

The Built Environment of Medical Marijuana: How the Location of Dispensaries Impacts Access to Medical Marijuana

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ABSTRACT

Starting in 1996, medical marijuana policies have been passed and adopted in thirty-eight states and the District of Columbia. But these popular and quickly diffusing policies are implemented in myriad ways. Most notably, the percent of residents enrolling as patients in the programs varies markedly. Much of this variation is explained by the extent to which medical cannabis is available and affordable. In this project, we seek to better understand how the physical location of dispensaries impacts access to medical marijuana. This joins two important social determinants of health – built environment and health care access – in explaining unequal access to a stigmatized, but efficacious, treatment.

This research project aims to develop a comprehensive digital twin of the state of Ohio, which we call the Ohio-KWG, by adapting key functionalities from KnowWhereGraph (KWG). The Ohio-KWG is designed to represent Ohio at various levels of abstraction and granularity across geospatially-oriented themes, with a specific focus on addressing critical factors such as social determinants of health, environmental data, transportation dynamics, and so on. Our study of Ohio is a starting point for developing a broader method to analyze the implementation of medical marijuana policies. It also has implications for how other health policy scholars examine the effects of policy choices on health outcomes. Moreover, our analysis can provide insights for lawmakers, caretakers, patients, and members of the industry in better understanding how to effectively implement a medical marijuana program that is equitable and accessible. The choices lawmakers make about how to regulate dispensaries ultimately affect who does and who does not have access to medical marijuana.

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KEYWORDS: Regulatory policy; public policy; public administration

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Outline

Methods from recent papers

Hirsch et al. 2023

Using data from the Pennsylvania Department of Health, we geocoded MMJ dispensary locations and linked them to U.S. Census Bureau data. We created dispensary access measures from the population-weighted centroid of Zip Code Tabulation Areas (ZCTAs): distance to nearest dispensary and density of dispensaries within a 15-minute drive.

We evaluated associations between dispensary access and the proportion of adults who received MMJ certification and the proportion of certifications for insufficient evidence conditions (amyotrophic lateral sclerosis, epilepsy, glaucoma, Huntington's disease, opioid use disorder, and Parkinson's disease) using negative binomial modeling, adjusting for community features. To evaluate associations between the proportion of the population that was non-White, Hispanic, or both (NW-H) and distance to nearest dispensary, we used logistic regression to estimate the odds ratios (OR) and 95% confidence intervals (CI), adjusting for median income.(Hirsch et al., 2023)

Yaskewich 2024

During Missouri's first applicant pool for medical marijuana dispensaries in 2019, a total of 606 census tracts contained the location site of at least one dispensary applicant. Using data from the Missouri Department of Health and Senior Services and the American Community Survey, fractional and binary logistic regression models were used to estimate the relationship between census-tract characteristics and application outcomes.(Yaskewich, 2024)

Novak et al. 2021

Objectives: The objective of this study is to examine the racial and income characteristics of communities where licensed dispensaries are located. We quantify the racial and income characteristics of communities where Maryland medical cannabis dispensaries are located and explore whether Maryland medical marijuana dispensaries disproportionately locate in high-income, majority-White zip codes. **Method:** Using data from the Maryland Medical Cannabis Commission and the American Communities Survey, we create geocodes for each of the operating dispensaries as of December 2019. We examine the distribution of medical cannabis dispensaries by zip code level household income and zip code level racial distribution. The data set encompasses 85 operating cannabis dispensaries in Maryland and 6.1 million Marylanders distributed across 468 zip codes in 2018–2019. **Results:** The analysis indicates that dispensaries are concentrated in zip codes whose residents are racially diverse, and with higher concentrations of retail establishments. **Conclusion:** Community level racial or income disparities in access to medical cannabis were not observed in Maryland. Access to medical cannabis, based on ability to pay out of pocket for the product, may be uneven.(Novak et al., 2021)

Shi et al 2016

Objective. To examine the availability of marijuana stores in Colorado and associations with neighborhood characteristics. **Methods.** The addresses for 650 medical and recreational marijuana stores were geocoded and linked to the characteristics of 1249 census tracts in Colorado. Accounting for spatial autocorrelations, autologistic regressions were used to quantify the associations of census tract socioeconomic characteristics with the availability of marijuana

stores. Results. Regardless of store types, marijuana stores were more likely to locate in neighborhoods that had a lower proportion of young people, had a higher proportion of racial and ethnic minority population, had a lower household income, had a higher crime rate, or had a greater density of on-premise alcohol outlets. The availability of medical and recreational marijuana stores was differentially correlated with household income and racial and ethnic composition. Conclusions. Neighborhood disparities existed in the availability of marijuana stores, and associations between availability of stores and neighborhood characteristics varied by store types. This study highlighted the need for regulatory measures to prevent marijuana related outcomes in high risk neighborhoods.(Shi et al., 2016)

DATA

Access = α + Politics + Public Health + Resources

Dependent variable:

Dispensary location – KWG

<https://com.ohio.gov/divisions-and-programs/cannabis-control/about-dcc/licenses/what-we-do/medical-marijuana-dispensary-map>

Independent variables:

Politics (county-level) – Presidential vote; vote on Issue 2 (Rec initiative)

List is updated here and downloadable in Excel (updated 6-6-2024)

<https://com.ohio.gov/divisions-and-programs/cannabis-control/about-dcc/licenses/dispensaries/dispensary-licenses>

Public Health (county-level) – life expectancy; deaths of despair (suicide + overdose);

Resources (county-level) – Median income

Area Deprivation Index (ADI) <https://www.neighborhoodatlas.medicine.wisc.edu/> - The Area Deprivation Index (ADI) is based on a measure created by the Health Resources & Services Administration (HRSA) over three decades ago, and has since been refined, adapted, and validated to the Census block group neighborhood level by Amy Kind, MD, PhD and her research team at the University of Wisconsin-Madison. It allows for rankings of neighborhoods by socioeconomic disadvantage in a region of interest (e.g., at the state or national level). It includes factors for the theoretical domains of income, education, employment, and housing quality. It can be used to inform health delivery and policy, especially for the most disadvantaged neighborhood groups.

"Neighborhood" is defined as a Census block group.