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Written Testimony
"Is the Department of Justice Adequately Protecting the Public from the Impact of State Recreational Marijuana Legislation?"

Chairman Grassley, Co-Chairman Feinstein, distinguished members of the Caucus and guests: Thank you for providing me with the opportunity to appear before you today to discuss my perspective of the impact legalization of recreational marijuana has had on Colorado's children and the child welfare system. As a Child Abuse Pediatrician and someone who has observed and studied the impact of substance abuse on children and child maltreatment for almost 20 years, I am hoping that my experiences related to marijuana legalization in Colorado might help inform your decisions regarding the role of the Department of Justice in assisting states in measuring, understanding and mitigating its impact on children. In Colorado, we have come to understand that these are extremely complex issues that seem to generate many more questions than answers. In the next few minutes, I will speak to the impact such policies have on children as informed by my experience in Colorado.

Most of my comments can be viewed through the Department of Justice's marijuana enforcement priority of preventing the distribution of marijuana to minors. Regardless of one's overall position on marijuana legalization, I trust most would accept this priority. However, child health and welfare in Colorado has been endangered for many reasons but largely because of the skyrocketing access to and subsequent use of marijuana edible products. Although there are many complex issues, I will use my time this morning to share my experiences and observations on three issues:

- Marijuana edibles;
- Additional issues related to child safety and welfare, and
- The impacts of the use of marijuana during pregnancy and breastfeeding.

Marijuana Edibles
Marijuana infused products such as candy, brownies and cookies are all inherently appealing to children Because of this appeal, better regulations around edibles is essential to prevent child ingestion. A systematic literature review of unintentional marijuana exposures in children undertaken by Colorado's Retail Marijuana Public Health Advisory Committee found substantial evidence that more unintentional marijuana exposures of children occur in states with increased legal access to marijuana, and that such exposures can lead to significant clinical effects requiring medical attention.[1] [2] [3]Additionally, they found

[1] Onders, B., et al., *Marijuana Exposure Among Children Younger Than Six Years in the United States.* Clin Pediatr (Phila), 2015.
[2] Wang, G.S., et al., *Association of unintentional pediatric exposures with decriminalization of marijuana in the United States.* Ann Emerg Med, 2014. **63**(6): p. 684-9.
[3] Wang, G.S., G. Roosevelt, and K. Heard, *Pediatric marijuana exposures in a medical marijuana state.* JAMA Pediatr, 2013. **167**(7): p. 630-3.

moderate evidence that the use of child-resistant packaging reduces unintentional pediatric poisonings in general, while there is little data specifically related to marijuana. [4] [5] [6]

Indeed, review of Colorado data over the past decade has revealed a very concerning trend. According to data compiled by the Rocky Mountain Poison and Drug Center, the number of marijuana-related exposures in children ages 0 to 5 increased from an average of 4 per year during the pre-commercialization years of 2006-2008, to13 per year during post-commercialization from 2009-2012, a 225% increase, to an average of 31 per year following legalization in 2013 and 2014, a subsequent 138% increase. In this same time period (2013-2014), the average percentage of all marijuana-related exposures occurring in children ages 0 to 5 in Colorado was 17.71%, far exceeding the national average of 5.95%.

Because of the increased potency of these exposures, children are often requiring more medical interventions when they present after an ingestion. According to Colorado Hospital Association data demonstrated that the rates of hospitalizations and emergency department visits in children up to 9 years of age due to possible marijuana exposures increased more than five-fold between the period from 2001-2009 to 2010-2013. In addition to the clear health concerns, child ingestions prompt reports to child welfare and sometimes law enforcement posing additional challenges to systems that then attempt to determine the source and nature of the exposure, whether it was intentional or accidental, and the potential for future risk.

While Colorado has worked hard to address this issue with regulations that will be implemented October 2016 determining packaging guidelines for both recreational and medicinal marijuana and serving/dosage size related to recreational marijuana, it is important to note that the best packaging only protects children up to the age of 5 years.

Additional Issues Related to Child Safety and Child Welfare

Beyond access to edibles, Colorado has experienced several other challenges related to the impact of the legalization of marijuana on children that we are trying to understand more completely but are hindered by the lack of data. For example, home cultivation of marijuana including home grows and processing of edibles has raised questions as to the risk to children. While we have now restricted the ability to legally extract THC utilizing butane due to the risk of explosions, other risks and mandates to report to child welfare are less clear. In general, concerns of child neglect arise when cultivation does not meet current Colorado legal standards. Electrical hazards, improper ventilation or access to pesticides or unrestricted access to marijuana itself due to improper storage are all valid concerns.

Another issue we have seen is an impact on our schools. The *Denver Post* examined marijuana store locations and found 25 marijuana stores closer than 1,000 feet to at least one nearby school.[7] And using data compiled by PBS in Colorado, there are signs that more students are using marijuana and that this is an increasing problem for teachers, counselors, and other school personnel.[8]

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[4] Rodgers, G.B., *The effectiveness of child-resistant packaging for aspirin.* Arch Pediatr Adolesc Med, 2002. **156**(9): p. 929-33.

[5] Clarke, A. and W.W. Walton, *Effect of safety packaging on aspirin ingestion by children.* Pediatrics, 1979. **63**(5): p. 687-93.

[6] Breault, H.J., *Five years with 5 million child-resistant containers.* Clin Toxicol, 1974. **7**(1): p. 91-5.

[7] Murray, J. "In Denver, a growing number of marijuana shops are close to schools," *Denver Post*, April 1, 2016.

[8] Birkeland, Bente, "When Pot Goes from Illegal to Recreational, Schools Face a Dilemma," National Public Radio, http://www.npr.org/sections/health-shots/2015/02/22/388156660/when-pot-goes-from-illegal-to-recreational-schools-face-a-dilemma, February 22, 2015.

Another challenge is the ability to determine if someone is impaired while operating a vehicle or parenting, whether the use is recreational or medicinal. Impairment is an important issue in determining if a caregiver is safe to care for a child, a decision that challenges child welfare workers daily. Generally, impaired parenting is defined as the inability of a caregiver to create, maintain, or regain an environment that promotes optimum growth and development of a child, a standard that is often challenging to determine in issues related to the use of marijuana. Due to the lipophilic (or fat-loving) nature of the drug and its storage in the human body in fats, standard testing levels of intoxication and impairment are much more difficult to determine than with other substances of abuse such as alcohol, prescription or illicit drugs.

Finally, another unanticipated area of concern is the issue of parental administration of cannabinoids for medicinal purposes in children without proper authorization. As you are aware, many families with children who are suffering life threatening disease processes such as intractable seizures have flocked to Colorado for the promise of the potential therapeutic benefit of cannabinoids such as cannabidiol (CBD) oil. In order to legally administer this drug to a child, parents are required to obtain special permission, a process requiring a recommendation of two physicians licensed to practice medicine in Colorado. This process takes time and while awaiting this, many parents obtain and administer the product without a recommendation, placing healthcare providers in a difficult dilemma, ignore potentially vital information related to current therapeutic interventions that may negatively interact or compromise their proposed medical management or risk family trust by following their legal mandate by reporting such information to child welfare.

Pregnancy and Breastfeeding

Another topic I wish to touch on briefly is the use of marijuana use during pregnancy and breastfeeding. The legalization of recreational marijuana has underscored the need to better understand the impact of exposure on the unborn fetus as well as the breastfeeding infant to the different forms of marijuana. The potential for adverse outcomes in exposed offspring of marijuana-using mothers prompted Colorado's Retail Marijuana Public Health Advisory Committee to review the available literature on physical, developmental and mental health outcomes of marijuana exposure during pregnancy and breastfeeding. While it is important to note that this literature is based on smoked marijuana alone as well as much lower potency THC than is being used currently, the Committee found moderate evidence that maternal use of marijuana during pregnancy is associated with negative effects on exposed offspring, including cognitive function, IQ and attention.[9] [10] [11] [12] [13] [14] [15] [16] Importantly, these effects may not appear until adolescence.

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[9] El Marroun, H., et al., *Intrauterine cannabis exposure leads to more aggressive behavior and attention problems in 18-month-old girls.* Drug Alcohol Depend, 2011. **118**(2-3): p. 470-4.

[10] Fried, P.A. and A.M. Smith, *A literature review of the consequences of prenatal marihuana exposure. An emerging theme of a deficiency in aspects of executive function.* Neurotoxicol Teratol, 2001. **23**(1): p. 1-11.

[11] Goldschmidt, L., N.L. Day, and G.A. Richardson, *Effects of prenatal marijuana exposure on child behavior problems at age 10.* Neurotoxicol Teratol, 2000. **22**(3): p. 325-36.

Goldschmidt, L., et al., *Prenatal marijuana exposure and intelligence test performance at age 6.* J Am Acad Child Adolesc Psychiatry, 2008. **47**(3): p. 254-63.

[12] Noland, J.S., et al., *Prenatal drug exposure and selective attention in preschoolers.* Neurotoxicol Teratol, 2005. **27**(3): p. 429-38.

[13] Fried, P.A., B. Watkinson, and R. Gray, *Differential effects on cognitive functioning in 13- to 16-year-olds prenatally exposed to cigarettes and marihuana.* Neurotoxicol Teratol, 2003. **25**(4): p. 427-36.

[14] Smith, A.M., et al., *Effects of prenatal marijuana on response inhibition: an fMRI study of young adults.* Neurotoxicol Teratol, 2004. **26**(4): p. 533-42.

Additionally, the Committee reviewed the very limited research related to breastfeeding and marijuana and found that biological evidence shows that THC is present in the breast milk of women who use marijuana and that infants who drink breast milk containing THC absorb and metabolize the THC.[17] However, only mixed evidence was found for whether or not an association exists between maternal use of marijuana while breastfeeding and motor development in exposed infants.[18] [19]

The issue of prenatal exposure to marijuana has been especially challenging because in Colorado, an infant born positive for a Schedule I drug or a Schedule II drug not being used by the mother as prescribed is defined as a case of child abuse. Therefore, if an infant is born positive for THC in Colorado, under current law, this meets the healthcare provider's mandate to report the case to child welfare and can be used as evidence of child abuse in civil court. Many healthcare providers have found this new reality ethically challenging. Women who deliver an infant positive for THC, not realizing it was grounds for a child welfare action, may now be faced with child welfare involvement that may include removal of their infant and/or ongoing monitoring. Additionally, healthcare professionals, child welfare workers, and judges are often met with the challenging task of determining when and if a mother can safely breastfeed her child.

Due to these many challenges, the Committee identified many areas in need of research that may impact public health policies and prevention strategies such as the adverse health effects and marijuana use and breastfeeding including the effects of cannabidiol (CBD) and other cannabinoid use, the consumption of edibles or by vaping and the impact of potency of THC consumed. Further, research is needed to determine the length of time THC remains in breast milk, the comparison of amount of THC in breast milk to maternal blood or urine THC levels.

Conclusion

Due to the many challenges faced by Colorado's child-serving professionals, the Colorado School of Public Health has undertaken a Health Impact Assessment as a systematic process in which evidence based/informed recommendations are developed to be responsive to community and stakeholder input in a local policy context. This effort was largely initiated due to perceived inconsistencies in how marijuana use and exposures were operationalized in child welfare in an effort to define greater consistency and develop evidence based/informed recommendations. This challenging work continues specifically related to issues related to mandatory reporting, child welfare screening and assessment and the management of open child welfare cases where marijuana is a factor. This process has also combined with ongoing efforts to better define situations related to substance use and children, including child welfare, in the Colorado Children's Code where House Bill 16-1386 was just introduced and set for hearing next week.

I urge the Federal government and other states contemplating similar legal changes involving the legalization of recreational marijuana to take the time to consider the impact of such policy on the health

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[15] Willford, J.A., et al., *Effects of prenatal tobacco, alcohol and marijuana exposure on processing speed, visual-motor coordination, and interhemispheric transfer.* Neurotoxicol Teratol, 2010. **32**(6): p. 580-8.
[16] Day, N.L., et al., *Effect of prenatal marijuana exposure on the cognitive development of offspring at age three.* Neurotoxicol Teratol, 1994. **16**(2): p. 169-75.
[17] Perez-Reyes, M. and M.E. Wall, *Presence of delta9-tetrahydrocannabinol in human milk.* N Engl J Med, 1982. **307**(13): p. 819-20.
[18] Astley, S.J. and R.E. Little, *Maternal marijuana use during lactation and infant development at one year.* Neurotoxicol Teratol, 1990. **12**(2): p. 161-8.
[19] Tennes, K., et al., *Marijuana: prenatal and postnatal exposure in the human.* NIDA Res Monogr, 1985. **59**: p. 48-60.

and wellbeing of our youngest citizens. We desperately need funding support and laws that allow research needed to inform these critical policies and regulations that impact the health, welfare and safety of our most vulnerable but critical resource, our children.