

# Unintended but Hardly Unexpected Consequences of Cannabis Legalization

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In October 2018, Canada joined the ranks of a small number of countries throughout the world, as well as 17 states across the United States, in legalizing the use, possession, and sale of nonmedical cannabis products. One year later, Canada amended its Cannabis Act to include the sale of cannabis-containing edibles. In an attempt to reduce unintentional ingestions and minimize the “appeal to youth,” Canada also required all cannabis products to display a standardized symbol: a red stop-sign shaped logo containing a cannabis leaf and the word “THC.” In addition, all cannabis-containing edibles are required to have tamper-proof and child-resistant packaging, with strict limits on the tetrahydrocannabinol amount present in single packages.

In the current issue of *Pediatrics*, Yeung et al<sup>1</sup> study this large national experiment to evaluate how the legalization of cannabis in Canada has affected emergency department (ED) visit volumes and codiagnosis and coingestion patterns in children and adolescents in urban Alberta. Using the National Ambulatory Care Reporting System database, a national administrative database used to capture all ED and urgent center visits throughout Canada, the authors focused on Calgary and Edmonton area hospitals. All visits for patients 0 to 17 years of age with a cannabis-related primary or secondary *International Classification*

*of Diseases* diagnostic code were included for the time period of 5 full years before legalization and 17 months postlegalization, the postlegalization period coinciding and ending with the March 1, 2020, lockdown from coronavirus disease 2019. Interrupted time-series analyses provided comparisons of monthly visit volumes over the total time studied; incident-rate ratios of cannabis-related ED and urgent visits and relative risk ratios for the outcomes of diagnostic patterns, unintentional ingestions, and coingestants provided comparisons postlegalization versus prelegalization.

These authors found that, although the total number of cannabis-related ED visits did not increase for the total population of 0 to 17 year olds, from the prelegalization to the postlegalization period, there was a significant increase during the postlegalization period in the relative incidence of visits for children 0 to 11 years of age for any cannabis-related concerns (incident rate ratio: 2.51; 95% confidence interval 1.62–3.88) and in the proportion of these children presenting to the ED for cannabis-related diagnoses (relative risk: 2.41, 95% confidence interval 1.61–3.61). Increased ED visit rates were not seen for either younger or older adolescents, which is in direct contrast with what has been seen in US states such as Colorado, in which higher rates of ED

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Opinions expressed in these commentaries are those of the author and not necessarily those of the American Academy of Pediatrics or its Committees.

DOI: <https://doi.org/10.1542/peds.2021-051426>

Accepted for publication May 24, 2021

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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

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**FINANCIAL DISCLOSURES:** The author has indicated she has no financial relationships relevant to this article to disclose.

**FUNDING:** No external funding.

**POTENTIAL CONFLICTS OF INTEREST:** The author has indicated she has no potential conflicts of interest to disclose.

**COMPANION PAPER:** A companion to this article can be found online at [www.pediatrics.org/cgi/doi/10.1542/peds.2020-045922](http://www.pediatrics.org/cgi/doi/10.1542/peds.2020-045922).

**To cite:** Ryan SA. Unintended but Hardly Unexpected Consequences of Cannabis Legalization. *Pediatrics*. 2021;148(4):e2021051426

visits for adolescents have been well documented.<sup>2</sup> Yeung et al<sup>1</sup> also found that overall rates and proportions of unintentional ingestions associated with cannabis were increased for children and older adolescents but not the younger adolescents (12–14 years). The authors concluded that the increase in ED visits seen for children  $\leq 11$  years was driven by the increased role of cannabis in unintentional ingestions, a rate that was a 77% increase from the pre- to postlegalization period. With these findings, they support what has been seen by investigators across the United States.<sup>3,4</sup>

One of the most interesting findings from this study was that the interrupted time-series analyses revealed that although visit rates for cannabis-related diagnoses have increased from the pre- to the postlegalization period, the rate of change did not differ across these 2 periods (or, as the authors state, “legalization is not associated with a sudden increase in visits”). Instead, the analyses revealed that ED visits rates have continued at a steadily increasing rate, suggesting that access to cannabis products by children and youth was as much a

problem before legalization as it has been since legalization. This highlights the fact that even before marijuana was legalized in Canada children and adolescents had ready access to both illicit as well as licit forms of cannabis. These data may be welcome news for those who feared that legalization would result in dramatically increased access by the pediatric populations, as reflected in ED visits. However, this study should be a wake-up call for not only Canada but all states across the United States. Even in those states that have not legalized the use of nonmedical cannabis, an increased access to medicinal or illicit forms is widespread and may be what is driving the increased access and health consequences that are being seen in our pediatric populations. In addition, as what was seen in the current study, regulations around packaging and tamper-proofing have not deterred access and unintentional ingestions, although Yeung et al<sup>1</sup> were not able to determine if licit or illicit forms of cannabis were the cause for the ED visits they reported.

Clearly, effective public health messages and education efforts are needed if we are to avoid the

unintended consequences of making marijuana products more available to adults: either for medicinal or recreational purposes. Without these, we can only expect that both intentional and unintentional consequences will continue to increase and affect our children and youth.

#### ABBREVIATION

ED: emergency department

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*Pediatrics* 2021;148;

DOI: 10.1542/peds.2021-051426 originally published online September 20, 2021;

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*Pediatrics* 2021;148;

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The online version of this article, along with updated information and services, is located on the World Wide Web at:

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