

CANNABIS CONTROL COMMISSION <u>Public Meeting</u>

September 12 & 13, 2019

10:00AM

Department of Transportation 10 Park Plaza Boston, MA 02116

Draft - For Discussion Purposes Only



<u>Agenda</u>

- 1) Call to Order
- 2) Chairman's Comments & Updates
- 3) Commission Discussion and Votes
 - a. Final Regulations
 - b. Expedition Policy Proposal
 - c. Board of Fire Prevention: Regulatory Comment
 - d. Research Report: A Baseline Review and Assessment of Cannabis Use and Youth Literature Review and Preliminary Data
- 4) Approval of Minutes
- 5) Executive Director's Report
 - a. Job Descriptions
- 6) Enforcement Actions
- 7) Staff Recommendations on Renewals
- 8) Staff Recommendations on Final Licenses
- 9) Staff Recommendations on Provisional Licenses
- 10) New Business that the Chairman did not anticipate at time of posting
- 11) Next Meeting Date



3) Commission Discussion and Votes

- a. Final Regulations
- b. Expedition Policy Proposal
- c. Board of Fire Prevention: Regulatory Comment
- d. Research Report: A Baseline Review and Assessment of Cannabis Use and Youth Literature Review and Preliminary Data



Cannabis Use and Youth: Literature Review and Preliminary Data in Massachusetts

Public Meeting of the Cannabis Control Commission: September 12, 2019

> Julie K. Johnson, Ph.D. Samantha M. Doonan, B.A.

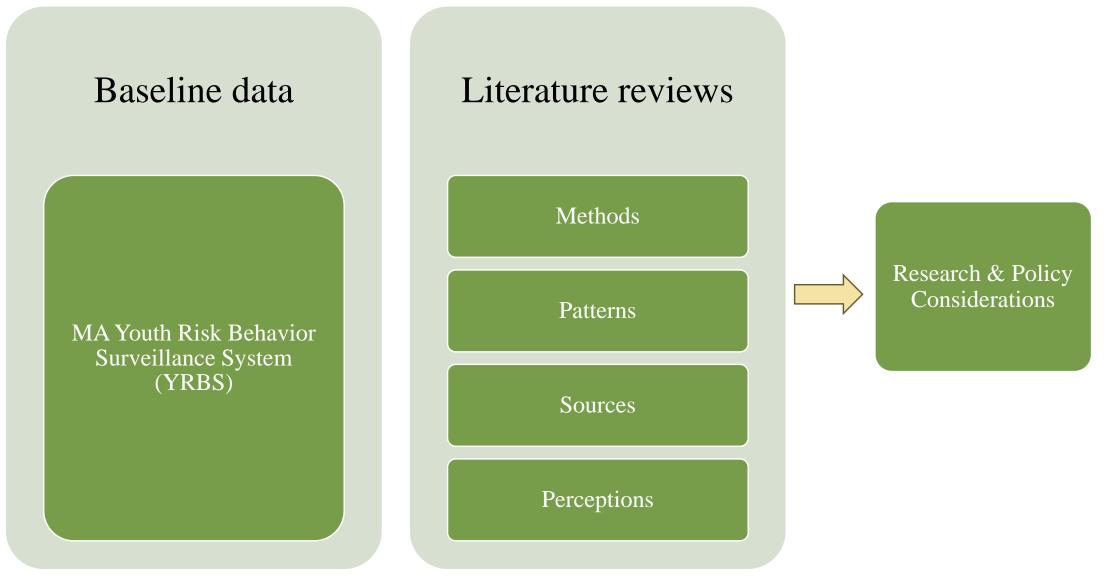
Chapter 55: An Act to Ensure Safe Access to Marijuana

Section 17. (a) The commission shall develop a research agenda in order to understand the social and economic trends of marijuana in the commonwealth, to inform future decisions that would aid in the closure of the illicit marketplace and to inform the commission on the public health impacts of marijuana. The research agenda shall include, but not be limited to:

- (i) patterns of use, methods of consumption, sources of purchase and general perceptions of marijuana among minors, among college and university students and among adults;
- (ii) incidents of impaired driving, hospitalization and use of other health care services related to marijuana use, including a report of the state of the science around identifying a quantifiable level of marijuana-induced impairment of motor vehicle operation and a report on the financial impacts on the state healthcare system of hospitalizations related to marijuana;
- (iii) economic and fiscal impacts for state and local governments including the impact of legalization on the production and distribution of marijuana in the illicit market and the costs and benefits to state and local revenue;
- (iv) ownership and employment trends in the marijuana industry examining participation by racial, ethnic and socioeconomic subgroups, including identification of barriers to participation in the industry;
- (v) a market analysis examining the expansion or contraction of the illicit marketplace and the expansion or contraction of the legal marketplace, including estimates and comparisons of pricing and product availability in both markets;
- (vi) a compilation of data on the number of incidents of discipline in schools, including suspensions or expulsions, resulting from marijuana use or possession of marijuana or marijuana products; and
- (vii) a compilation of data on the number of civil penalties, arrests, prosecutions, incarcerations and sanctions imposed for violations of chapter 94C for possession, distribution or trafficking of marijuana or marijuana products, including the age, race, gender, country of origin, state geographic region and average sanctions of the persons charged.



Report Overview

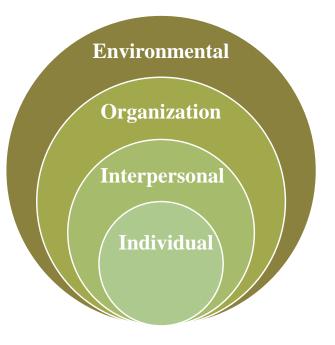


Considerations

1) Policy impacts on youth will likely be lagged;

2) All youth will not be affected equally; and

3) Youth cannabis use must be understood in context [This includes specific policy environment ("policy heterogeneity")].



Source: social ecological model

Baseline Data

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Youth Risk Behavioral Surveillance System (YRBS)

- School-based survey
- Conducted every two years
- Assesses health and risky behaviors, includes demographic information



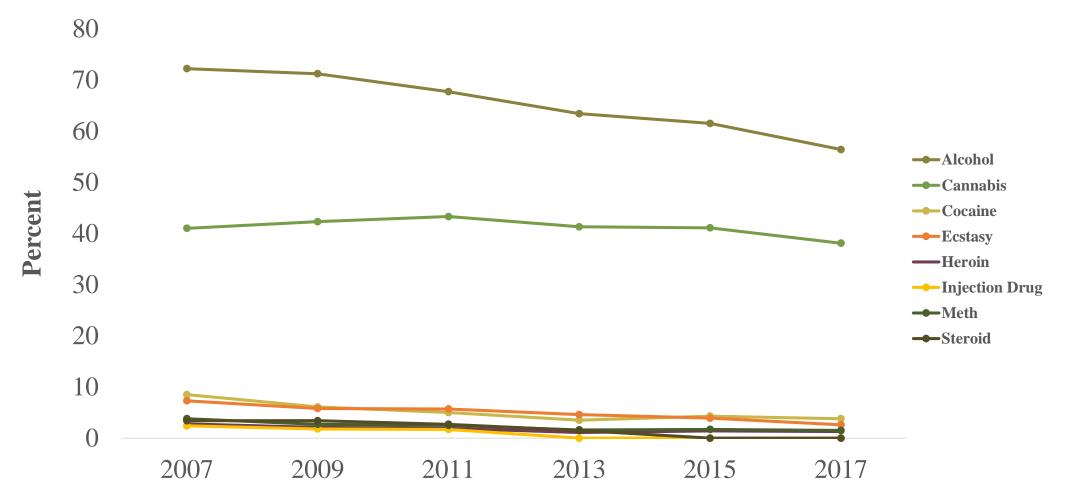
Who is excluded?

- Chronically absent & those who have dropped out;
- Private school students;
- Those in juvenile justice system;
- Some students with impairments or disabilities.



Cannabis and Substance Use in Context

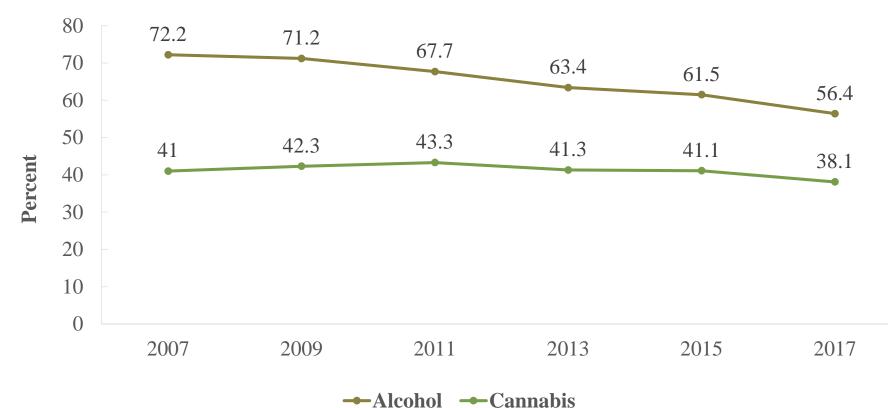




What percent of MA high schoolers report lifetime cannabis use?

In 2017:

- 38.1% report lifetime cannabis use
- For reference, 56.4% report lifetime alcohol use



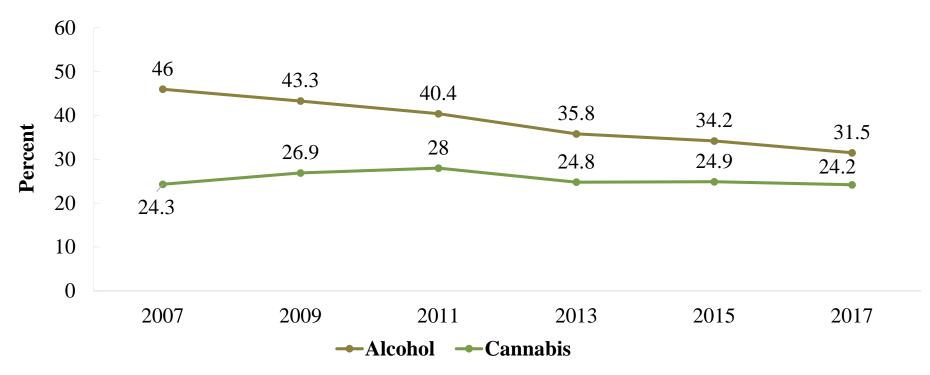
MA High Schoolers Lifetime Cannabis and Alcohol Use, YRBS 2007-2017

What percent of MA high schoolers report current use of cannabis?

In 2017:

- 24.2% report past 30-day cannabis use
- For reference, 31.5% report past 30-day alcohol use

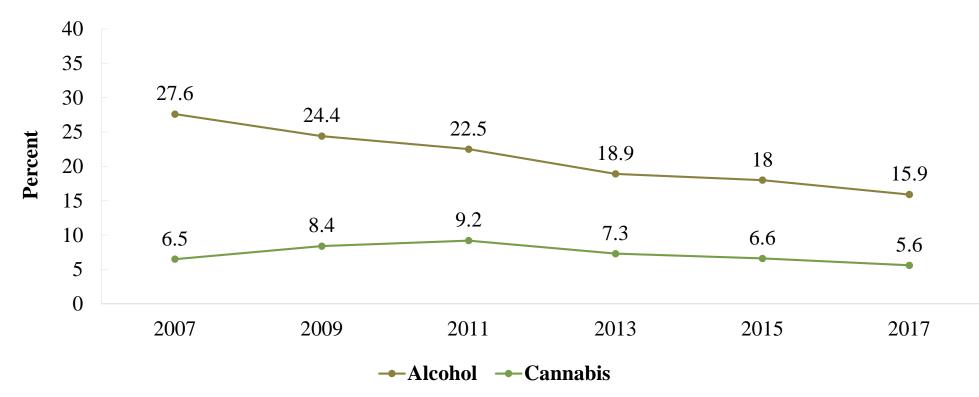
MA High Schoolers Current Cannabis and Alcohol Use, YRBS 2007-2017



What percent of MA high schoolers report heavy cannabis use?

In 2017:

- 5.6% report using cannabis 20+ times in the past 30-days
- For reference, 15.9% report binge drinking in the past 30-days

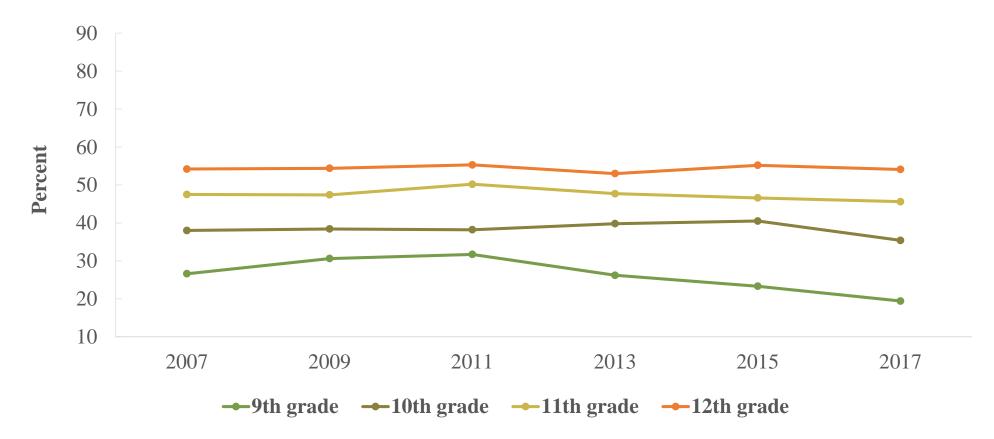


MA High Schoolers Heavy Cannabis and Alcohol Use, YRBS 2007-2017

How does lifetime cannabis use differ by grade?

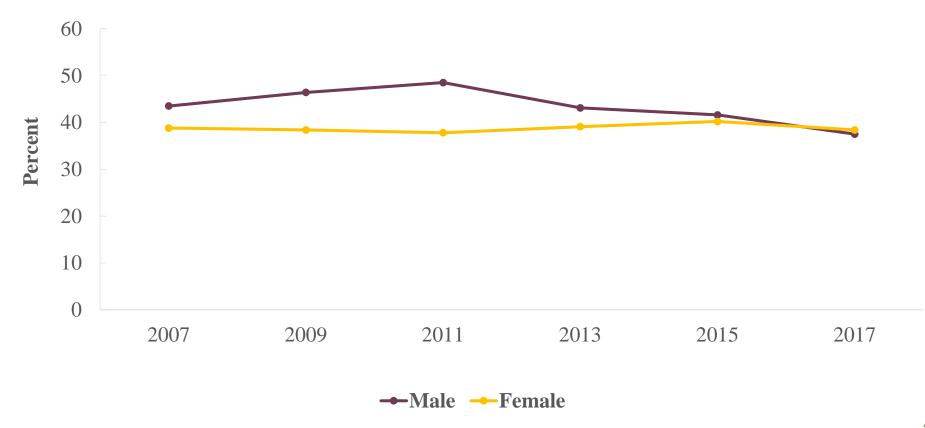
• Cannabis use is higher among 11th and 12th graders

MA High Schoolers Lifetime Cannabis Use by Grade, YRBS 2007-2017



How does lifetime cannabis use differ by gender?

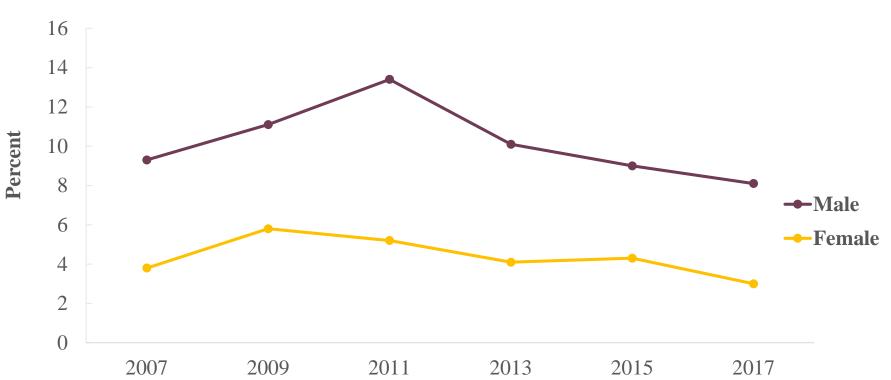
- For the first time, lifetime use slightly higher by females in 2017
- Gap also closing for current use



MA High Schoolers Lifetime Cannabis Use by Gender, YRBS 2007-2017

How does heavy cannabis use differ by gender?

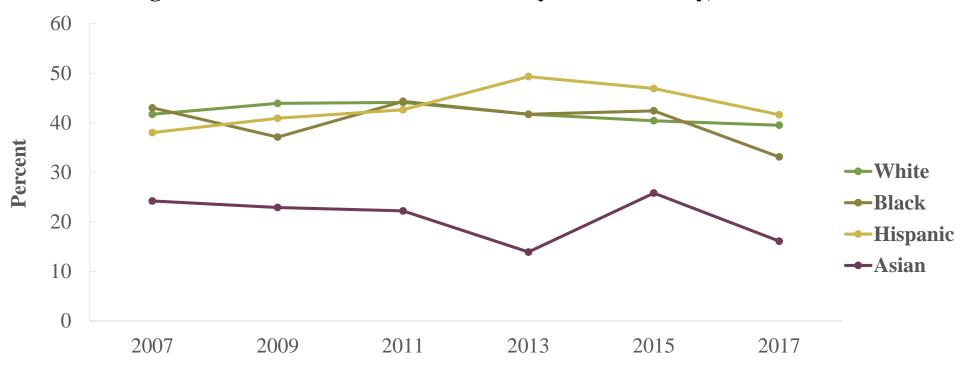
• Higher for males



MA High Schoolers Heavy Cannabis Use by Gender, YRBS 2007-2017

How does lifetime cannabis use differ by race/ethnicity?

- In 2017, highest use by Hispanic (41.6%) and White (39.5%) cohorts, followed by Black (33.1%) and Asian (16.1%) cohorts
- Similar for current users

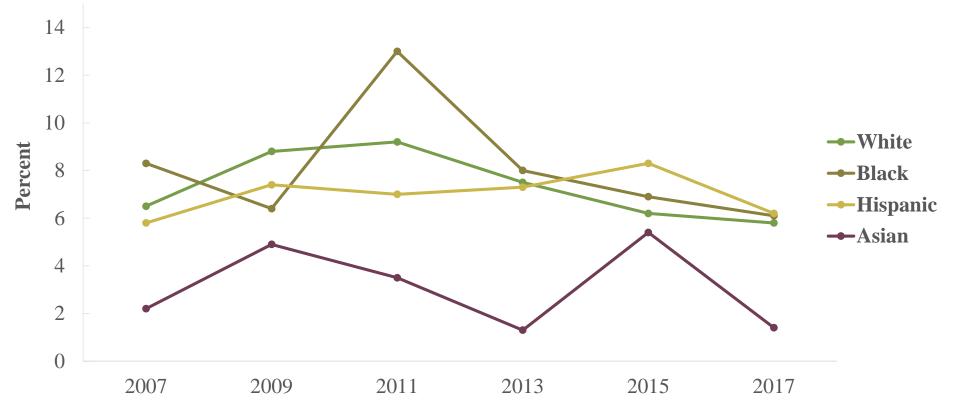


MA High Schoolers Lifetime Cannabis Use by Race/Ethnicity, YRBS 2007-2017

How does heavy cannabis use differ by race/ethnicity?

• In 2017, highest for Hispanics (6.2%), Blacks (6.1%), Whites (5.8%), and lowest among Asians (1.4%) cohorts

MA High Schoolers Heavy Cannabis Use by Race/Ethnicity, YRBS 2007-2017



Logistical Regression Models

Enactment of cannabis policies:

- Decriminalization
- Medical cannabis
- Adult-use

Risk and Protective Factors



Logistic Regression Findings

- Cannabis policies not associated with increased youth cannabis use in MA from 2007-2017;
- 19 Risk and 5 Protective Factors identified
 - Cannabis policies did not moderate effects of risk/protective factors on cannabis use outcomes [Exception: *Driving after alcohol use*].

Cannabis Policies and Youth Cannabis Use in MA, 2007-2017

Cannabis Use Outcomes	Decriminalization		Medical Cannabis Policy		Adult-Use Cannabis Policy	
	Adjusted+ OR	(95% CI)	Adjusted+ OR	(95% CI)	Adjusted ⁺ OR	(95% CI)
Cannabis Variables						
Lifetime cannabis use	1.00	(0.85-1.19)	0.92	(0.82-1.04)	0.85	(0.73-0.98)
Past 30-day cannabis use	1.08	(0.89-1.31)	0.92	(0.83-1.02)	0.92	(0.80-1.05)
Past 30-day frequent cannabis use	1.14	(0.88-1.46)	0.79*	(0.66-0.95)	0.71**	(0.56-0.89)
Past 30-day cannabis use at school	1.06	(0.85-1.31)	0.81*	(0.69-0.96)	0.89	(.69-1.15)

Risk and Protective Factors: Disability Status and Driving Behaviors

Cannabis Use Outcomes	Any Use		Past 30-Day Use		Past 30-Day Frequent Use (<u>></u> 20 times) ^a	
	Adjusted ⁺ OR	(95%CI)	Adjusted ⁺ OR	(95%CI)	Adjusted ⁺ OR	(95%CI)
Disability						
Learning Disability	1.34***	(1.13-1.58)	1.33***	(1.14-1.56)	1.58**	(1.20- 2.07)
Physical Disability	1.14*	(1.02-1.28)	1.12	(0.96-1.31)	1.26	(0.96-1.65)
Driving Behaviors						
Ride with driver who had been drinking (past 30-day)	3.91***	(3.58-4.27)	4.13***	(3.79-4.49)	4.62***	(4.04-5.29)
Drive after drinking alcohol (past 30-day)	2.15***	(1.95-2.39)	2.33***	(2.05-2.64)	3.07***	(2.59-3.65)
Text or email while driving (past 30-day)	3.67***	(3.22-4.18)	2.74***	(2.33-3.22)	2.28***	(1.80-2.90)
Talk on cell phone while driving (past 30- day)	3.25***	(2.74-3.86)	2.67***	(2.23-3.20)	2.11***	(1.63-2.74)

Risk and Protective Factors:

Weapon carrying/ exposure, violence, and bullying

Cannabis Use Outcomes	Any Use		Past 30-Day Use		Past 30-Day Frequent Use (>20 times) ^a	
	Adjusted ⁺ OR	(95%CI)	Adjusted ⁺ OR	(95%CI)	Adjusted ⁺ OR	(95%CI)
Weapon carrying/exposure, violence, and	bullying					
Carry weapon (past 30-day)	3.59***	(3.22-4.01)	3.54***	(3.15-3.97)	4.33***	(3.73-5.02)
Carry weapon on school property (past 30-day)	4.61***	(3.61-5.89)	4.66***	(3.82-5.69)	5.72***	(4.75-6.89)
Carry gun (past 30-day)	4.48***	(3.44- 5.84)	4.55***	(3.42-6.05)	6.69***	(4.99-8.98)
Threatened or injured with weapon on school property (past 12- month)	3.30***	(2.76-3.95)	3.29***	(2.68-4.04)	4.07***	(3.35-4.94)
Physical fight (past 12- month)	3.92***	(3.55-4.33)	3.82***	(3.50-4.18)	4.82***	(4.35-5.35)
Bullied on school property (past 12- month)	1.52***	(1.37-1.69)	1.49***	(1.32-1.69)	1.51***	(1.28-1.79)
Sexual and Dating Violence						
Physically forced to have sex (lifetime)	2.64***	(1.93-3.63)	2.43***	(1.83-3.21)	3.29***	(2.05-5.27)
Physically forced to have sex or physical dating violence (lifetime)	2.83***	(2.57-3.12)	2.28***	(2.24-2.74)	2.84***	(2.43-3.21)

Risk and Protective Factors: Hopelessness and Suicide

Cannabis Use Outcomes	Any Use		Past 30-Day Use		Past 30-Day Frequent Use (<u>></u> 20 times) ^a	
	Adjusted ⁺ OR	(95%CI)	Adjusted+ OR	(95%CI)	Adjusted+ OR	(95%CI)
Hopelessness and Suicide Behaviors						
Hopelessness (past 12- month)	2.22***	(2.01-2.46)	2.03***	(1.82- 2.25)	2.42***	(2.11-2.79)
Consider suicide (past 12- month)	2.35***	(2.06-2.68)	2.32***	(2.05-2.62)	2.43***	(2.09-2.82)
Plan suicide (past 12- month)	2.08***	(1.86-2.33)	2.00***	(1.77-2.26)	2.13***	(1.77-2.55)
Attempt suicide (past 12- month)	2.72***	(2.29-3.23)	2.61***	(2.22- 3.07)	3.15***	(2.61-3.81)
Treated for suicide attempt (past 12- month)	3.18***	(2.34- 4.33)	3.05***	(2.32- 4.02)	4.34***	(3.24- 5.81)
Purposely hurt yourself (past 12- month)	2.34***	(2.10-2.59)	2.24***	(2.02-2.49)	2.48***	(2.05-3.01)

Risk and Protective Factors: Sexual Orientation and Behaviors

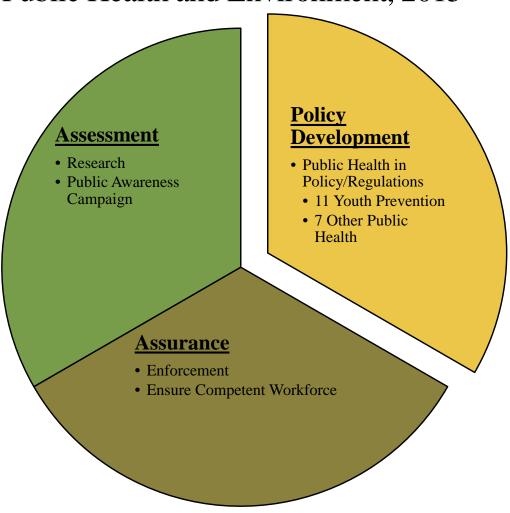
Cannabis Use Outcomes	Any Use		Past 30-Day Use		Past 30-Day Frequent Use (≥20 times) ^a	
	Adjusted ⁺ OR	(95%CI)	Adjusted ⁺ OR	(95%CI)	Adjusted ⁺ OR	(95%CI)
Sexual Orientation and Behaviors						
Sexual intercourse (lifetime)	7.20***	(6.52-7.95)	5.94***	(5.33-6.62)	8.10***	(6.55-10.02)
Age first sexual intercourse encounter	1.28***	(1.25-1.30)	1.22***	(1.20- 1.25)	1.19***	(1.15-1.23)
Sex partners (past 90-days)	2.44***	(2.31-2.57)	2.03***	(1.93-2.13)	1.85***	(1.76-1.95)
Alcohol or other substance use before sexual intercourse last time	12.26***	(10.22-14.70)	8.76***	(7.56-10.15)	9.46***	(8.13-11.01)
Condom use last sexual encounter	3.20***	(2.85-3.58)	2.63***	(2.37- 2.92)	2.05***	(1.76-2.40)
Ever been or gotten someone pregnant (lifetime)	4.46***	(3.64-5.47)	3.20***	(2.70-3.79)	4.64***	(3.89-5.53)
Ever been tested for any Sexually Transmitted Disease(s) (STDs) (lifetime)	2.74***	(2.50-3.0)	2.24***	(2.00-2.50)	2.65***	(2.25-3.13)
Sexuality- Heterosexual ("straight")	0.48***	(0.42-0.55)	0.50***	(0.44- 0.58)	0.42***	(0.34- 0.51)
Sexuality- Gay, Lesbian, or Bisexual	2.08***	(1.81-2.39)	1.99***	(1.72-2.30)	2.39***	(1.96-2.91)

Risk and Protective Factors: Other Factors

Cannabis Use Outcomes	Any Use		Past 30-Day Use		Past 30-Day Frequent Use (≥20 times) ^a	
	Adjusted ⁺ OR	(95%CI)	Adjusted ⁺ OR	(95%CI)	Adjusted ⁺ OR	(95%CI)
Other Risk/Protective Factors						
Any adult support (family or other)	0.58***	(0.50-0.67)	0.56***	(0.50- 0.63)	0.43***	(0.37-0.50)
Physically active (past week)	0.95	(0.86-1.06)	0.97	(0.87-1.08)	0.68***	(0.57-0.81)
Sports team involvement (past 12-month)	0.94	(0.86-1.03)	0.89*	(0.81-0.98)	0.60***	(0.52-0.69)
Play video games on average school day	0.89**	(0.82-0.97)	0.95	(0.86-1.04)	0.86*	(0.77-0.98)
Watch TV on average school day	0.95	(0.88- 1.03)	0.93	(0.85-1.03)	0.86	(0.71-1.05)
Grades are A's and B's	0.34***	(0.34-0.38)	0.34***	(0.30-0.38)	0.25***	(0.21- 0.29)

Public Health Framework

Public Health Framework for Legalization Colorado Department of Public Health and Environment, 2015



Source: Ghosh TS, Van Dyke M, Maffey A, Whitley E, Erpelding D, Wolk L. Medical marijuana's public health lessons-implications for retail marijuana in Colorado. *N Engl J Med*. 2015;372(11):991-993.

State of Science

What is the impact of cannabis policies on youth use?

- Mixed findings whether decriminalization is associated with increased use one study found decriminalization in CA was associated with more 12th grade cannabis use;¹ another review found most studies (4:5) did not show impact;²
- Research does not suggest medical cannabis legalization impacted youth use;^{3–10}
- Research is still developing about adult-use:
 - Early studies do not find evidence of impact on youth use;^{4,11–15} and
 - Lagged effect, certain cohorts may be uniquely affected.^{16,17}

Literature review – Methods of Use

- Cannabis flower most common cannabis product used by youth;^{1–7}
- Smoking is primary use method;^{1–7}
- Research gaps around edible use \implies may be perceived as healthier alternative;^{1,4,8,9} and
- Research gaps around vaping cannabis.^{4,10–12}

Literature review – Patterns of Use

Co-use and polysubstance use associated with worse outcomes;^{30–32}

Alcohol and cannabis:

- "Alcohol-only" use highest among youth, followed by alcohol & cannabis use;
 "cannabis-only" use is much lower;³⁰
- Risk factors for cannabis and alcohol use include male, truancy, more evenings out; other substance use, mixed findings around race/ethnicity;^{30,33}
- Complementary **and** substitution effects found;^{33–36}

Tobacco and cannabis:

• Tobacco and cannabis use is more common than "tobacco-only" or "cannabisonly" use among youth, less common than alcohol and cannabis use;³⁰ and

Other-substances and cannabis:

• Gaps in literature.^{37,38}

Literature review – Sources of Cannabis

- Most youth receive cannabis for free,³⁹ "purchasers" may be at greater risk for negative outcomes;^{39,40}
- Most receive cannabis from a friend, youth who obtain cannabis elsewhere may be at greater risk for negative outcomes;^{39–41}
- Few youth report using another's medical cannabis in legal states but those that do are at greater risk for other risky behaviors;^{42,43} and
- Little research assessing any changes following adult use legalization:
 - One self-report study of Washington state 10th graders found <u>of those who use</u> <u>cannabis</u>,18% reported giving someone money to purchase for them, 11% obtained cannabis from their home with or without parent permission, and 6% reported buying cannabis at a retail store.⁴¹

Literature review – Perception of Cannabis' Harms

- A lower perception of cannabis's harm is associated with increased cannabis use; 45,54-57
- Nationally, youth perception of cannabis's harms has been decreasing:^{6,44–47}
 - Most, but not all,⁴⁸ studies did not find medical cannabis laws were associated with decreased risk;^{6,47,49,50}
 - Adult-use research is developing; early studies have mixed findings;^{11,12,14,51–53}
- Despite decreased risk perceptions, youth cannabis use has not increased at the level that would be expected:⁵⁶
 - Decreased cigarette use may explain.^{45,56}

Research Gaps: Overview

- 1. Impact of adult use legalization (*Note: Lagged, Cohort-specific, Contextual*):
 - a) Use rates, patterns, perceptions, problem use, and beyond;
 - b) Policy heterogeneity considered;
- 2. Individual-level data to better understand risk and protective factors:
 - a) Cohort-specific; and
- 3. Best practices for youth prevention and intervention, and assessment of current school-based practices.



Policy Considerations: *Prevention*

Consideration 1: Cannabis prevention efforts should not occur in a silo. Cannabis prevention efforts should be broadly integrated into other evidence-based prevention mechanisms.

Consideration 2: Commonwealth could continue the Public Awareness Campaign with continued focus on youth prevention and harm mitigation.

**All education materials must be inclusive, multi-lingual, and reach all affected communities.



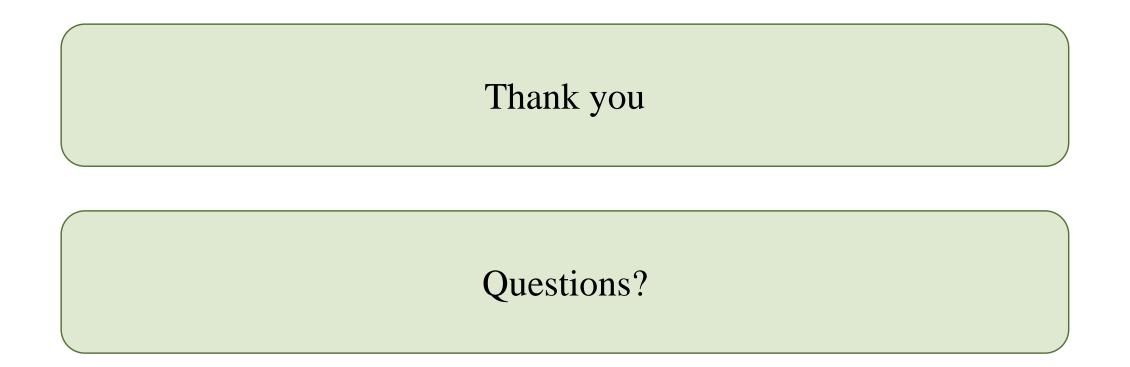
Policy Considerations: *Data Collection and Monitoring*

Consideration 1: Commonwealth could work with health care system, school health system, and researchers to monitor rates of cannabis use behaviors, cannabis use disorders, and any acute-use clinical presentations.

Consideration 2: Commission collaboration with the Massachusetts Department of Elementary and Secondary Education (DESE) to assess youth receiving disciplinary action for cannabis-related incidents at school.

Consideration 3: Commonwealth to add measures to systematic data collection mechanisms to assess exposure, use, frequency, quantity of cannabis use and perceptions of harm among youth, pregnant and breastfeeding women.





Doonan SM., Hamilton, JR., Johnson, JK (2019, September). A Baseline Review and Assessment of Cannabis Use and Youth: *Literature Review and Preliminary Data in Massachusetts*. Boston, MA: *Massachusetts Cannabis Control Commission*.



- 1. Miech RA, Johnston L, O'Malley PM, Bachman JG, Schulenberg J, Patrick ME. Trends in use of marijuana and attitudes toward marijuana among youth before and after decriminalization: The case of California 2007–2013. *Int J Drug Policy*. 2015;26(4):336-344. doi:10.1016/j.drugpo.2015.01.009
- 2. Melchior M, Nakamura A, Bolze C, et al. Does liberalisation of cannabis policy influence levels of use in adolescents and young adults? A systematic review and meta-analysis. *BMJ Open*. 2019;9(7):e025880. doi:10.1136/bmjopen-2018-025880
- 3. Johnson JK. Elucidating the Impact of Adolescent Marijuana Use. J Adolesc Heal. 2018;63(2):129-130. doi:10.1016/j.jadohealth.2018.06.002
- 4. Carliner H, Brown QL, Sarvet AL, Hasin DS. Cannabis use, attitudes, and legal status in the U.S.: A review. Prev Med (Baltim). 2017;104:13-23. doi:10.1016/j.ypmed.2017.07.008
- 5. Choo EK, Benz M, Zaller N, et al. The Impact of State Medical Marijuana Legislation on Adolescent Marijuana Use. J Adolesc Heal. 2014;55(2):160-166. doi:10.1016/j.jadohealth.2014.02.018
- 6. Keyes KM, Wall M, Cerdá M, et al. How does state marijuana policy affect US youth? Medical marijuana laws, marijuana use and perceived harmfulness: 1991-2014. *Addiction*. 2016;111(12):2187-2195. doi:10.1111/add.13523
- Hasin DS, Wall M, Keyes KM, et al. Medical marijuana laws and adolescent marijuana use in the USA from 1991 to 2014: Results from annual, repeated cross-sectional surveys. *The Lancet Psychiatry*. 2015;2(7):601-608. doi:10.1016/S2215-0366(15)00217-5
- 8. Johnson J, Hodgkin D, Harris SK. The design of medical marijuana laws and adolescent use and heavy use of marijuana: Analysis of 45 states from 1991 to 2011. *Drug Alcohol Depend*. 2017;170:1-8. doi:10.1016/j.drugalcdep.2016.10.028
- 9. Sarvet AL, Wall MM, Fink DS, et al. Medical marijuana laws and adolescent marijuana use in the United States: a systematic review and meta-analysis. Addiction. 2018;113(6):1003-1016. doi:10.1111/add.14136
- 10. Lynne-Landsman SD, Livingston MD, Wagenaar C. A. Effects of State Medical Marijuana Laws on Adolescent Marijuana Use . *Am J Public Health*. 2013;103(8):1500-1506. http://ajph.aphapublications.org/doi/abs/10.2105/ajph.2012.301117.
- 11. Cerdá M, Wall M, Feng T, et al. Association of State Recreational Marijuana Laws With Adolescent Marijuana Use. JAMA Pediatr. 2017;171(2):142. doi:10.1001/jamapediatrics.2016.3624
- 12. Brooks-Russell A, Ma M, Levinson AH, et al. Adolescent Marijuana Use, Marijuana-Related Perceptions, and Use of Other Substances Before and After Initiation of Retail Marijuana Sales in Colorado (2013–2015). Prev Sci. 2019;20(2):185-193. doi:10.1007/s11121-018-0933-2
- 13. Reed J. Impacts of Marijuana Legalization in Colorado A Report Pursuant to Senate Bill 13 283.; 2018. https://www.colorado.gov/pacific/dcj-ors.
- 14. Blevins CE, Marsh E, Banes KE, Stephens RS, Walker DD, Roffman RA. The Implications of Cannabis Policy Changes in Washington on Adolescent Perception of Risk, Norms, Attitudes, and Substance Use. *Subst Abus Res Treat*. 2018;12:117822181881549. doi:10.1177/1178221818815491
- 15. Rusby JC, Westling E, Crowley R, Light JM. Legalization of recreational marijuana and community sales policy in Oregon: Impact on adolescent willingness and intent to use, parent use, and adolescent use. *Psychol Addict Behav.* 2018;32(1):84-92. doi:10.1037/adb0000327
- 16. Graves JM, Whitehill JM, Miller ME, Brooks-Russell A, Richardson SM, Dilley JA. Employment and Marijuana Use Among Washington State Adolescents Before and After Legalization of Retail Marijuana. J Adolesc Heal. March 2019. doi:10.1016/j.jadohealth.2018.12.027
- 17. Sobesky M, Gorgens K. Cannabis and adolescents: Exploring the substance misuse treatment provider experience in a climate of legalization. Int J Drug Policy. 2016;33:66-74. doi:10.1016/j.drugpo.2016.02.008
- 18. Peters EN, Bae D, Barrington-Trimis JL, Jarvis BP, Leventhal AM. Prevalence and Sociodemographic Correlates of Adolescent Use and Polyuse of Combustible, Vaporized, and Edible Cannabis Products. *JAMA Netw Open*. 2018;1(5):e182765. doi:10.1001/jamanetworkopen.2018.2765
- 19. Greydanus DE, Hawver EK, Greydanus MM, Merrick J. Marijuana: Current Concepts. Front Public Heal. 2013;1(October):1-17. doi:10.3389/fpubh.2013.00042
- 20. Coffey C, Patton GC. Cannabis Use in Adolescence and Young Adulthood. Can J Psychiatry. 2016;61(6):318-327. doi:10.1177/0706743716645289
- 21. Johnson RM, Brooks-Russell A, Ma M, et al. Usual Modes of Marijuana Consumption Among High School Students in Colorado. J Stud Alcohol Drugs. 2016;77(4):580-588. doi:10.15288/jsad.2016.77.580
- 22. Sampasa-Kanyinga H, Hamilton HA, LeBlanc AG, Chaput J-P. Cannabis use among middle and high school students in Ontario: a school-based cross-sectional study. *C Open*. 2018;6(1):E50-E56. doi:10.9778/cmajo.20170159
- 23. Johnson LD, O'Malley PM, Bachman JG, Schulenberg JE. Monitoring the Future National Survey Results on Drug Use: 2012 Overview, Key Findings on Adolescent Drug Use.; 2013.
- 24. Borodovsky JT, Lee DC, Crosier BS, et al. U.S. cannabis legalization and use of vaping and edible products among youth. *Drug Alcohol Depend*. 2017;177(December 2016):299-306. doi:10.1016/j.drugalcdep.2017.02.017



- 25. Friese B, Slater MD, Battle RS. Use of Marijuana Edibles by Adolescents in California. J Prim Prev. 2017;38(3):279-294. doi:10.1007/s10935-017-0474-7
- 26. Friese B, Slater MD, Annechino R, Battle RS. Teen Use of Marijuana Edibles: A Focus Group Study of an Emerging Issue. *J Prim Prev.* 2016;37(3):303-309. doi:10.1007/s10935-016-0432-9
- 27. Giroud C, de Cesare M, Berthet A, Varlet V, Concha-Lozano N, Favrat B. E-cigarettes: A review of new trends in cannabis use. *Int J Environ Res Public Health*. 2015;12(8):9988-10008. doi:10.3390/ijerph120809988
- 28. Kenne DR, Fischbein RL, Tan ASL, Banks M. The Use of Substances Other Than Nicotine in Electronic Cigarettes Among College Students. Subst Abus Res Treat. 2017;11. doi:10.1177/1178221817733736
- 29. Institute for Social Research University of Michigan, Miech R. National Adolescent Drug Trends in 2017: Findings Released Marijuana Use Edges Upward. https://goo.gl/w78A5e. Published 2017.
- 30. Banks DE, Rowe AT, Mpofu P, Zapolski TCB. Trends in typologies of concurrent alcohol, marijuana, and cigarette use among US adolescents: An ecological examination by sex and race/ethnicity. *Drug Alcohol Depend*. 2017;179(24):71-77. doi:10.1016/j.drugalcdep.2017.06.026
- 31. Subbaraman MS, Kerr WC. Simultaneous Versus Concurrent Use of Alcohol and Cannabis in the National Alcohol Survey. Alcohol Clin Exp Res. 2015;39(5):872-879. doi:10.1111/acer.12698
- 32. Jones JD, Calkins ME, Scott JC, Bach EC, Gur RE. Cannabis Use, Polysubstance Use, and Psychosis Spectrum Symptoms in a Community-Based Sample of U.S. Youth. *J Adolesc Heal*. 2017;60(6):653-659. doi:10.1016/j.jadohealth.2017.01.006
- 33. Patrick ME, Kloska DD, Terry-McElrath YM, Lee CM, O'Malley PM, Johnston LD. Patterns of simultaneous and concurrent alcohol and marijuana use among adolescents. *Am J Drug Alcohol Abuse*. 2018;44(4):441-451. doi:10.1080/00952990.2017.1402335
- 34. Subbaraman MS. Substitution and Complementarity of Alcohol and Cannabis: A Review of the Literature. Subst Use Misuse. 2016;51(11):1399-1414. doi:10.3109/10826084.2016.1170145
- 35. O'Hara RE, Armeli S, Tennen H, O'Hara RE. Alcohol and cannabis use among college students: Substitutes or complements? *Addict Behav.* 2016;58:1-6. doi:10.1016/j.addbeh.2016.02.004.Alcohol
- 36. Guttmannova K, Lee CM, Kilmer JR, et al. Impacts of Changing Marijuana Policies on Alcohol Use in the United States. Alcohol Clin Exp Res. 2016;40(1):33-46. doi:10.1111/acer.12942
- 37. Palamar JJ, Griffin-Tomas M, Kamboukos D. Reasons for recent marijuana use in relation to use of other illicit drugs among high school seniors in the United States. *Am J Drug Alcohol Abuse*. 2015;41(4):323-331. doi:10.3109/00952990.2015.1045977
- 38. Tzilos GK, Reddy MK, Caviness CM, Anderson BJ, Stein MD. Getting higher: Co-occurring drug use among marijuana-using emerging adults. J Addict Dis. 2014;33(3):202-209. doi:10.1080/10550887.2014.950024
- 39. King KA, Merianos AL, Vidourek RA. Characteristics of Marijuana Acquisition Among a National Sample of Adolescent Users. *Am J Heal Educ*. 2016;47(3):126-135. doi:10.1080/19325037.2016.1157535
- 40. Osilla KC, Pedersen ER, Ewing BA, Miles JN, Ramchand R, D'Amico EJ. The effects of employment among adolescents at-risk for future substance use. *Addict Behav*. 2014;9(38). http://proxy.lib.sfu.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=ccm&AN=104302059&site=ehost-live.
- 41. Shah A, Stahre M. Marijuana Use Among 10th Grade Students Washington, 2014. Morb Mortal Wkly Rep. 2016;65(50-51).
- 42. Boyd CJ, Veliz PT, McCabe SE. Adolescents' Use of Medical Marijuana: A Secondary Analysis of Monitoring the Future Data. J Adolesc Heal. 2015;57(2):241-244. doi:10.1016/j.jadohealth.2015.04.008
- 43. Thurstone C, Lieberman SA, Schmiege SJ. Medical marijuana diversion and associated problems in adolescent substance treatment. *Drug Alcohol Depend*. 2011;118(2-3):489-492. doi:10.1016/j.drugalcdep.2011.03.031
- 44. Miech R, Johnston L, O'Malley PM. Prevalence and Attitudes Regarding Marijuana Use Among Adolescents Over the Past Decade. *Pediatrics*. 2017;140(6):e20170982. doi:10.1542/peds.2017-0982
- 45. Sarvet AL, Wall MM, Keyes KM, et al. Recent rapid decrease in adolescents' perception that marijuana is harmful, but no concurrent increase in use. *Drug Alcohol Depend*. 2018;186(December 2017):68-74. doi:10.1016/j.drugalcdep.2017.12.041
- 46. Azofeifa A, Mattson ME, Schauer G, McAfee T, Grant A, Lyerla R. National Estimates of Marijuana Use and Related Indicators National Survey on Drug Use and Health, United States, 2002–2014. *MMWR Surveill Summ*. 2016;65(11):1-28. doi:10.15585/mmwr.ss6511a1
- 47. Schmidt LA, Jacobs LM, Spetz J. Young people's more permissive views about marijuana: Local impact of state laws or national trend? Am J Public Health. 2016;106(8):1498-1503. doi:10.2105/AJPH.2016.303153
- 48. Schuermeyer J, Salomonsen-Sautel S, Price RK, et al. Temporal trends in marijuana attitudes, availability and use in Colorado compared to non-medical marijuana states: 2003–11. Drug Alcohol Depend. 2014;140:145-155. doi:10.1016/j.drugalcdep.2014.04.016
- 49. Harper S, Strumpf EC, Kaufman JS. Do Medical Marijuana Laws Increase Marijuana Use? Replication Study and Extension. Ann Epidemiol. 2012;22(3):207-212. doi:10.1016/j.annepidem.2011.12.002
- 50. Wall MM, Poh E, Cerdá M, Keyes KM, Galea S, Hasin DS. Adolescent Marijuana Use from 2002 to 2008: Higher in States with Medical Marijuana Laws, Cause Still Unclear. *Ann Epidemiol.* 2011;21(9):714-716. doi:10.1016/j.annepidem.2011.06.001





- 51. Estoup AC, Moise-Campbell C, Varma M, Stewart DG. The Impact of Marijuana Legalization on Adolescent Use, Consequences, and Perceived Risk. *Subst Use Misuse*. 2016;51(14):1881-1887. doi:10.1080/10826084.2016.1200623
- 52. Wadsworth E, Hammond D. Differences in patterns of cannabis use among youth: Prevalence, perceptions of harm and driving under the influence in the USA where non-medical cannabis markets have been established, proposed and prohibited. *Drug Alcohol Rev.* 2018;37(7):903-911. doi:10.1111/dar.12842
- 53. Harpin SB, Brooks-Russell A, Ma M, James KA, Levinson AH. Adolescent Marijuana Use and Perceived Ease of Access Before and After Recreational Marijuana Implementation in Colorado. *Subst Use Misuse*. 2018;53(3):451-456. doi:10.1080/10826084.2017.1334069
- 54. Guttmannova K, Skinner ML, Oesterle S, White HR, Catalano RF, Hawkins JD. The Interplay Between Marijuana-Specific Risk Factors and Marijuana Use Over the Course of Adolescence. *Prev Sci.* 2019;20(2):235-245. doi:10.1007/s11121-018-0882-9
- 55. Terry-McElrath YM, O'Malley PM, Patrick ME, Miech RA. Risk is still relevant: Time-varying associations between perceived risk and marijuana use among US 12th grade students from 1991 to 2016. *Addict Behav*. 2017;74(2):13-19. doi:10.1016/j.addbeh.2017.05.026
- 56. Fleming CB, Guttmannova K, Cambron C, Rhew IC, Oesterle S. Examination of the Divergence in Trends for Adolescent Marijuana Use and Marijuana-Specific Risk Factors in Washington State. *J Adolesc Heal*. 2016;59(3):269-275. doi:10.1016/j.jadohealth.2016.05.008
- 57. Parker MA, Anthony JC. A prospective study of newly incident cannabis use and cannabis risk perceptions: Results from the United States Monitoring the Future study, 1976–2013. *Drug Alcohol Depend*. 2018;187(March):351-357. doi:10.1016/j.drugalcdep.2018.03.012





The totals below are applications that have submitted all four packets and are pending review.

Туре	#
Craft Marijuana Cooperative	2
Independent Testing Laboratory	3
Marijuana Cultivator	104
Marijuana Microbusiness	9
Marijuana Product Manufacturer	79
Marijuana Research Facility	4
Marijuana Retailer	144
Marijuana Transporter with Other Existing ME License	1
Third Party Transporter	2
Total	348





The totals below are all license application received to date.

Туре				
Pending (All 4 packets submitted)	348			
Withdrawn	356			
Incomplete (Less than 4 packets submitted)	3,280			
Denied	4			
Approved	189			
Total	4,177			



The totals below are number of licenses approved by category.

Туре	#
Craft Marijuana Cooperative	0
Independent Testing Laboratory	3
Marijuana Cultivator	57
Marijuana Microbusiness	4
Marijuana Product Manufacturer	49
Marijuana Research Facility	0
Marijuana Retailer	73
Marijuana Third Party Transporter	1
Marijuana Transporter with Other Existing ME License	2
Total	189





The totals below are number of licenses approved by stage.

Туре	#
Provisionally Approved	1
Provisional License	109
Final License	15
Commence Operations	64
Total	189

Provisionally approved means approved by the Commission but has not submitted license fee payment yet – provisional license has not started





The totals below are distinct license numbers that have submitted all required packets. The 500 applications represent 265 separate entities

Туре	#
RMD Priority	211
Economic Empowerment Priority	14
General Applicant	312
Total	537



Disadvantaged Business Enterprise (DBE) Statistics

The totals below are distinct license numbers that have submitted all required packets.

Туре	#	% of Group
Women-Owned Business	19	3.5
Veteran-Owned Business	6	1.1
Minority-Owned Business	28	5.2
Lesbian Gay, Bisexual, and Transgender Owned Business	б	1.1
Disability-Owned Business	1	0.2
Identified as Two or More DBE Business Types	29	5.4
Did Not Identify as a DBE Business	448	83.4
Total	537	100.0



Status			
Application Submitted: Awaiting Review	188		
Application Reviewed: More Information Requested	113		
Application Deemed Complete: Awaiting 3rd Party Responses	36		
All Information Received: Awaiting Staff Recommendation	7		
Applications Considered by Commission	193		
Total	537		

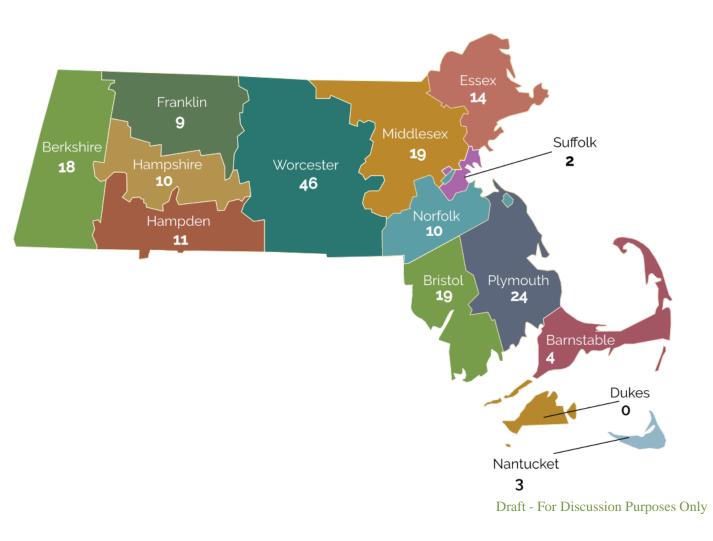






The totals below are the total number of licenses by county.

County	+/-
Barnstable	
Berkshire	
Bristol	
Dukes	
Essex	+1
Franklin	
Hampden	
Hampshire	
Middlesex	+2
Nantucket	
Norfolk	
Plymouth	
Suffolk	+1
Worcester	
Total	+4

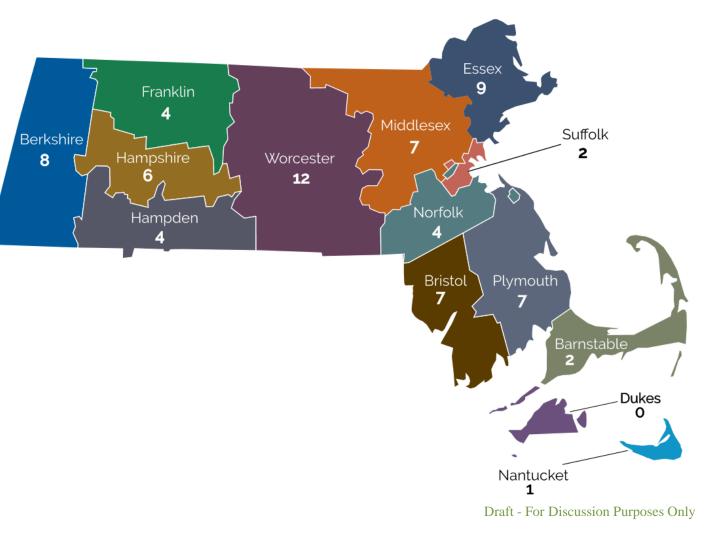




Retail Applications | September 12, 2019

The totals below are the total number of retail licenses by county.

County	+/-
Barnstable	
Berkshire	
Bristol	
Dukes	
Essex	+1
Franklin	
Hampden	
Hampshire	
Middlesex	
Nantucket	
Norfolk	
Plymouth	
Suffolk	+1
Worcester	
Total	+2





TYPE	PENDING APPLICATION	INITIAL LICENSE DENIED	PROVISIONAL LY APPROVED	PROVISIONAL LICENSE	FINAL	COMMENCE OPERATION	T O T A L
Craft Marijuana Cooperative	2	0	0	0	0	0	2
Independent Testing Laboratory	3	0	0	1	0	2	6
Marijuana Cultivator	104	2	0	33	7	17	163
Marijuana Microbusiness	9	0	1	2	1	0	13
Marijuana Product Manufacturer	79	1	0	28	4	17	129
Marijuana Research Facility	4	0	0	0	0	0	4
Marijuana Retailer	144	1	0	44	3	26	218
Marijuana Transporter with Other Existing ME License	1	0	0	0	0	2	3
Third Party Transporter	2	0	0	1	0	0	3
Total	348	4	1	109	15	64	541



Adult Use Agent Applications | September 12, 2019

8,186 Total Agent Applications:

- 207 Total
- 202 Pending Establishment Agents
- 5 Pending Laboratory Agents
- 426 Withdrawn
- 971 Incomplete
- 736 Surrendered
- 5,846 Active

Of Total Pending:

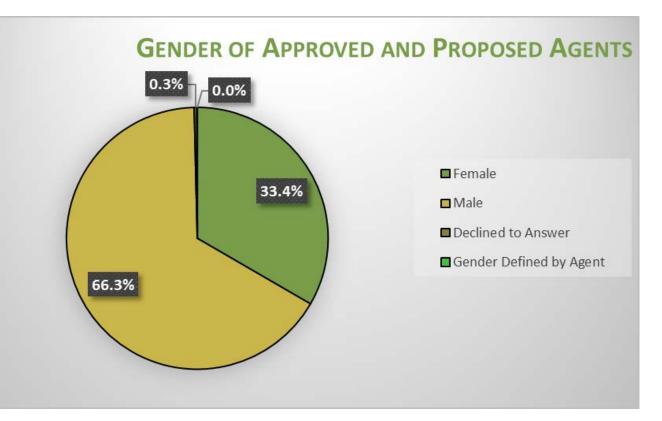
- 98 not yet reviewed
- 107 CCC requested more information
- 2 awaiting third party response
- 0 Review complete; awaiting approval



Agent Applications | September 12, 2019

Demographics of Approved and Pending Agents

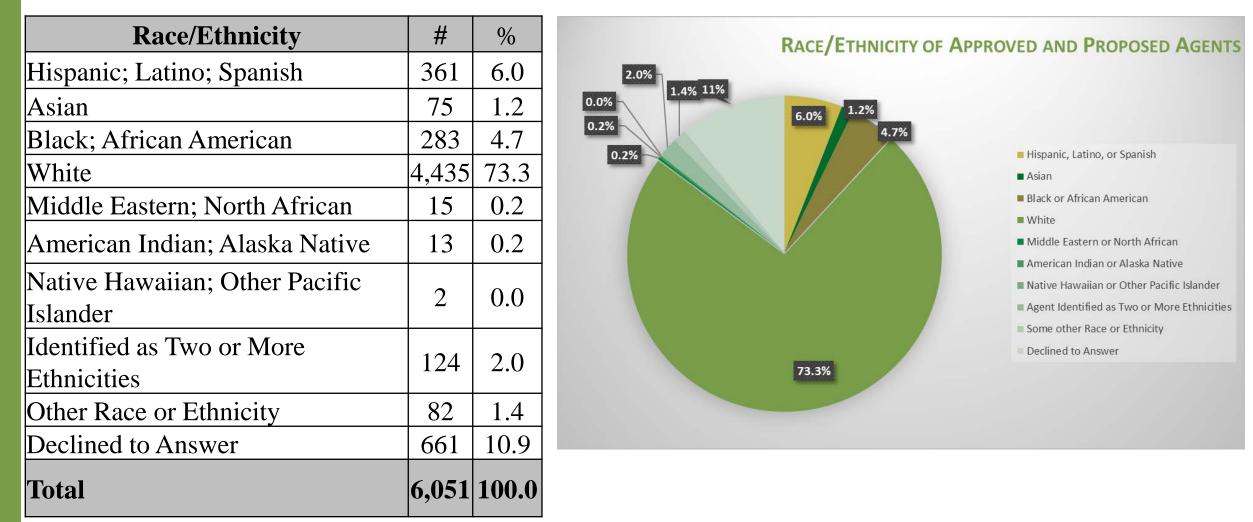
Gender	#	%
Female	2,019	33.4
Male	4,011	66.3
Declined to Answer	20	0.3
Gender Defined by Applicant	3	0.0
Total	6053	100.0





Agent Applications | September 12, 2019

Demographics of Approved and Pending Agents









MMJ Licensing Data | September 12, 2019

MTC License Applications				
Pending-Application of Intent Stage	36			
Pending-Management and Operations Profile Stage	12			
Pending-Siting Profile Stage				
Application Expired	102			
Application Withdrawn	3			
Total	159			

MTC Licenses	#
Provisional	97
Final	4
Commence Operations	53
License Expired	10
Total	164



MMJ Agent and Program Data | September 12, 2019

MTC Agent Applications	#
Pending-MTC Agent Applications	53
Pending-Laboratory Agents	0
Revoked	3
Surrendered	2,310
Active	4,782
Total	7,148

The numbers below are a snapshot of the program as of August 30, 2019.

MMJ Program	#
Certified Patients	67,487
Certified Active Patients	60,917
Active Caregivers	6,481
Registered Certifying Clinicians	315



<u>6) Enforcement Actions</u>

a. MCR Laboratories, LLC (#IL281278), Independent Testing Lab



7) Staff Recommendations on Renewals

- a. Patriot Care Corp. (#MCR139826), Cultivation
- b. Patriot Care Corp. (#MPR243483), Product Manufacturer
- c. Patriot Care Corp. (#MRR205532), Retail
- d. Patriot Care Corp. (#MRR205533), Retail
- e. CDX Analytics, LLC. (#ILR267888), Independent Testing Lab
- f. MCR Labs, LLC. (#ILR267887), Independent Testing Lab
- g. Northeast Alternatives, Inc. (#MCR139828), Cultivation
- h. Northeast Alternatives, Inc. (#MPR243486), Product Manufacturer
- i. Cultivate Holdings, LLC. (#MPR243485), Product Manufacturer
- j. Temescal Wellness of Massachusetts, LLC. (#MRR205531), Retail



7) Staff Recommendations on Renewals

- k. Temescal Wellness of Massachusetts, LLC. (#MRR205529), Retail
- 1. Alternative Therapies Group. (#MRR205530), Retail
- m. Good Chemistry of Massachusetts, Inc. (#RMD725), Vertically Integrated Medical Marijuana Treatment Center
- n. Patient Centric of Martha's Vineyard, LTD. (#RMD1165), Vertically Integrated Medical Marijuana Treatment Center
- o. Tyca Green, Inc. Vertically Integrated Medical Marijuana Treatment Center
- p. The Green Harbor Dispensary, LLC. (#RMD1305), Vertically Integrated Medical Marijuana Treatment Center
- q. The Green Harbor Dispensary, LLC. Vertically Integrated Medical Marijuana Treatment Center
- r. Heal, Inc. Vertically Integrated Medical Marijuana Treatment Center



8) Staff Recommendations on Final Licenses

- a. BeWell Organic Medicine, Inc. (#RMD1245), Vertically Integrated Medical Marijuana Treatment Center
- b. Green Gold Group, Inc. (#RMD786), Vertically Integrated Medical Marijuana Treatment Center
- c. Apothca, Inc. (#MR281447), Retail
- d. Curaleaf Massachusetts, Inc. (#MC281309), Cultivation Tier 11/Indoor
- e. Curaleaf Massachusetts, Inc. (#MP281318), Product Manufacturer
- f. Curaleaf Massachusetts, Inc. (#MR281263), Retail
- g. In Good Health, Inc. (#MC281273), Cultivation Tier 4/Indooe
- h. In Good Health, Inc. (#MP281307), Product Manufacturer
- i. In Good Health, Inc. (#MR282468), Retail
- j. M3 Ventures, Inc. (#MC281446), Cultivation Tier 2/Indoor
- k. M3 Ventures, Inc. (#MP281346), Product Manufacturing
- 1. M3 Ventures, Inc. (#MR281290), Retail





9) Staff Recommendations on Provisional Licenses

- a. Curaleaf Massachusetts, Inc. (#MRN282183), Retail
- b. Curaleaf Massachusetts, Inc. (#MRN282052), Retail
- c. HVV Massachusetts, Inc. (#MCN282121), Cultivation Tier 3/Indoor
- d. HVV Massachusetts, Inc. (#MPN281657), Product Manufacturing
- e. HVV Massachusetts, Inc. (#MRN282578), Retail
- f. The Heirloom Collective, Inc. (#MCN281438), Cultivation Tier 2/Indoor
- g. The Heirloom Collective, Inc. (#MPN281407), Product Manufacturing

Upcoming Public Meetings

Public Meeting: October 10

- 10AM
- Western New England University, School of Law
- 1215 Wilbraham Road Springfield, MA

Public Meeting: November 7

- 10AM
- Location TBD

Public Meeting:

December 5

- 10AM
- Time and Location TBD



