



## Policy Recommendation

Amending 3 AAC 306 of the Alaska Administrative Code to increase allowable THC content in edible marijuana products

### **Policy:**

The Marijuana Control Board has proposed amending the Alaska Administrative Code to allow marijuana edible product servings to contain not more than 10 mg of tetrahydrocannabinol (THC)<sup>i</sup> and a single packaged unit to contain not more than 100mg of THC, an increase over the current 5mg and 50mg THC content restrictions. The Anchorage Health Department does not support this proposed change, due to its potential effects on public health.

### **Justification:**

Research suggests that the negative effects of cannabis on the body and brain are primarily due to THC. Thus, products with higher concentrations of THC are likely to confer greater risks.<sup>ii</sup> Indeed, consuming marijuana with higher concentrations of THC can cause panic attacks, paranoia, psychotic episodes, massive vasoconstriction, and cannabinoid hyperemesis syndrome, which causes vomiting and intense abdominal pain and often requires emergency treatment.<sup>iii</sup> Levels of THC exposure are also positively associated with cannabis dependency,<sup>iv</sup> and available evidence suggests that youth are at particular risk for developing a cannabis use disorder, particularly if they begin cannabis use earlier in adolescence and use at a high frequency and magnitude.<sup>v</sup>

The risk to youth of high-THC products may be greater as perceptions of harm from marijuana continue to decrease nationwide and in Alaska, where young people are less likely to perceive marijuana as harmful compared to the national average.<sup>vi</sup> At the same time, about half of the marijuana-related poison center calls in 2017 in Alaska (n=31) were for people under the age of 20, and over 75% of these were for youth ages 13-19.<sup>vii</sup> Furthermore, evidence suggests that states that have decriminalized cannabis have seen increases in calls to poison control centers and hospital visits for cannabis-related poisoning of young children, the majority of whom have ingested an edible product.<sup>viii</sup> Michigan, the state with the highest allowable THC-content in edibles (50mg/serving), saw an over 600% increase (6 to 46 cases) in the number of poison control reports for children who ingested a THC edible between 2017 and 2018, when recreational marijuana sales were legalized in the state. In 2019, that number of calls rose again to 59, even as overall pediatric calls to poison control fell.<sup>ix</sup> These data suggest that higher concentrations of THC in edible products could present a greater risk to these young children, particularly if edibles look like candy or other food products.

Finally, available evidence suggests that edibles can cause greater adverse health outcomes than inhaled marijuana.<sup>x</sup> In a 2019 Colorado study, researchers found that edibles were more likely to cause severe intoxication, acute psychiatric symptoms in people with no history of psychiatric illness, and cardiovascular problems than inhaled cannabis. While edibles

represented 0.32% (21.2 million units at 10mg THC/unit) of Colorado’s cannabis sales (by weight) between 2014-2016, they accounted for about 10.7% (n=219) of cannabis-triggered visits to the University of Colorado Hospital Emergency Department.<sup>xi</sup> The risk of poisoning or overdose from an edible can be higher than from smoked cannabis, because ingested marijuana takes longer to produce a drug effect (peak blood levels in 3 hours) than does smoked marijuana (peak blood levels in 30 minutes), making it more difficult for the user to titrate the correct dose.<sup>xii</sup> This risk could be especially high for young people and those who have less experience with marijuana, if the consumer does not understand the delayed effect of an edible and consumes an unsafe amount of the product. Moreover, a 2017 study of Canadian youth found that young people had little to no context for interpreting THC numbers on edible packaging, a factor that may compound the risk of accidental overdose.<sup>xiii</sup> This emerging research indicates that edibles, and particularly edibles with high levels of THC, should be regulated carefully to mitigate risks to public health.

Scientists who study the effects of marijuana on mental and physical health outcomes recognize that this is an emerging area of research, and there is much that the scientific community still does not understand about cannabis.<sup>xiv</sup> In particular, there is a dearth of evidence on higher THC-containing products and their effects on brain structure, function, and cognitive performance.<sup>xv</sup> In 2019, for example, the Canadian Medical Association urged the government of Ottawa to lower the maximum allowable THC level in edibles from 10mg per serving to 5mg, for these reasons.<sup>xvi</sup> This lack of research makes moving forward with this policy change imprudent at this time.

**Complications and Unknowns:**

Of the eleven states where recreational marijuana use is legal,<sup>xvii</sup> the great majority have THC content limits of 10mg per serving and 100mg per package. Only two states – Alaska and Oregon – have a THC content limit of 5mg per serving and 50mg per retail package. Massachusetts limits THC content to 5mg per serving, but allows up to 20 servings (100mg THC) per retail package.

THC Content Limits in Edibles	State (date of legalized recreational use)
5 mg per serving, 50mg in single package (10 servings/package)	Alaska (2014) Oregon (2014) <sup>xviii</sup>
5 mg per serving, 100mg in single package (20 servings/package)	Massachusetts (2016) <sup>xix</sup>
10mg per serving, 100mg in single package (10 servings/package)	Washington (2012) <sup>xx</sup> Colorado (2012) <sup>xxi</sup> California (2016) <sup>xxii</sup> Maine (2016) <sup>xxiii</sup> Nevada (2016) <sup>xxiv</sup> Vermont (2018) <sup>xxv</sup> Illinois (2019) <sup>xxvi</sup>
50mg per serving, 500mg in single package (10 servings/package)	Michigan (2018) <sup>xxvii</sup>

It is notable that most states that have legalized recreational use of marijuana have set the THC limit for edibles at 10mg per serving. That said, as evidenced by the date of legalization for each

state (which often precedes actual implementation of the law by a year or more), these are relatively new policies. Thus, it may prove challenging to draw firm conclusions regarding the public health impact of these policies.

## References:

- <sup>i</sup> Tetrahydrocannabinol, the primary psychoactive compound in marijuana.
- <sup>ii</sup> Hammond, David. "Communicating THC levels and 'dose' to consumers: implications for product labelling and packaging of cannabis products in regulated markets." *International Journal of Drug Policy* (2019): 102509.
- Chatterjee, Rhitu. *Highly Potent Weed Has Swept the Market, Raising Concerns about Health Risks*. 15 May 2019, [www.npr.org/sections/health-shots/2019/05/15/723656629/highly-potent-weed-has-swept-the-market-raising-concerns-about-health-risks](http://www.npr.org/sections/health-shots/2019/05/15/723656629/highly-potent-weed-has-swept-the-market-raising-concerns-about-health-risks).
- <sup>iii</sup> Monte, Andrew A., Richard D. Zane, and Kennon J. Heard. "The implications of marijuana legalization in Colorado." *Jama* 313.3 (2015): 241-242.
- Chatterjee, Rhitu. *Highly Potent Weed Has Swept the Market, Raising Concerns about Health Risks*. 15 May 2019, [www.npr.org/sections/health-shots/2019/05/15/723656629/highly-potent-weed-has-swept-the-market-raising-concerns-about-health-risks](http://www.npr.org/sections/health-shots/2019/05/15/723656629/highly-potent-weed-has-swept-the-market-raising-concerns-about-health-risks).
- Childs, Emma, Joseph A. Lutz, and Harriet de Wit. "Dose-related effects of delta-9-THC on emotional responses to acute psychosocial stress." *Drug and alcohol dependence* 177 (2017): 136-144.
- Wolff, Valérie, and Emilie Jouanous. "Strokes are possible complications of cannabinoids use." *Epilepsy & Behavior* 70 (2017): 355-363.
- Memedovich, K. Ally, et al. "The adverse health effects and harms related to marijuana use: an overview review." *CMAJ open* 6.3 (2018): E339.
- Pattathan, Mithun B., Reza A. Hejazi, and Richard W. McCallum. "Association of marijuana use and cyclic vomiting syndrome." *Pharmaceuticals* 5.7 (2012): 719-726.
- Freeman, T. P., and A. R. Winstock. "Examining the profile of high-potency cannabis and its association with severity of cannabis dependence." *Psychological medicine* 45.15 (2015): 3181-3189.
- <sup>iv</sup> Curran, H. Valerie, et al. "Which biological and self-report measures of cannabis use predict cannabis dependency and acute psychotic-like effects?" *Psychological medicine* 49.9 (2019): 1574-1580.
- <sup>v</sup> Gruber, Staci A., and Kelly A. Sagar. "Marijuana on the mind? The impact of marijuana on cognition, brain structure, and brain function, and related public policy implications." *Policy Insights from the Behavioral and Brain Sciences* 4.1 (2017): 104-111.
- Oldham, Jennifer. "Potent Pot, Vulnerable Teens Trigger Concerns in First States to Legalize Marijuana." *The Washington Post*, WP Company, 17 June 2019, [www.washingtonpost.com/national/potent-pot-vulnerable-teens-trigger-concerns-in-first-states-to-legalize-marijuana/2019/06/15/52df638a-8c9a-11e9-8f69-a2795fca3343\\_story.html](http://www.washingtonpost.com/national/potent-pot-vulnerable-teens-trigger-concerns-in-first-states-to-legalize-marijuana/2019/06/15/52df638a-8c9a-11e9-8f69-a2795fca3343_story.html).
- Volkow, Nora D., et al. "Adverse health effects of marijuana use." *New England Journal of Medicine* 370.23 (2014): 2219-2227.
- <sup>vi</sup> Alaska Department of Health and Social Services. *Marijuana Use and Public Health in Alaska - 2020*. Anchorage, Alaska: Office of Substance Misuse and Addiction Prevention, Division of Public Health, Alaska Department of Health and Social Services; January 2020.
- <sup>vii</sup> Alaska Department of Health and Social Services. *Marijuana Use and Public Health in Alaska - 2020*. Anchorage, Alaska: Office of Substance Misuse and Addiction Prevention, Division of Public Health, Alaska Department of Health and Social Services; January 2020.
- <sup>viii</sup> Barrus, Daniel G., et al. "Tasty THC: promises and challenges of cannabis edibles." *Methods report (RTI Press)* 2016 (2016).
- Monte, Andrew A., Richard D. Zane, and Kennon J. Heard. "The implications of marijuana legalization in Colorado." *Jama* 313.3 (2015): 241-242.
- <sup>ix</sup> Biolchini, Amy Biolchini. "Michigan Sees Spike in Children Poisoned by Marijuana Edibles." *Mlive*, 16 Sept. 2019, [www.mlive.com/news/2019/09/michigan-sees-spike-in-children-poisoned-by-marijuana-edibles.html](http://www.mlive.com/news/2019/09/michigan-sees-spike-in-children-poisoned-by-marijuana-edibles.html).
- <sup>x</sup> Hudak, Marissa, Daniel Severn, and Kimberly Nordstrom. "Edible cannabis-induced psychosis: intoxication and beyond." *American Journal of Psychiatry* 172.9 (2015): 911-912.
- Monte, Andrew A., Richard D. Zane, and Kennon J. Heard. "The implications of marijuana legalization in Colorado." *Jama* 313.3 (2015): 241-242.
- <sup>xi</sup> Monte, Andrew A., et al. "Acute illness associated with cannabis use, by route of exposure: an observational study." *Annals of internal medicine* 170.8 (2019): 531-537.
- <sup>xii</sup> Barrus, Daniel G., et al. "Tasty THC: promises and challenges of cannabis edibles." *Methods report (RTI Press)* 2016 (2016).
- <sup>xiii</sup> Leos-Toro, Cesar, et al. "Cannabis labelling and consumer understanding of THC levels and serving sizes." *Drug and alcohol dependence* 208 (2020): 107843.
- <sup>xiv</sup> Volkow, Nora D., and Ruben Baler. "Emergency department visits from edible versus inhalable cannabis." *Annals of internal medicine* 170.8 (2019): 569-570.
- <sup>xv</sup> Gruber, Staci A., and Kelly A. Sagar. "Marijuana on the mind? The impact of marijuana on cognition, brain structure, and brain function, and related public policy implications." *Policy Insights from the Behavioral and Brain Sciences* 4.1 (2017): 104-111.
- <sup>xvi</sup> Kaufmann, Bill. "Doctors Urge Ottawa to Lower THC Content in Cannabis Edibles." *Calgaryherald*, Calgary Herald, 19 Sept. 2019, [calgaryherald.com/cannabis/cannabis-business/doctors-urge-ottawa-to-lower-thc-content-in-cannabis-edibles](http://calgaryherald.com/cannabis/cannabis-business/doctors-urge-ottawa-to-lower-thc-content-in-cannabis-edibles).
- <sup>xvii</sup> Excluding the District of Columbia, which has not implemented its law, and those states that voted to legalize recreational sale in November 2020 and have yet to establish administrative rules
- <sup>xviii</sup> "Marijuana Concentration Limits and Testing." *Oregon Secretary of State Administrative Rules*, Oregon Secretary of State, [secure.sos.state.or.us/oard/viewSingleRule.action;JSESSIONID\\_OARD=3KeHNZi7nLhe2gMMoq\\_OPdSfgQed-dS2xKNmXU1xHiDnxJIUJXaZl-1835049044?ruleVrsnRsn=52243](http://secure.sos.state.or.us/oard/viewSingleRule.action;JSESSIONID_OARD=3KeHNZi7nLhe2gMMoq_OPdSfgQed-dS2xKNmXU1xHiDnxJIUJXaZl-1835049044?ruleVrsnRsn=52243).
- <sup>xix</sup> "935 Mass. Reg. 500.150 - Edible Marijuana Products." *Casetext*, [casetext.com/regulation/code-of-massachusetts-regulations/department-935-cmr-cannabis-control-commission/title-935-cmr-500000-adult-use-marijuana/section-500150-edible-marijuana-products](http://casetext.com/regulation/code-of-massachusetts-regulations/department-935-cmr-cannabis-control-commission/title-935-cmr-500000-adult-use-marijuana/section-500150-edible-marijuana-products).
- <sup>xx</sup> "WAC 314-55-095: Marijuana Servings and Transaction Limitations." *Washington State Legislature*, [apps.leg.wa.gov/wac/default.aspx?cite=314-55-095](http://apps.leg.wa.gov/wac/default.aspx?cite=314-55-095).
- <sup>xxi</sup> "Safety with Edibles." *Colorado Marijuana*, 23 June 2015, [www.colorado.gov/pacific/marijuana/safety-edibles](http://www.colorado.gov/pacific/marijuana/safety-edibles).

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<sup>xxii</sup> “BUREAU OF CANNABIS CONTROL TEXT OF REGULATIONS .” *California Code of Regulations*, Bureau of Cannabis Control, [cannabis.ca.gov/wp-content/uploads/sites/13/2019/01/Order-of-Adoption-Clean-Version-of-Text.pdf](https://cannabis.ca.gov/wp-content/uploads/sites/13/2019/01/Order-of-Adoption-Clean-Version-of-Text.pdf).

<sup>xxiii</sup> “Title 28-B: Adult Use Marijuana.” *Title 28-B, §703: Other Health and Safety Requirements and Restrictions; Rules*, [legislature.maine.gov/statutes/28-B/title28-Bsec703.html](https://legislature.maine.gov/statutes/28-B/title28-Bsec703.html).

<sup>xxiv</sup> “Laws & Regulations.” *Nevada Cannabis Compliance Board*, 20 Aug. 2020, [ccb.nv.gov/laws-regulations/#item-1](https://ccb.nv.gov/laws-regulations/#item-1).

<sup>xxv</sup> *Adult-Use Marijuana Regulatory Structure*. Marijuana Advisory Commission, Taxation and Regulation Subcommittee, [marijuanacommission.vermont.gov/sites/mc/files/doc\\_library/Copy%20of%20MAC%20TR%20Inventory%3B%20Working%20Chart\\_August%2020%202018\\_revised%20%28002%29.pdf](https://marijuanacommission.vermont.gov/sites/mc/files/doc_library/Copy%20of%20MAC%20TR%20Inventory%3B%20Working%20Chart_August%2020%202018_revised%20%28002%29.pdf).

<sup>xxvi</sup> “410 ILCS 705/ Cannabis Regulation and Tax Act.” *Illinois Compiled Statutes*, Illinois General Assembly, [www.ilga.gov/legislation/ilcs/ilcs4.asp?DocName=041007050HArt.%2B55&ActID=3992&ChapterID=35&SeqStart=12800000&SeqEnd=14900000](https://www.ilga.gov/legislation/ilcs/ilcs4.asp?DocName=041007050HArt.%2B55&ActID=3992&ChapterID=35&SeqStart=12800000&SeqEnd=14900000).

<sup>xxvii</sup> “Rule 34. Maximum THC Levels for Marihuana-Infused Products.” *Michigan.gov*, Marijuana Regulatory Agency, [www.michigan.gov/mra/0,9306,7-386-83994-454562--,00.html](https://www.michigan.gov/mra/0,9306,7-386-83994-454562--,00.html).