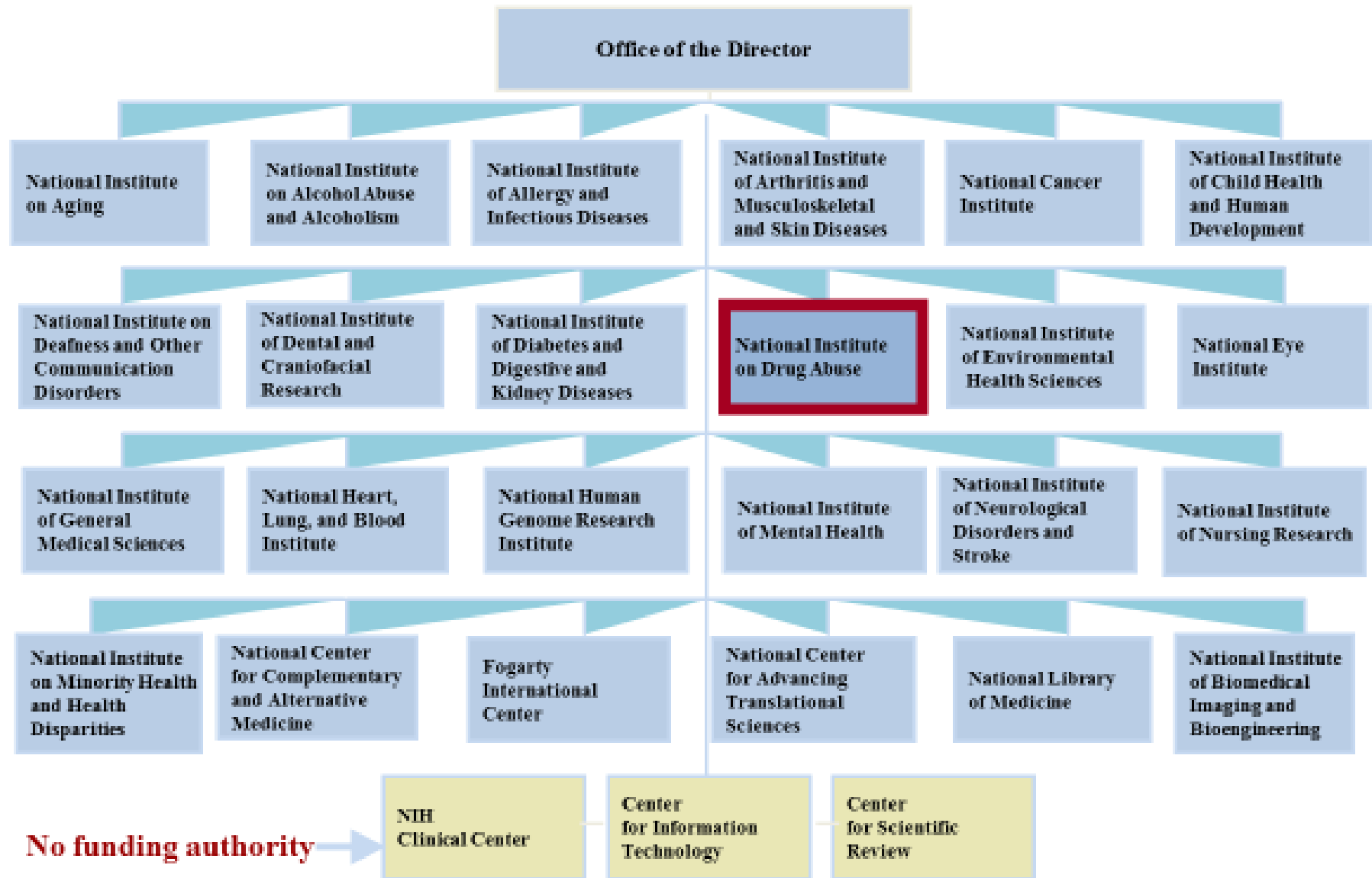
Establishing national and cross-national research collaborations & funding opportunities: *Marijuana Research at the National Institute on Drug Abuse*

Heather L. Kimmel, PhD

NIDA, Division of Epidemiology, Services, and Prevention Research

Cannabis Legalization and Youth: Developing Clear Messages in an Evolving Policy Climate,
November 16, 2018 Boulder Colorado

27 NIH Institutes & Centers



NIH Role in Cannabis Research

Supporting broad portfolio of research on cannabinoids and the endocannabinoid system

Disseminating research findings to diverse audiences, including policy makers, federal partners, healthcare providers, media, parents, children, and other stakeholders

<https://www.drugabuse.gov/drugs-abuse/marijuana/nih-research-marijuana-cannabinoids>

Cannabinoid Research at NIH (FY2017)



Cannabinoid Research

NIH IC	# Projects	FY17 \$Investment
NCATS	1	\$442,958
NCCIH	4	\$2,254,745
NCI	3	\$1,672,397
NEI	2	\$740,337
NHLBI	7	\$4,668,601
NIA	6	\$2,307,509
NIAAA	37	\$21,542,490
NIAID	1	\$209,375
NIBIB	1	\$180,341
NICHD	4	\$1,659,294
NIDA	209	\$88,171,781
NIDCD	1	\$309,750
NIDCR	1	\$1
NIDDK	11	\$3,398,310
NIGMS	3	\$714,974
NIMH	21	\$6,460,023
NINDS	12	\$3,556,637
OD	6	\$1,613,930
Grand Total	330	\$139,903,453

Endocannabinoid System Research

NIH IC	# Projects	FY17 \$Investment
NCATS	1	\$442,958
NCCIH	1	\$451,522
NCI	2	\$862,570
NEI	1	\$317,667
NHLBI	3	\$1,402,942
NIA	4	\$887,182
NIAAA	20	\$15,374,316
NIAID	1	\$209,375
NICHD	2	\$661,556
NIDA	69	\$29,719,655
NIDDK	11	\$3,398,310
NIGMS	2	\$413,706
NIMH	17	\$4,584,449
NINDS	10	\$3,155,952
OD	2	\$988,295
Grand Total	146	\$62,870,455

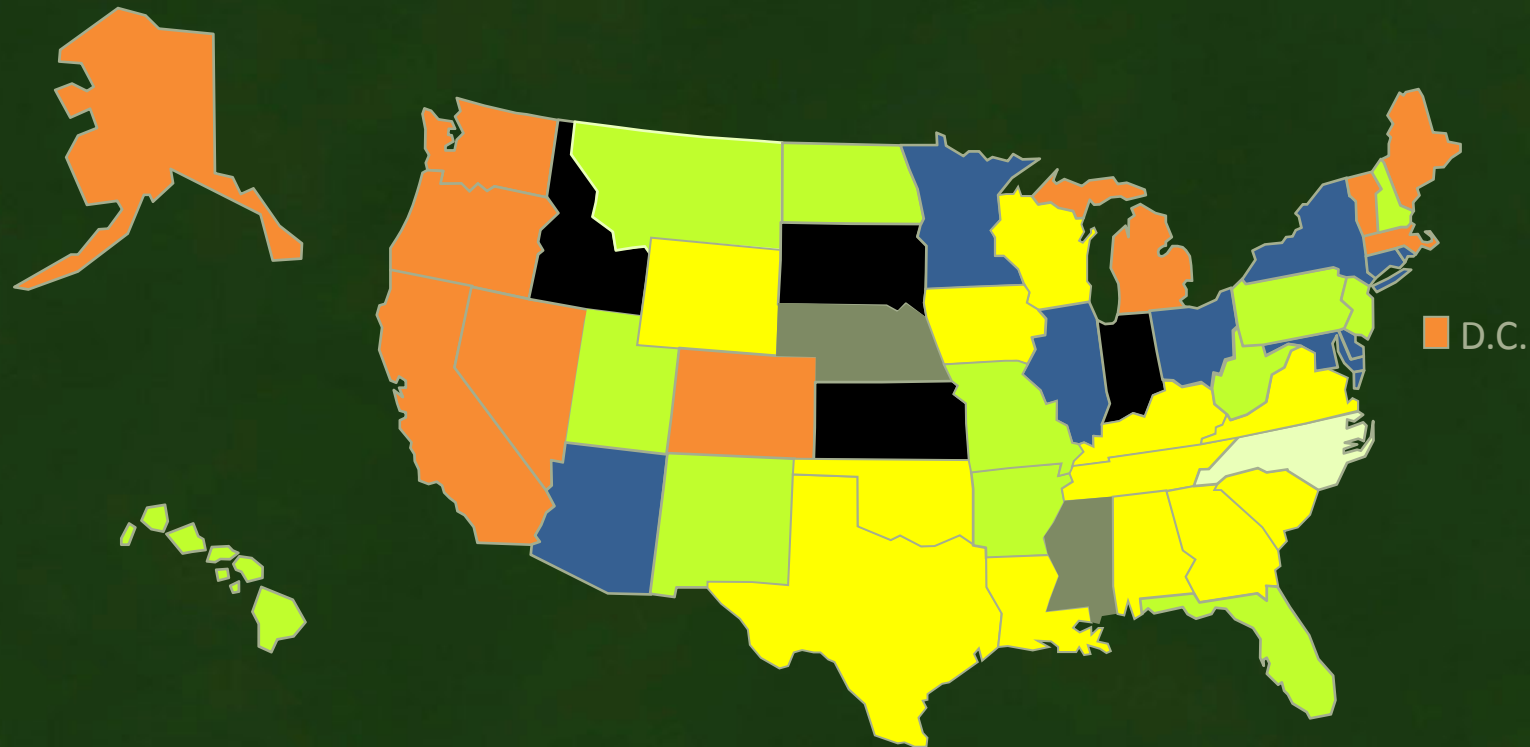
Therapeutic Cannabinoid Research

NIH IC	# Projects	FY17 \$Investment
NCATS	1	\$442,958
NCCIH	2	\$1,147,231
NCI	3	\$1,672,397
NEI	2	\$740,337
NHLBI	5	\$3,528,741
NIA	2	\$1,237,000
NIAAA	10	\$6,543,372
NIDA	30	\$16,337,519
NIDDK	1	\$448,433
NIMH	5	\$1,180,283
NINDS	7	\$1,998,161
OD	2	\$1,014,266
Grand Total	70	\$36,290,698

Cannabidiol (CBD) Research

NIH IC	# Projects	FY17 \$Investment
NCCIH	1	\$695,709
NCI	1	\$809,827
NHLBI	1	\$538,692
NIAAA	4	\$1,032,058
NIDA	15	\$11,041,161
NINDS	3	\$817,562
OD	1	\$124,121
Grand Total	26	\$15,059,130

US State Marijuana Laws in Effect as of Nov 2018



SOURCE: Pacula et al. RAND Marijuana Policy Spectrum

https://medicalmarijuana.procon.org/view_resource.php?resourceID=000881

51 Medical Conditions For Which Marijuana Is Approved by a State

1. Alzheimer's Disease
2. Anorexia
3. Arnold-Chiari malformation
4. Arthritis
5. Ataxia
6. Cachexia
7. Cancer
8. Cardiopulmonary respiratory syndrome
9. Causalgia
10. Cervical dystonia
11. Crohn's disease
12. Decompensated cirrhosis
13. Dystonia
14. Epilepsy
15. Fibromyalgia
16. Glaucoma
17. Hepatitis C
18. HIV/AIDS
19. Huntington's disease
20. Hydrocephalus
21. Inflammatory autoimmune-mediated arthritis
22. Inflammatory bowel disease (IBS)
23. Inflammatory demyelinating polyneuropathy
24. Interstitial cystitis
25. Lou Gehrig's disease (amyotrophic lateral sclerosis, ALS)
26. Lupus
27. Migraines
28. Multiple Sclerosis
29. Muscle spasms
30. Muscular dystrophy
31. Myasthenia gravis
32. Myoclonus
33. Nail-patella syndrome
34. Nausea or vomiting
35. Neurofibromatosis
36. Neuropathy
37. Pain
38. Pancreatitis
39. Parkinson's disease
40. Peripheral neuropathy
41. Post-traumatic stress disorder (PTSD)
42. Reflex sympathetic dystrophy
43. Residual limb pain from amputation
44. Seizure disorders
45. Sjogren's syndrome
46. Spasticity
47. Spinal cord damage with intractable spasticity
48. Syringomyelia
49. Terminal illness
50. Tourette's syndrome
51. Traumatic brain injury

Sources: Marijuana Policy Project, 2014. Key Aspects of State and D.C. Medical Marijuana Laws, from National Conference of State Legislatures, "State Medical Marijuana Laws," www.ncsl.org;
Rahn, B., 2014. Qualifying Conditions for Medical Marijuana by State, www.leafly.com

Does medical marijuana equal bad parenting?

Washington's smoke signals: marijuana myths

The Problem With Pot

October 08, 2014

SHOCKER: 20-YEAR STUDY SAYS THAT MARIJUANA MAKES YOU STUPID

Even more reason to put the habit out for good.

Wonkblog

No, marijuana is not actually “as addictive as heroin”

Wonkblog

It's official: Marijuana has gone mainstream

WEED WHACKER

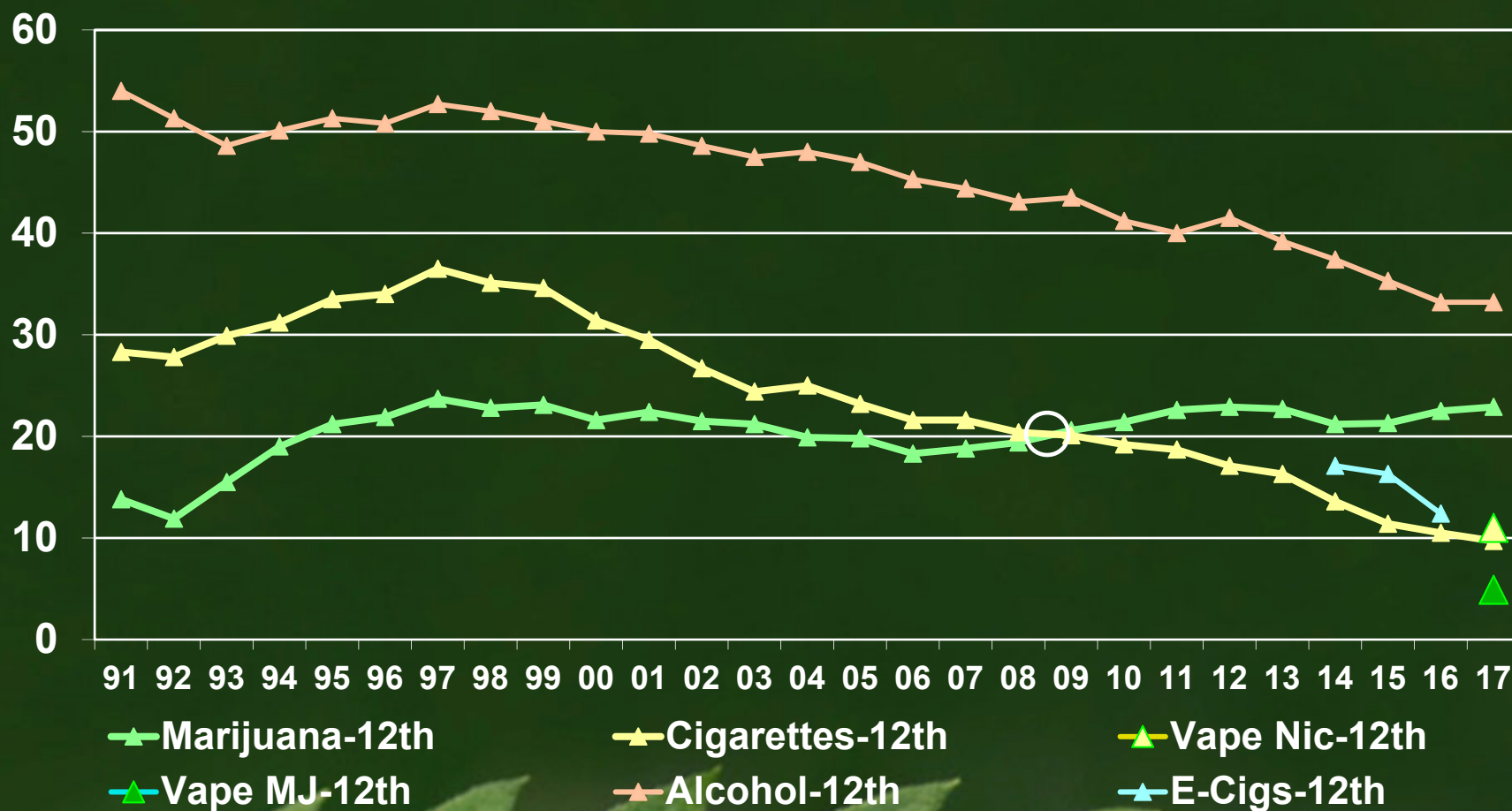
Smoking pot is not as safe as people think

Wonkblog

Marijuana may be even safer than previously thought, researchers say

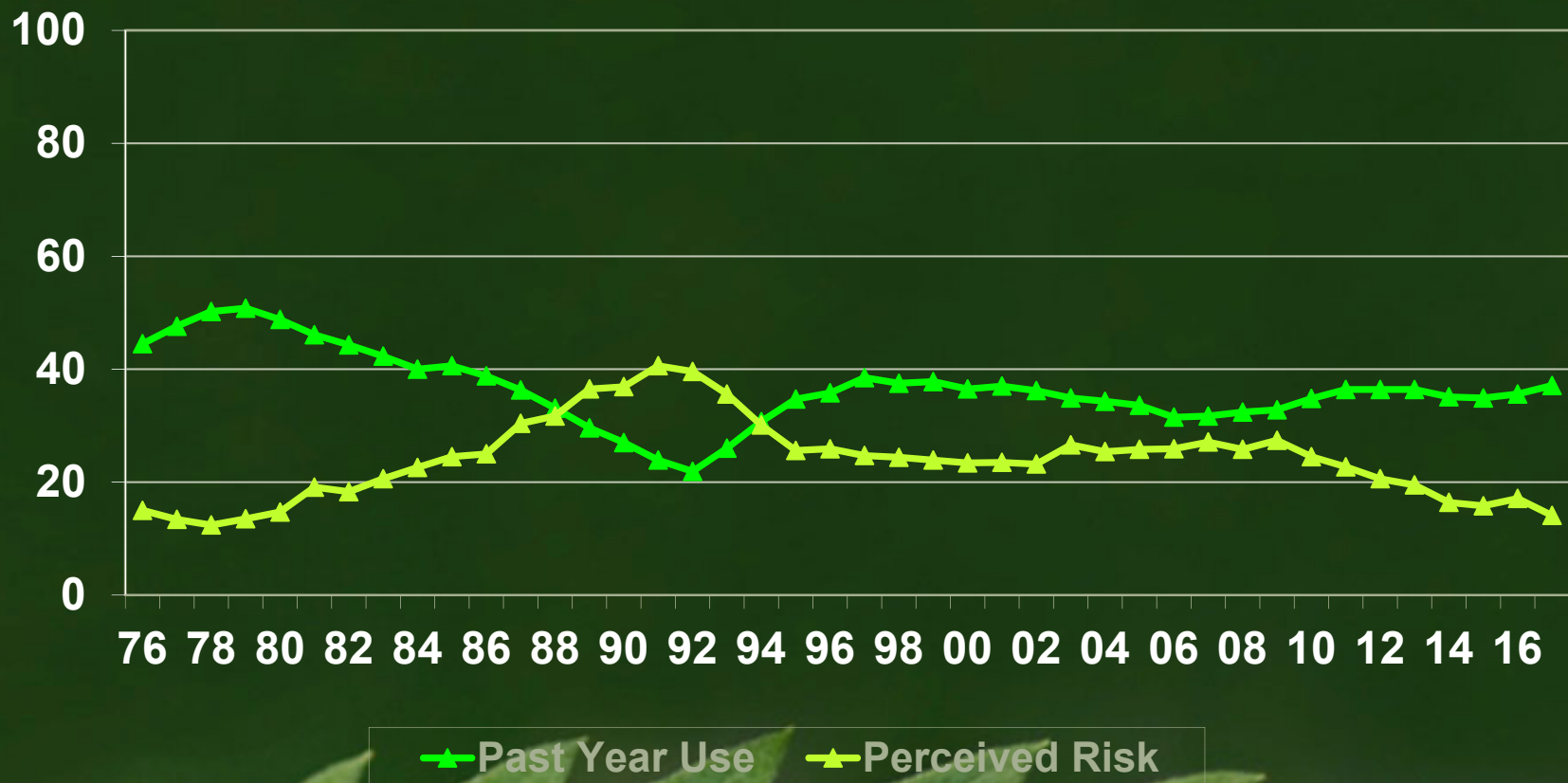


Past Month Marijuana, Cigarette, Vaping, and Alcohol Use among 12th Graders



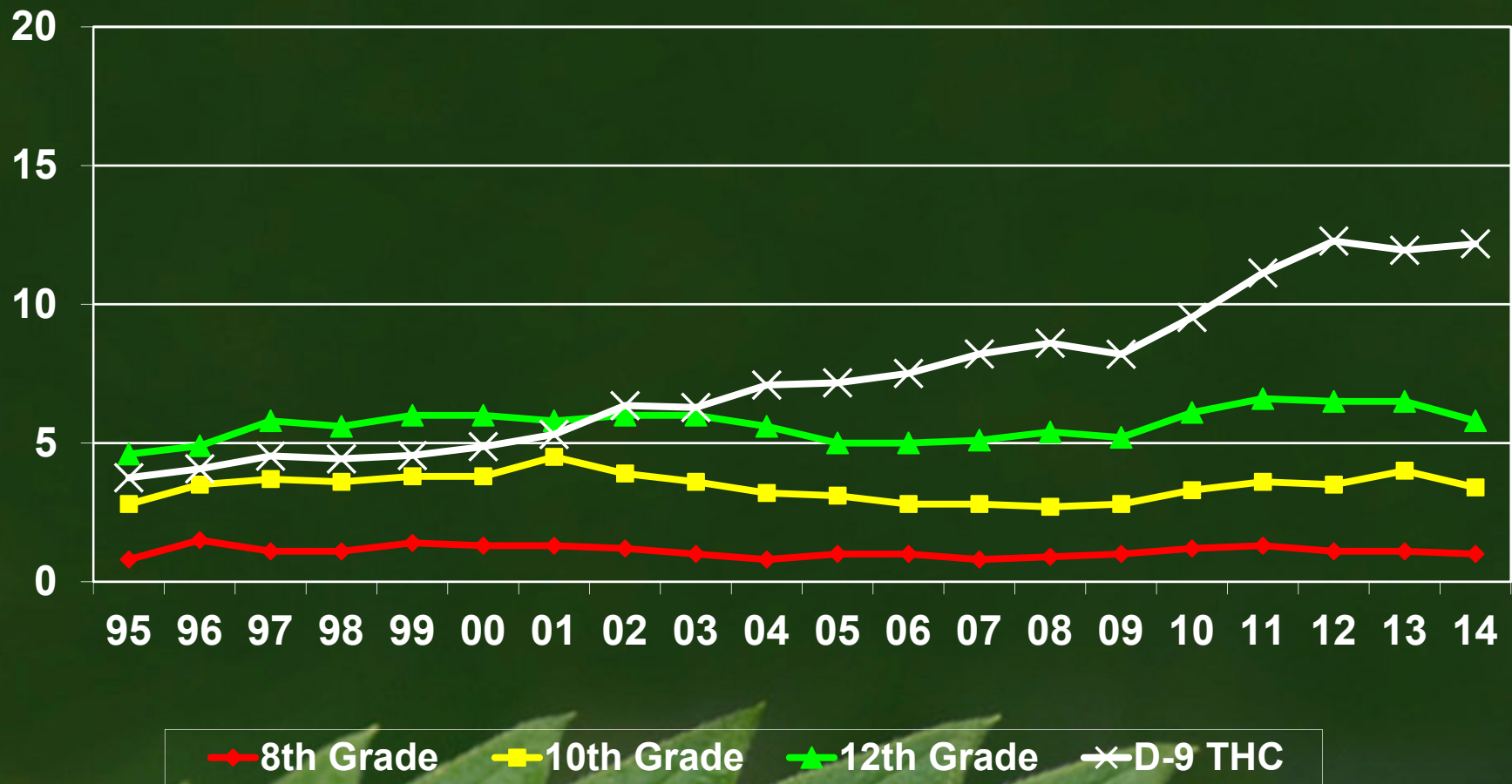
SOURCE: University of Michigan, 2017 Monitoring the Future Study

12th Graders' Past Year Marijuana Use vs. Perceived Risk of Occasional Marijuana Use



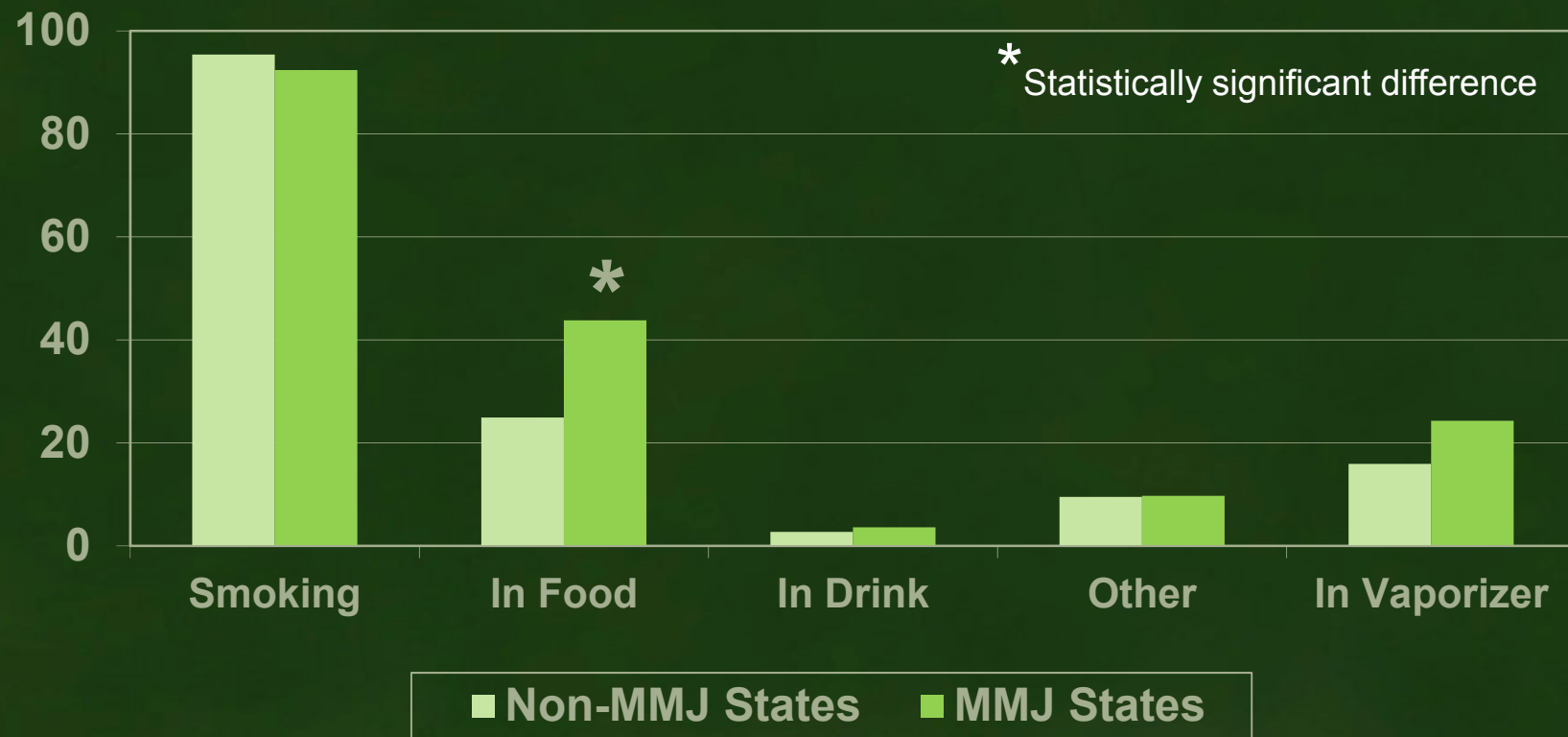
SOURCE: University of Michigan, 2017 Monitoring the Future Study

Percent of Students Reporting Daily Use of Marijuana, by Grade and Potency (% THC-D9)



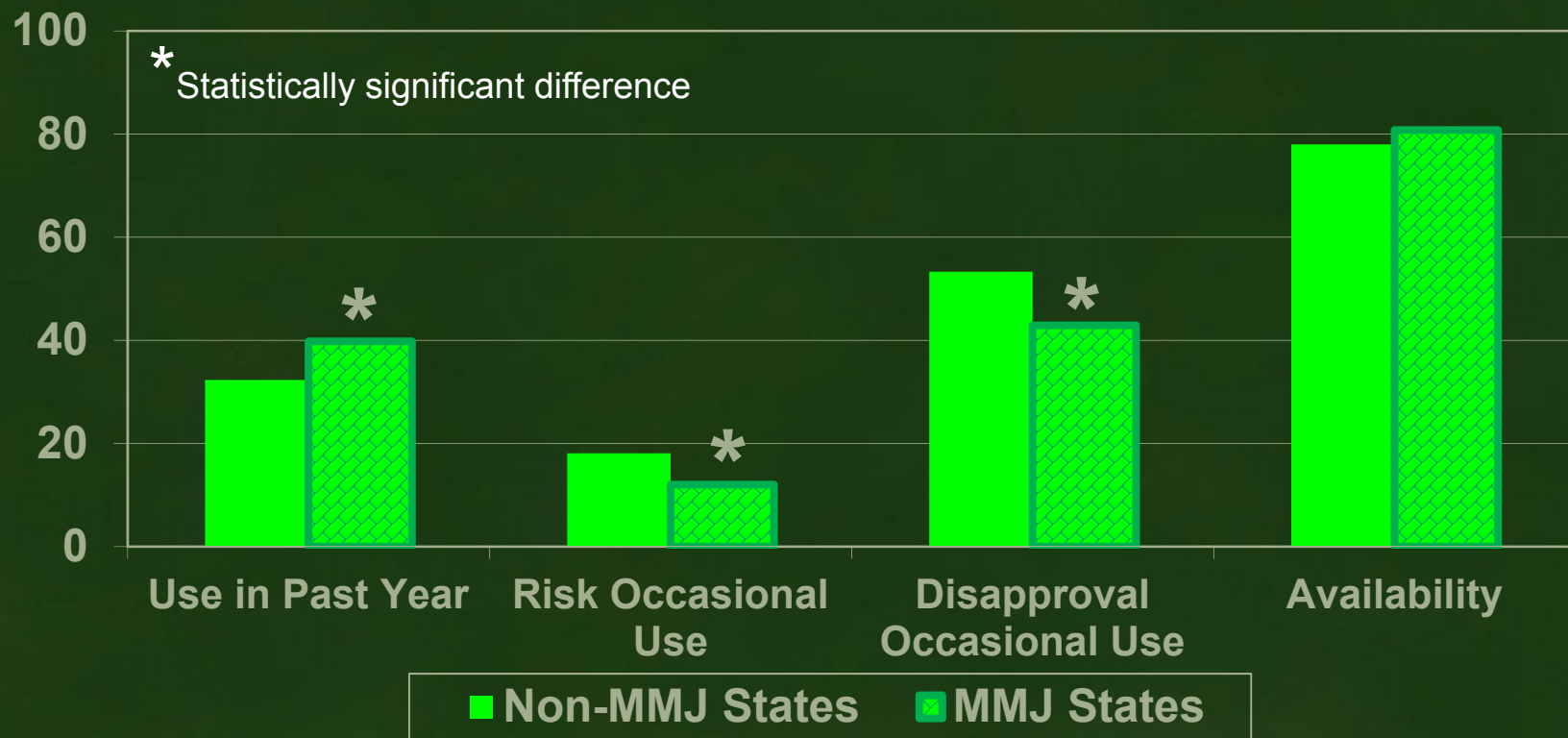
SOURCES: University of Michigan, 2017 Monitoring the Future Study;
University of Mississippi Marijuana Project, NIDA 2013

Methods of Using Marijuana Among 12th Grade Past Year Users, 2017



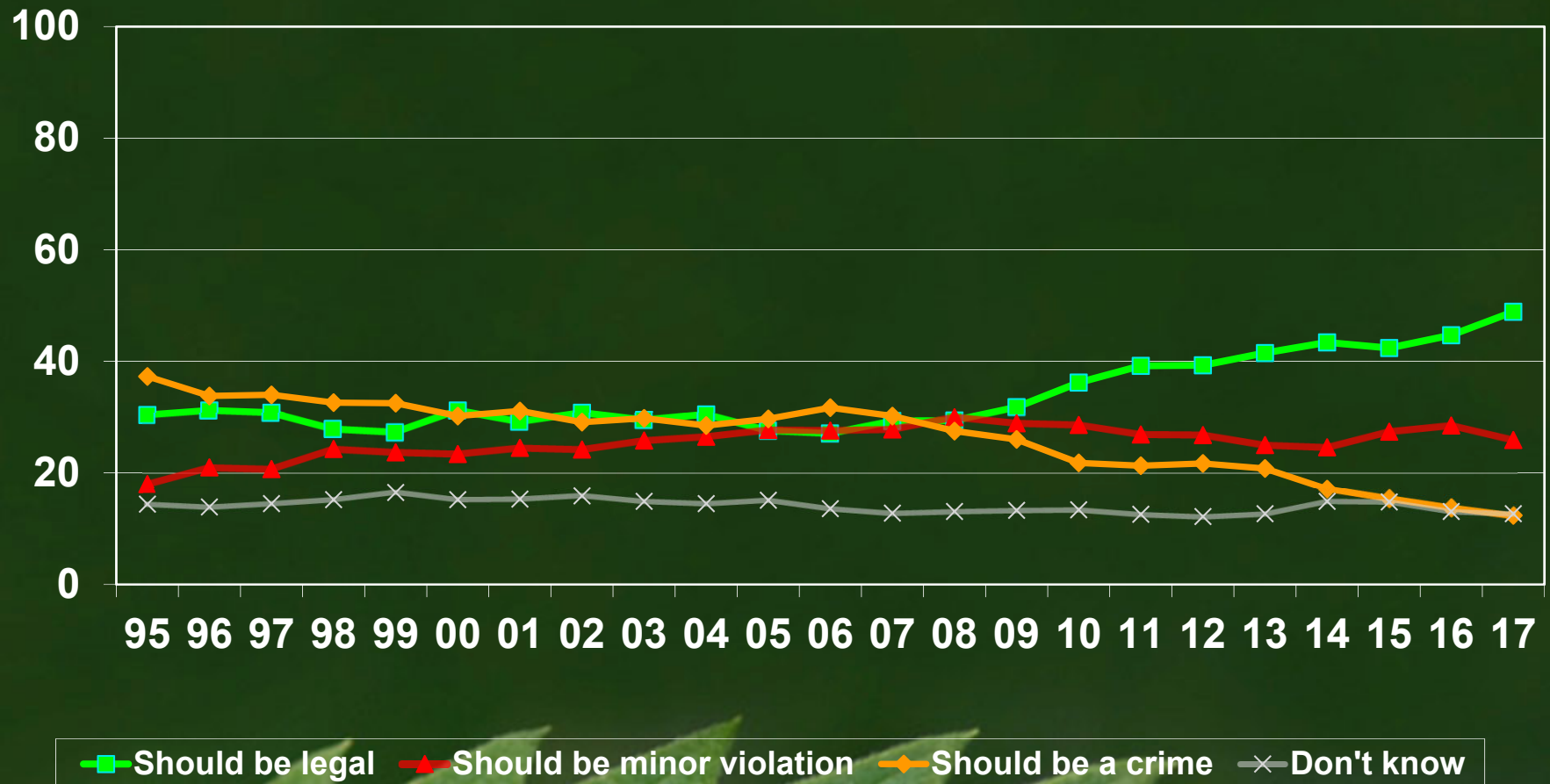
SOURCE: University of Michigan, 2017 Monitoring the Future Study

Differences among 12th Graders by State Marijuana Policy, 2017



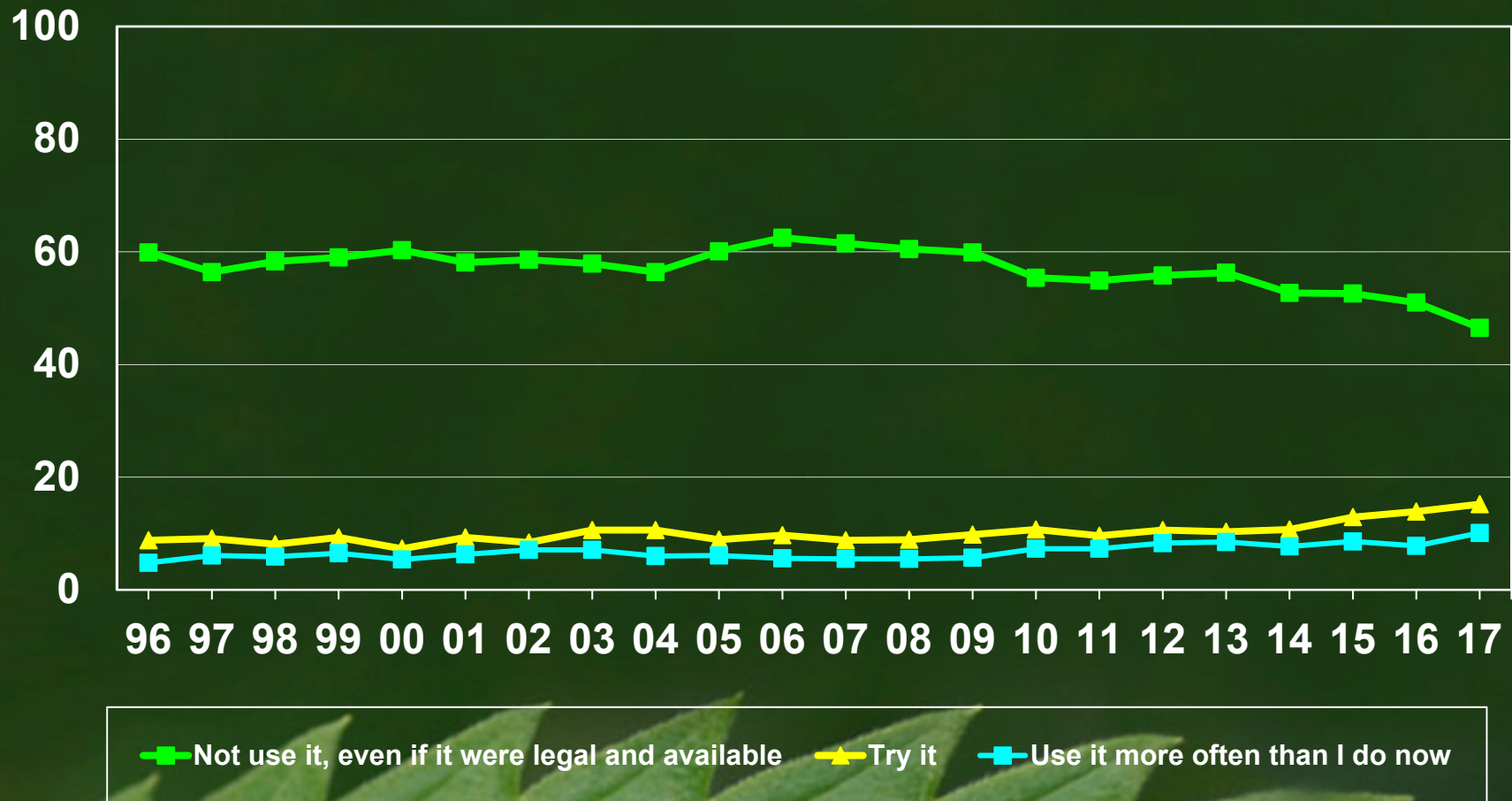
SOURCE: University of Michigan, 2017 Monitoring the Future Study

12th Graders' Attitudes Regarding Marijuana Laws: Which policy do you favor?



SOURCE: University of Michigan, 2017 Monitoring the Future Study

12th Graders' Attitudes Regarding Marijuana Laws: What would you be most likely to do?



SOURCE: University of Michigan, 2017 Monitoring the Future Study

Funded Marijuana Policy Research

- MJ use and dependence
- MJ attitudes/perceptions
- MJ availability/accessibility
- Health outcomes
- Other drug use
- Social outcomes

Research Opportunities

- PA-17-132, 134, 135 Public Policy Effects on Alcohol-, Marijuana-, and Other Substance-Related Behaviors and Outcomes (R21, R03, R01) (exp. 05/2020)
- PAR-19-064 Mechanism for Time-Sensitive Drug Abuse Research (R21) (exp. 11/2021)
- PA-18-061, 079, 080 Marijuana, Prescription Opioid, or Prescription Benzodiazepine Drug Use Among Older Adults (R01, R21, R03) (exp. 05/2020)
- NIDA Topics of Interest:
 - DAT18-10 Public Health Research on Cannabis
 - DAT18-003 Epidemiology of Drug Abuse
 - DAT 18-004 Effects of Cannabis Use and Cannabinoids on the Developing Brain

Focused Research Directions

- How does the potency/composition of marijuana products impact behavior, health outcomes, and treatment needs?
- How are marijuana policies, or specific aspects of marijuana policies, impacting use of other substances? (harm reduction, more smoking)
- Drugged driving and defining impairment
- What are the prevention needs of youth who may have greater access and exposure to marijuana use in a family environment? (second and third hand exposure; pregnancy)

Policy Surveillance Resources

- **Prescription Drug Abuse Policy System (PDAPS)**
 - www.pdaps.org
 - Provides data on prescription drug abuse and medical marijuana laws
 - Longitudinal data on recreational marijuana, medication-assisted treatment with methadone, and drugged driving laws
- **LawAtlas, The Policy Surveillance Program**
 - www.lawatlas.org
 - Maintained by the Policy Surveillance Program, a national program of the Robert Wood Johnson Foundation at Temple University's Center for Public Health Law Research
 - Provides cross-sectional data on recreational marijuana (2015), local medical and recreational marijuana laws in Washington (2014), and more than 60 other health policies

NIDA's Role in Providing Marijuana for Research

- NIDA contracts with the University of Mississippi to grow marijuana for use in research studies.
- The marijuana is grown, harvested, stored, and made available as bulk marijuana or other purified elements of marijuana to use for research.



<https://www.drugabuse.gov/drugs-abuse/marijuana/nidas-role-in-providing-marijuana-research>

<https://www.drugabuse.gov/researchers/research-resources/nida-drug-supply-program>

CANNABIS RESEARCH BARRIERS




ADMINISTRATIVE

- Schedule I: Complex and lengthy registration process.
- Single Source: NIDA supply has diversified, but costly and time consuming to grow new products, doesn't represent diversity of products/formulation currently available.
- Schedule I status of non-intoxicating components of cannabis (e.g. CBD).

SCIENTIFIC

- Complexity of plant (100 cannabinoids + other components), entourage effect?
- Route of administration.
- Need proper controls, sufficient study duration (blinding, driving...)
- Should be taking advantage of what is already happening in the states (patient registries).



Thank you for your attention

<http://www.drugabuse.gov/marijuana-research-nida>

Questions?

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