



Health Equity Implications of Retail Cannabis Regulation in Los Angeles County: **Health Impact Assessment**

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What is an HIA?

Definition

Systematic assessment of potential impacts of pending policies on population health and health equity that engages affected stakeholders and includes recommendations to inform policy formulation and/or implementation.

Part of a **Health in All Policies** approach

Determinants of Population Health



Health status is determined by:*

Genetics:	20%
Health Care:	20%
Social, Environmental, Behavioral Factors:	60%

*Adapted from McGinnis, et. al.,
Health Affairs, 2002.



Health Equity

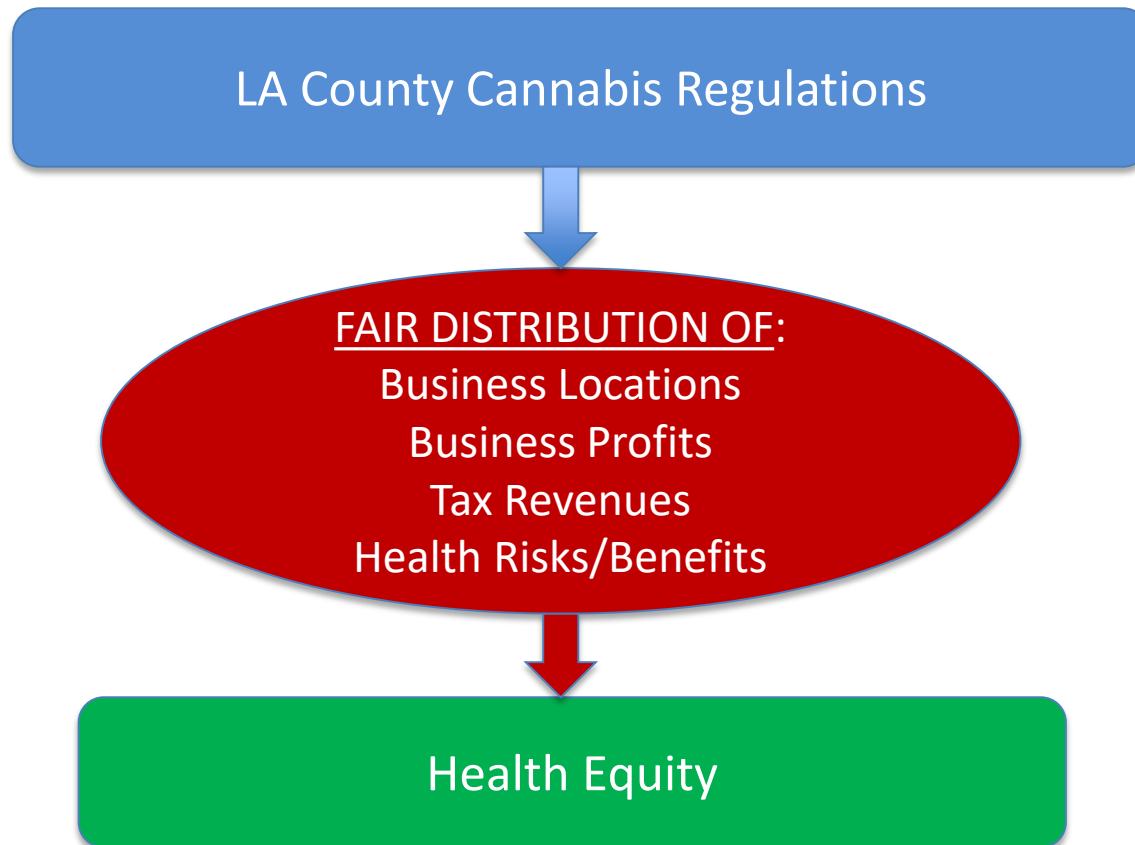
What is it?

When everyone has fair and just access to the goods, services, resources and power they need for optimal health and well-being, regardless of their race, ethnicity, gender, sexual orientation, socio-economic status, or place of residence.

How to achieve it?

Eliminate barriers to good health that are experienced disproportionately among disadvantaged groups.

Why this Matters: Cannabis and Health Equity

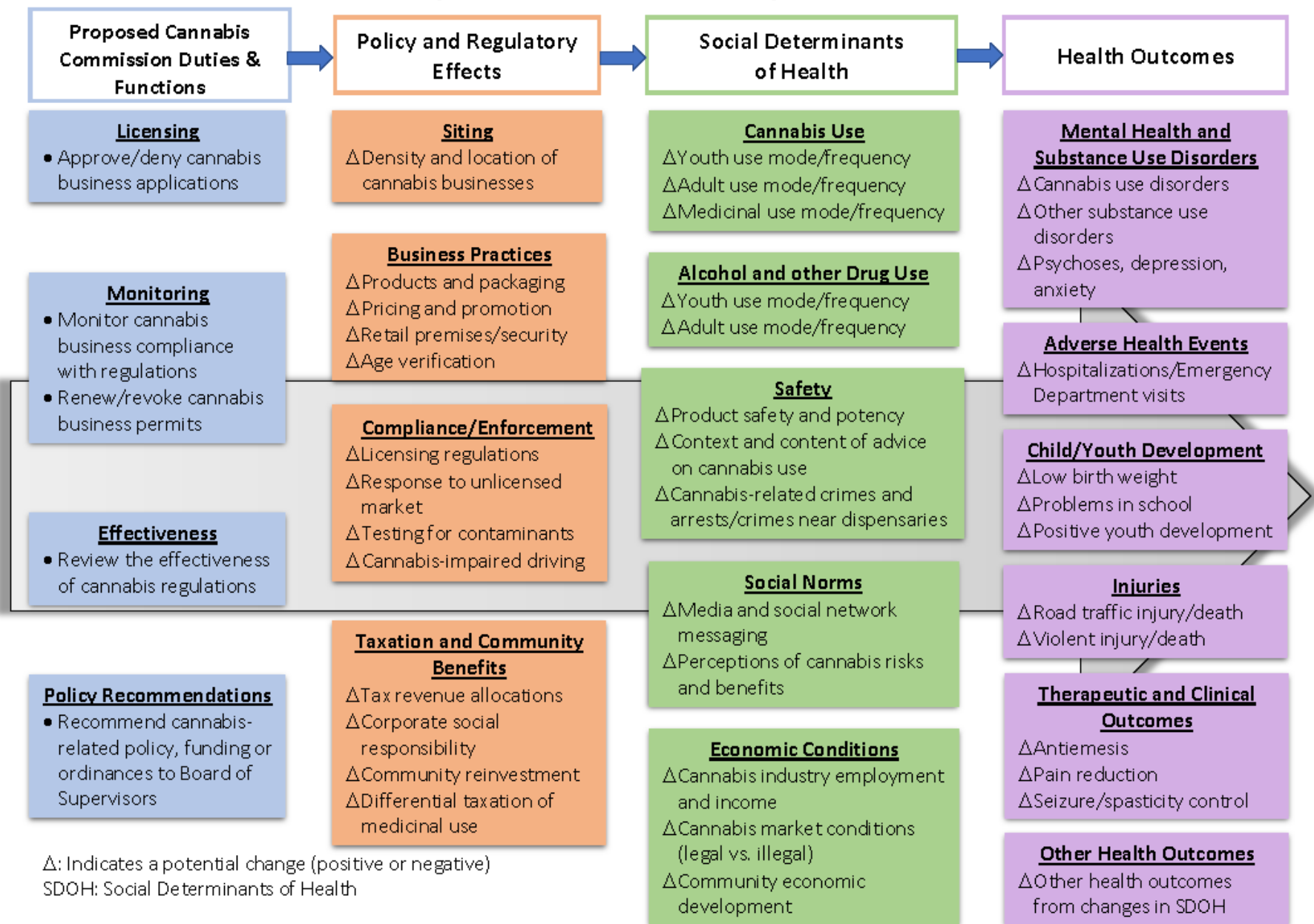




Project Overview: HIA Conceptual Framework, Research Questions and Methods



**Figure 1: Cannabis Regulation in Los Angeles County
Health Impact Assessment Conceptual Framework**





HIA Research Questions

1. How could cannabis *business locations and density* impact equity in the distribution of social determinants of health (SDOH) and health outcomes in LA County?
2. How could cannabis *business practices* impact equity in the distribution of SDOH and health outcomes in LA County?
3. How could *enforcement of compliance* with cannabis regulations impact equity in the distribution of SDOH and health outcomes in LA County?
4. How could *cannabis taxation* impact equity in the distribution of cannabis-related SDOH and health outcomes in LA County?



Methods and Data Sources

- Literature Reviews
- Analysis of Survey and Administrative Data Sources
- Focus Groups
 - Community Residents (n=4), Community Medical Cannabis Users (n=2)
- Key Informant Interviews
 - Cannabis Regulators (n=8), Cannabis Dispensary Operators (n=7), Physicians (n=7), Physician-Supervised Medicinal Cannabis Patients and Caregivers (n=4)
- Observational Survey of Cannabis Dispensaries
 - Based on Marijuana Retail Surveillance Tool (MRST)
 - 3 comparison groups



Results

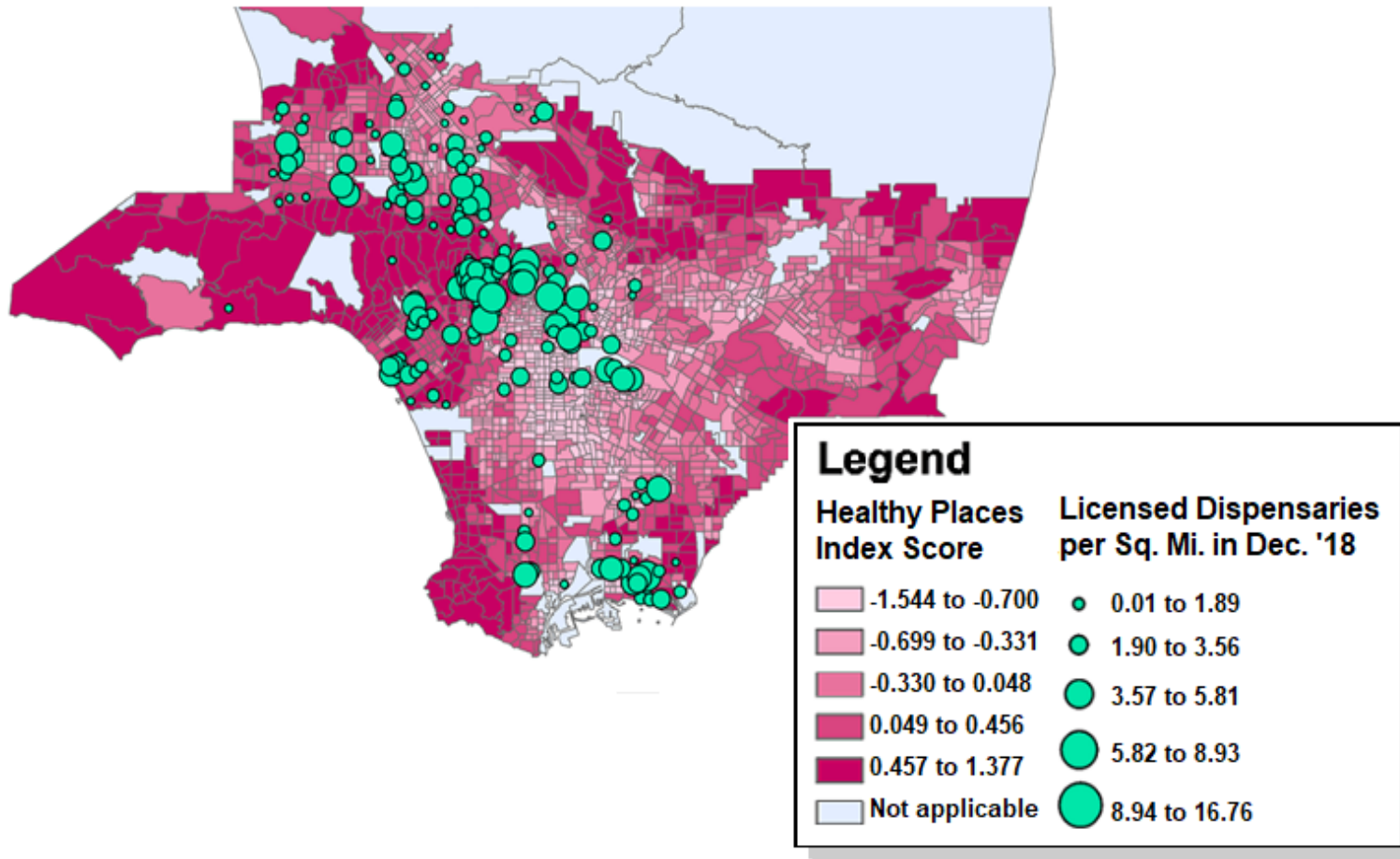
Research Question #1: Dispensary Location and Density

How could cannabis *business locations and density* impact equity in the distribution of social determinants of health (SDOH) and health outcomes in LA County?

Literature Review: Dispensary Location, Density and Health Equity

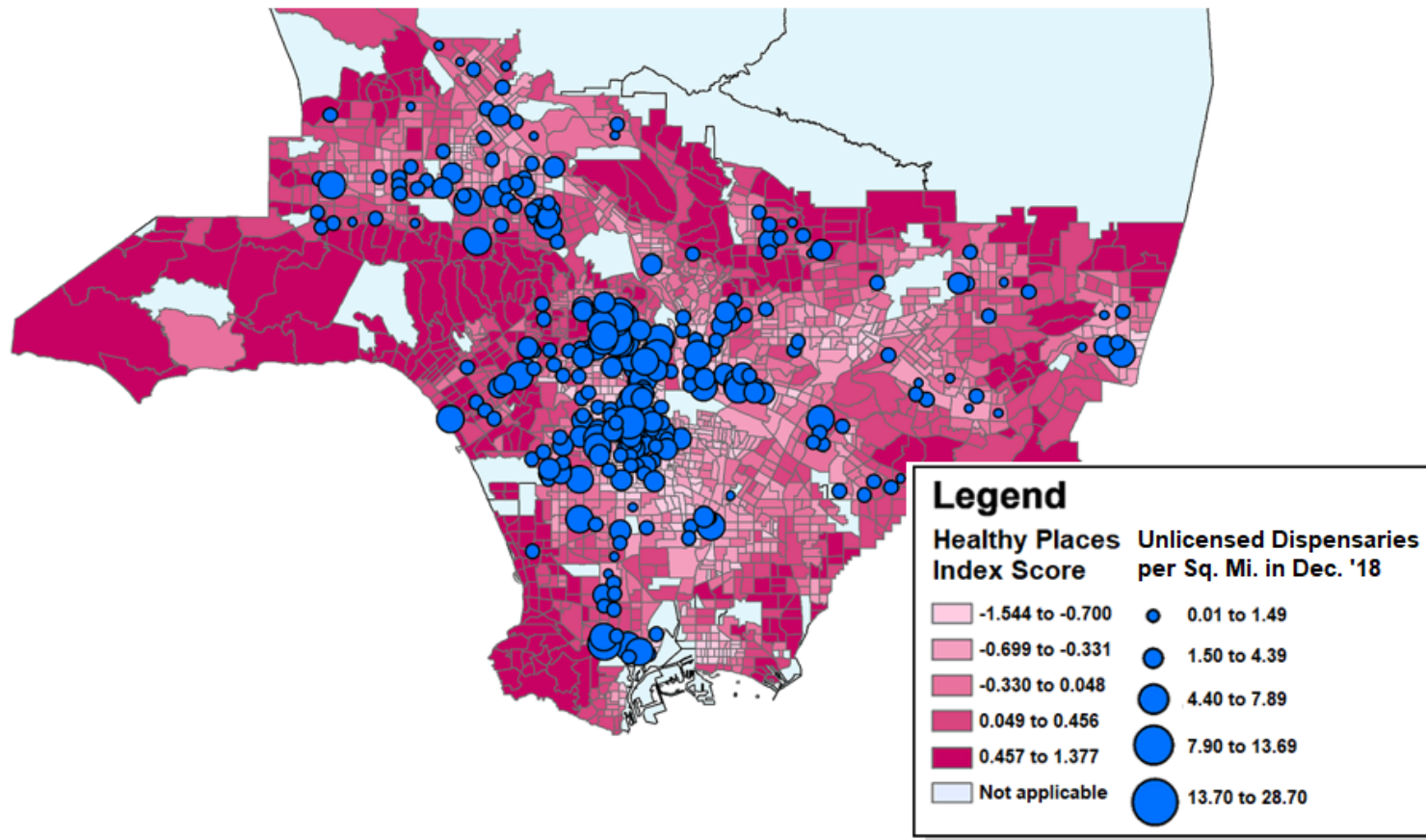
- Prior studies have found concentrations of medical marijuana dispensaries in low-income and high ethnic minority areas. No controls for licensure.
- Prior studies examining relationship between dispensary concentrations and health-related outcomes show mixed results:
 - Cannabis-related hospital stays (+)
 - Youth cannabis use (-)
 - Crime (+/-)

Figure 2: Licensed Dispensary Density & Healthy Places Index (HPI) Score, Southern LA County, 2018



Sources: Healthy Places Index (HPI), Weedmaps, California Bureau of Cannabis Control (BCC)

Figure 3: Unlicensed Dispensary Density & Healthy Places Index (HPI) Score, Southern LA County, 2018



Sources: Healthy Places Index (HPI), Weedmaps, California Bureau of Cannabis Control (BCC)



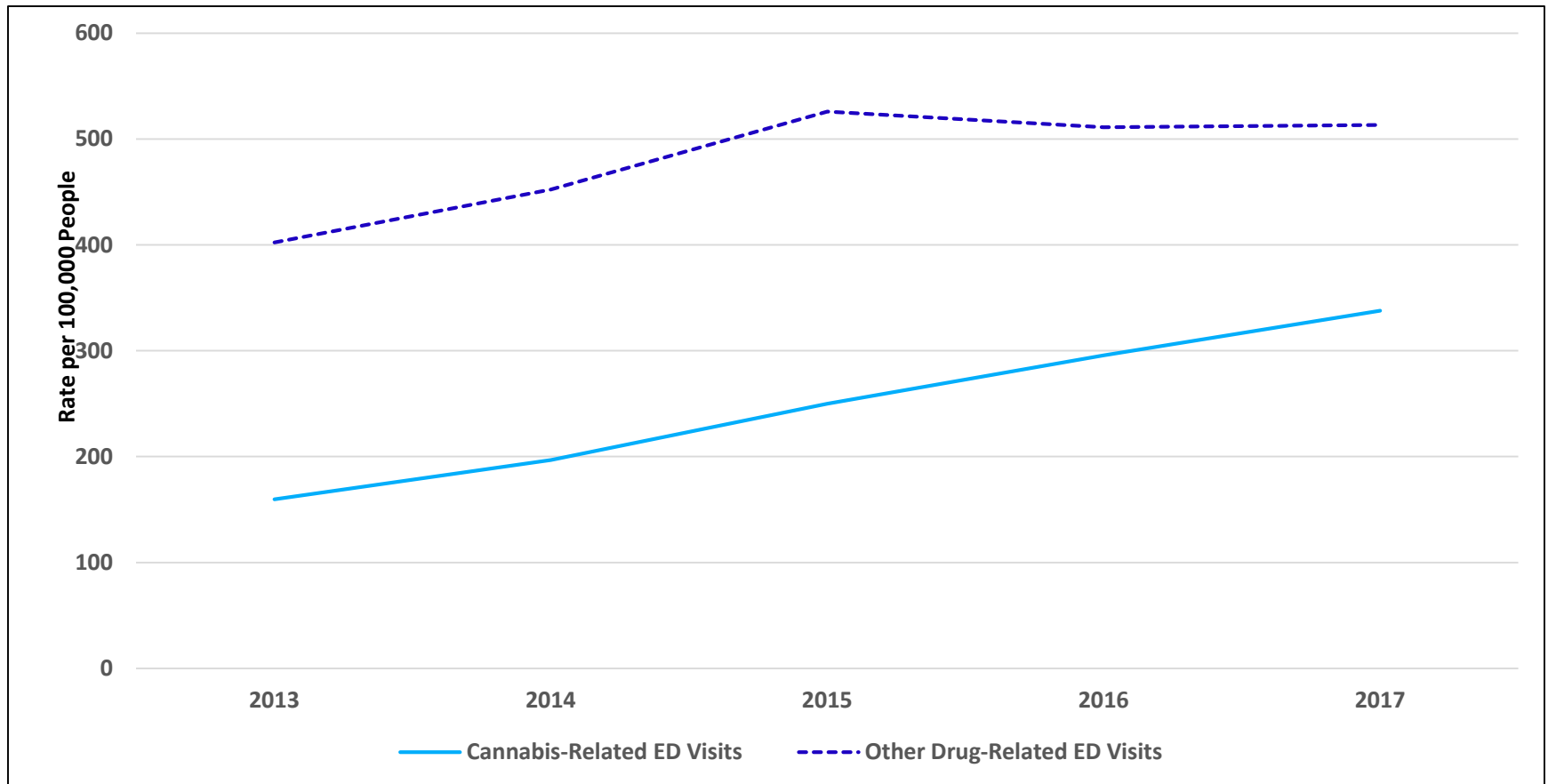
Statistical Analysis of HPI Scores and Other Neighborhood Characteristics in Relation to Density of Licensed and Unlicensed Dispensaries

- Census tracts with lower health advantage more likely to have unlicensed dispensaries, but not licensed dispensaries
- Unlicensed dispensaries were more concentrated in tracts with higher percentages of Latinx and African American residents, but licensed dispensaries were not
- Tracts with higher percentages of African American residents were less likely to have licensed dispensaries
- Tracts with higher concentrations of liquor stores were more likely to have unlicensed dispensaries, but not licensed dispensaries

*Sources: Healthy Places Index, CA Department of Alcoholic Beverage Control, Los Angeles County eGIS, US Census
Model: Zero Inflated Negative Binomial Regression Model predicting licensed and unlicensed dispensary presence and density*

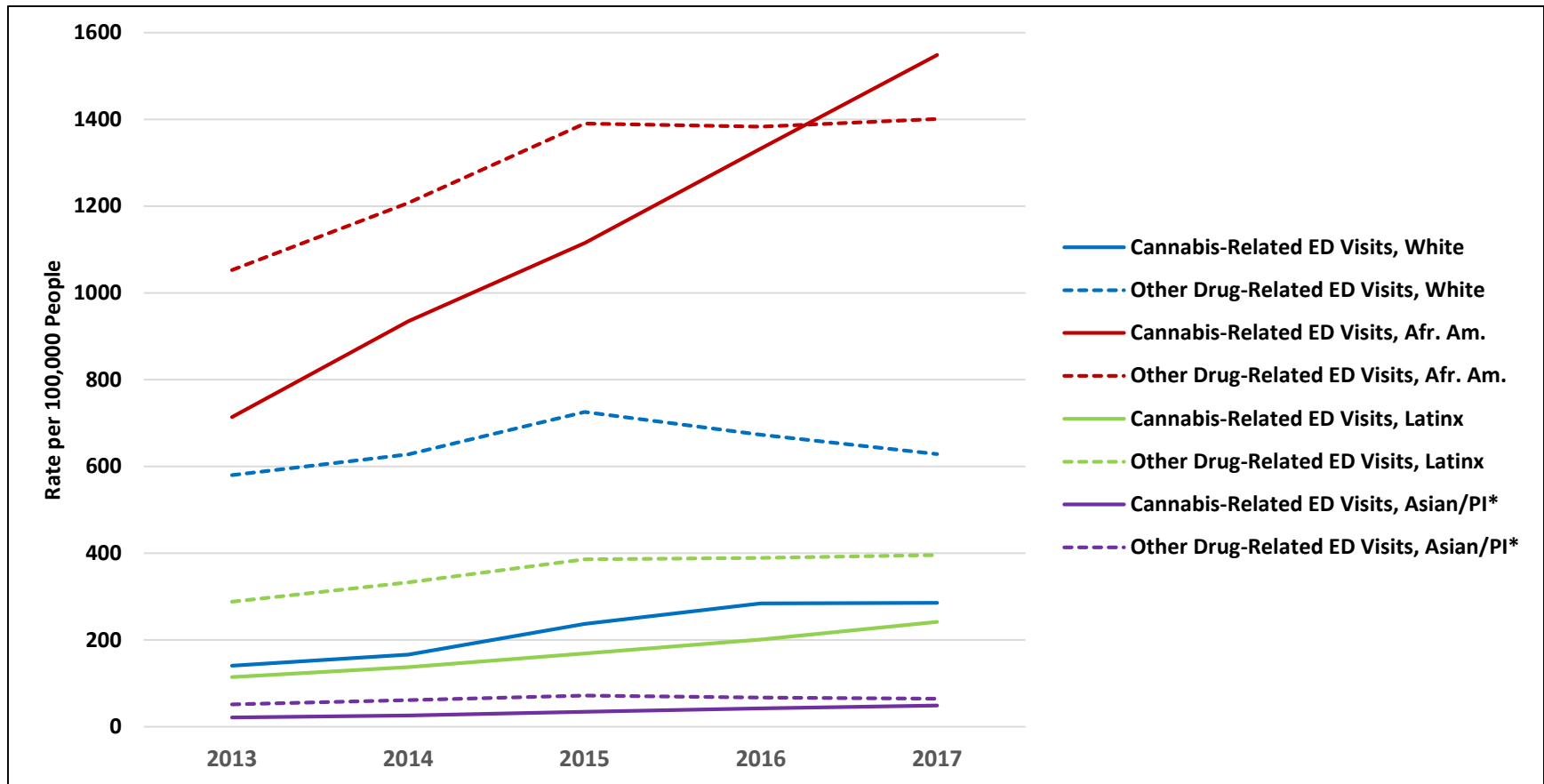


Figure 4: Cannabis-Related and Other Drug-Related Emergency Department (ED) Visits, Los Angeles County, 2013-2017



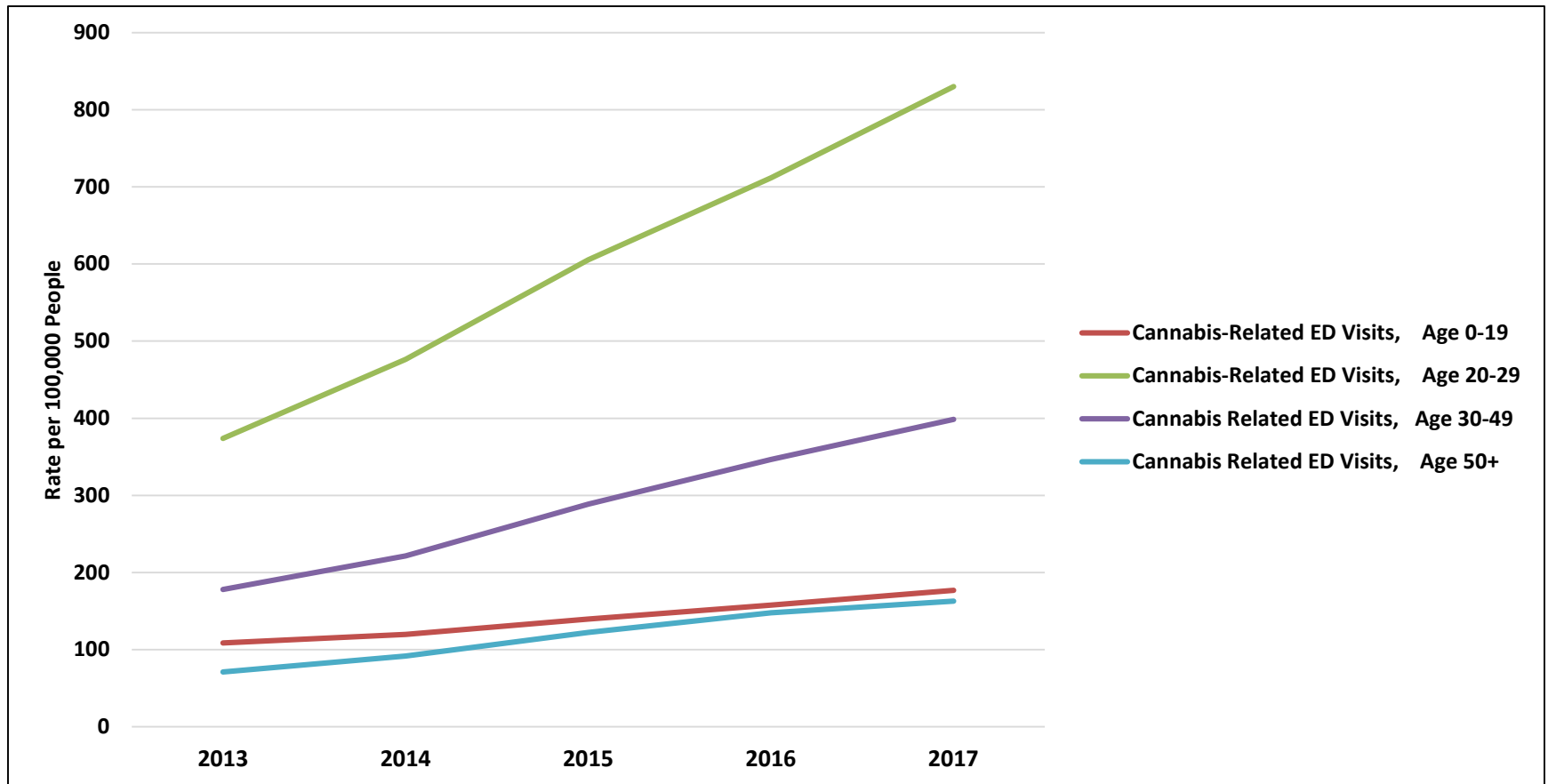
Source: California Office of Statewide Health Planning and Development (OSHPD)

Figure 5: Cannabis-Related and Other Drug-Related Emergency Department (ED) Visits by Race/Ethnicity, Los Angeles County, 2013-2017



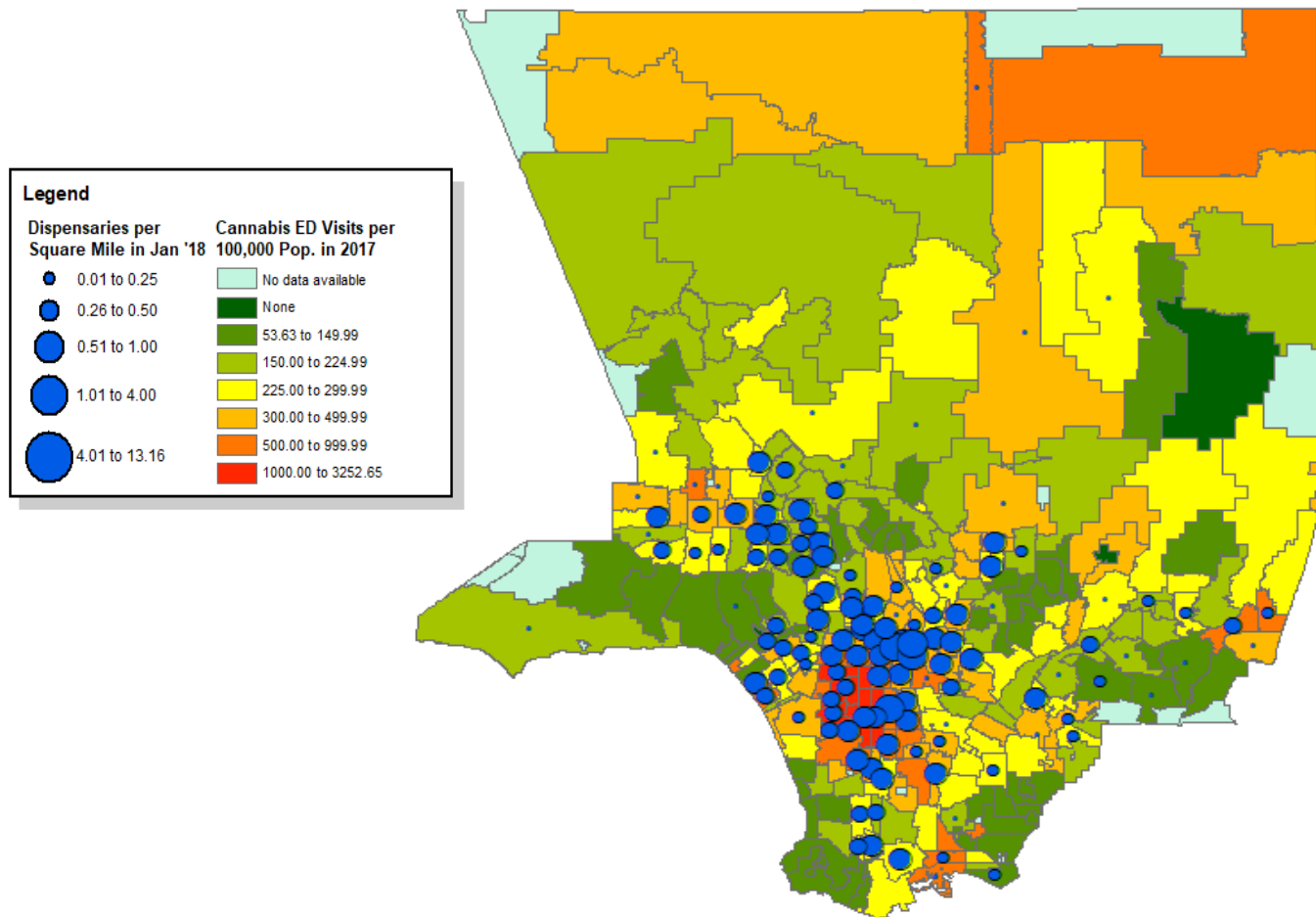
*PI – Pacific Islander. Source: California Office of Statewide Health Planning and Development (OSHPD)

Figure 6: Cannabis-Related Emergency Department (ED) Visits by Age Group, Los Angeles County, 2013-2017



Source: California Office of Statewide Health Planning and Development (OSHPD)

Figure 7: Cannabis-Related Emergency Department (ED) Visits and Dispensary Density, by Zip Code, Los Angeles County, 2017



Sources: California Office of Statewide Health Planning and Development (OSHPD), Weedmaps



Statistical Analysis of Neighborhood Factors Associated with Cannabis-Related ED Visits

- An additional one dispensary per zip code was associated with a 7.1% increase in the number of cannabis-related ED visits.
- Other zip code characteristics associated with cannabis-related ED visits included:
 - % of Latinx Residents
 - % of African American Residents
 - % of Multi-Racial Residents

*Sources: Healthy Places Index, CA Department of Alcoholic Beverage Control, Los Angeles County eGIS, US Census
Model: Zero Inflated Negative Binomial Regression Model predicting licensed and unlicensed dispensary presence and density*

Statistical Analysis of Dispensary Density and Other Neighborhood Factors Associated with Crime Incidents

- Each additional unlicensed dispensary per square mile in a census block group was associated with about 4 additional property crimes and 5 additional violent crimes.
- Licensed dispensary density was associated with property crime but not with violent crime or both combined.
- Liquor store density was associated with property and violent crime.
- Block groups with lower health advantage (according to the HPI) had higher incidents of property and violent crime.

Model: Ordinary least squares spatial lag model predicting crime incidents.

Sources: LA Police Department, LA County Sheriff's Department, Beverly Hills Police Department, Weedmaps, Healthy Places Index, US Census Bureau, California Bureau of Cannabis Control, US Department of Transportation, CA Department of Alcoholic Beverage Control, Los Angeles County Enterprise GIS



Qualitative Findings: Dispensary Location and Density

- Most cities have adopted guidelines allowing 1 dispensary per 10-15K residents.
- Smaller cities are reaching their caps but City of LA cap is “soft” and is not yet close to being reached.
- First wave of licenses in City of LA were for existing businesses that had already sought out “desirable” locations, which may explain HPI findings.
- Next wave will consist largely of social equity license applicants seeking locations in less affluent areas with even stiffer competition from unlicensed operators.



Summary

- As of the end of 2018, the equity concern about overconcentration of cannabis dispensaries in disadvantaged areas was supported by the data but was primarily due to unlicensed dispensaries.
- This overconcentration is also associated with greater rates of cannabis-related ED visits and with greater incidents of violent crime.
- It remains to be seen if this dynamic will change as licensed dispensaries—particularly social equity businesses—begin to open in more disadvantaged areas.



Results

Research Question #2: Cannabis Business Practices

How could cannabis business practices impact equity in the distribution of SDOH and health outcomes in LA County?



Literature Review: Cannabis Business Practices and Health

- Product Potency: Higher potency cannabis associated with increased risk for onset of first cannabis use disorder (CUD) symptoms and greater severity of dependence among adults.
 - Concentrates used for vaping and dabbing contain 3 to 10 times more THC than smokable flower; After legalization, Washington sales of vaporizable cannabis concentrates grew at 2x rate of other products.
- Price: Heavy users more responsive to changes in prices; Youth may be more responsive to non-monetary price (i.e., perceived risk).
- Promotion: Greater exposure to medical marijuana advertising associated with increased use, intentions to use, and negative consequences of use among adolescents.

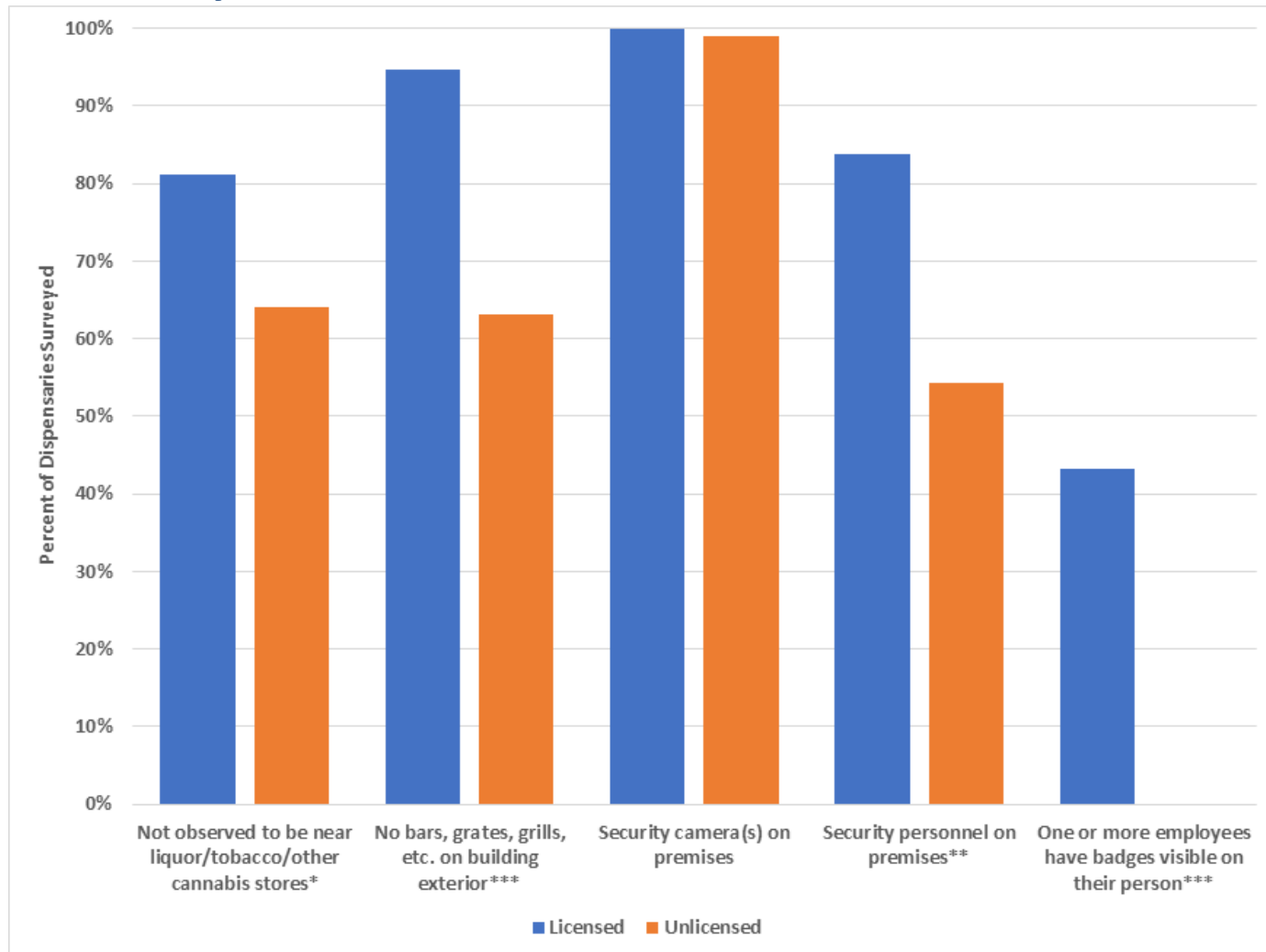


LA County Cannabis Dispensary Premise Survey

Group	Attempted	Completed	Safety Concern/ Not Open
Unlicensed in Unincorporated Areas	75 (census)	56 (75%)	19 (25%)
Unlicensed ≤ 2 mi from Unincorporated Areas	50 (random sample)	36 (72%)	14 (28%)
Licensed ≤ 2 mi from Unincorporated Areas	43 (census)	37 (86%)	6 (14%)
TOTAL	168	129 (77%)	39 (23%)

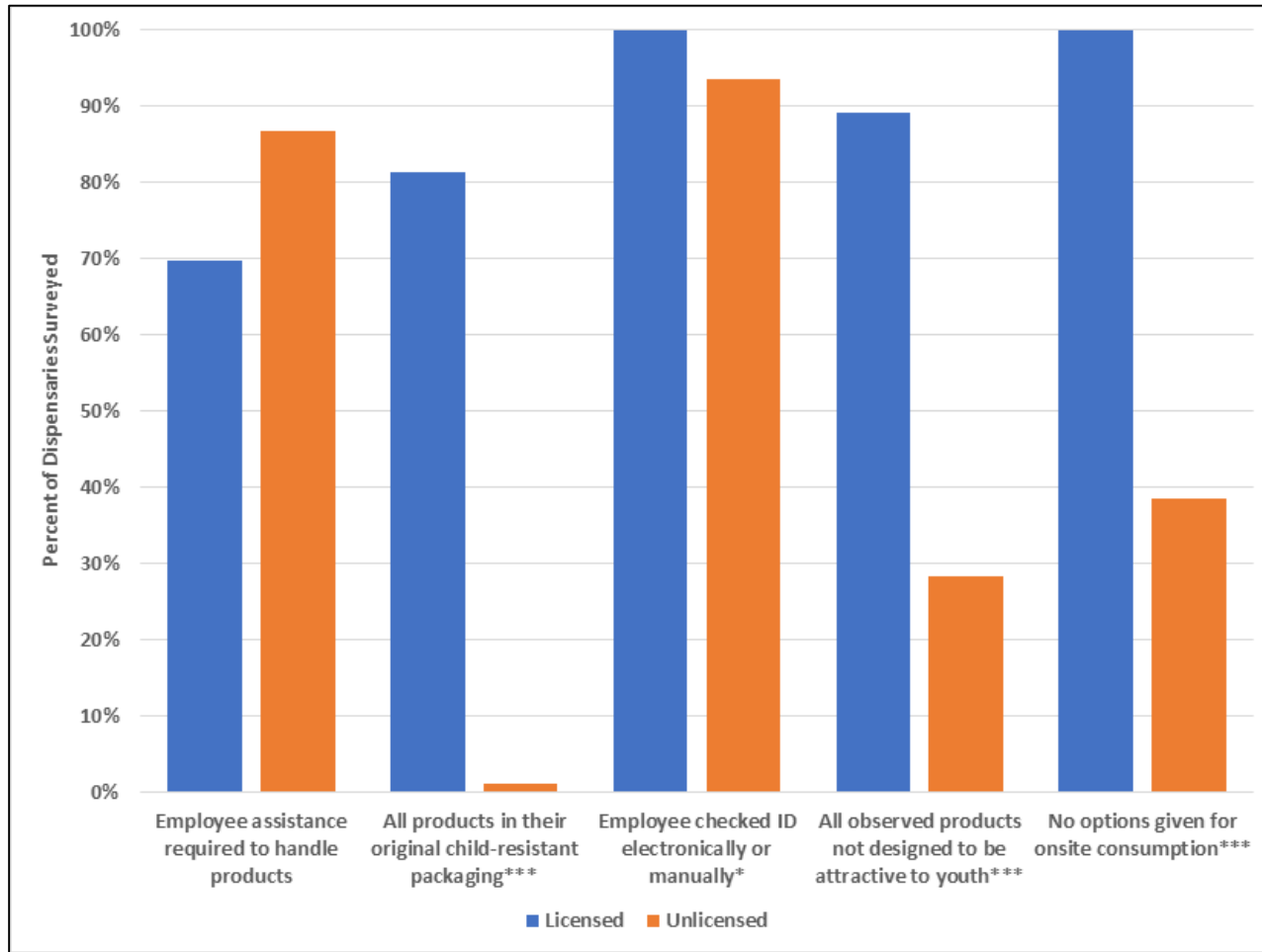
Source: Los Angeles County Cannabis Dispensary Premise Survey (2018/2019)

Figure 9: Dispensaries with Various Security Measures by Licensure Status, Los Angeles County



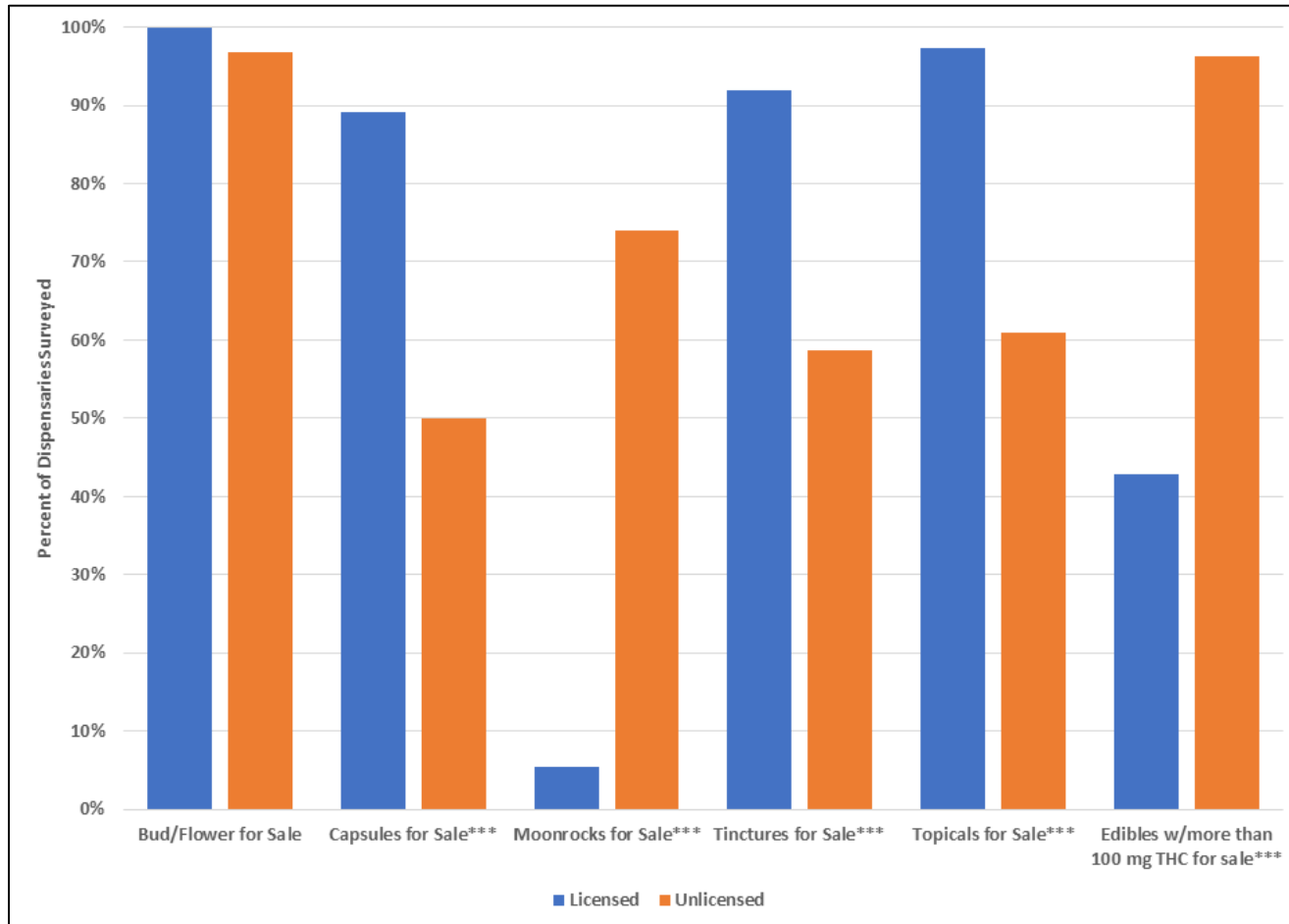
* $p < .05$; ** $p < .01$; *** $p < .001$; Source: Los Angeles County Cannabis Dispensary Premise Survey (2018/2019)

Figure 10: Dispensaries' Youth Cannabis Access Restrictions by Licensure Status, Los Angeles County



* $p < .05$; ** $p < .01$; *** $p < .001$; Source: Los Angeles County Cannabis Dispensary Premise Survey (2018/2019)

Figure 11: Dispensaries with Various Product Types by Licensure Status, Los Angeles County



* $p < .05$; ** $p < .01$; *** $p < .001$; Source: Los Angeles County Cannabis Dispensary Premise Survey (2018/2019)



Qualitative Findings: Dispensary Business Practices

- Licensed operators diversifying their product offerings to attract a more discerning clientele. Unlicensed operators seen as serving younger, heavier and more price conscious users.
- Medicinal users having a harder time getting the high potency tinctures and edibles they used previously.
- Prices not decreasing in licensed dispensaries due to unfair competition from unlicensed dispensaries.
- Local regulators have added language to local ordinances to enhance and support local enforcement of state cannabis advertising regulations.
- Licensed dispensary operators reported their primary mode of advertising was through social media and other online sources.



Summary

- In addition to being more concentrated in areas of health disadvantage, unlicensed dispensaries are also more likely to engage in potentially health harming business practices.
- These practices are thus more likely to impact low-income communities of color and heavier cannabis users who are more price sensitive.
- Local jurisdictions are crafting local cannabis advertising ordinances to enhance their ability to enforce state advertising regulations, without necessarily adding to them.
- Some medicinal cannabis users, including those under physician supervision, are experiencing difficulty finding and affording the products they seek.



Results

Research Question #3: Regulatory Compliance and Enforcement

How could enforcing of compliance with cannabis laws and regulations impact equity in the distribution of SDOH and health outcomes in LA County?



Literature Review: Regulatory Enforcement and Health

Regulatory concerns most prominent in health literature:

1. Persistence of unlicensed market
2. Product safety and testing
3. Cannabis Impaired Driving (CID)

Unlicensed Market

In Washington, longstanding and more loosely regulated medical marijuana market led to proliferation of unlicensed dispensaries during transition to recreational market, which prompted many local jurisdictions to ban recreational dispensaries.

- No evidence of impact of bans on unlicensed market



Literature Review: Regulatory Enforcement and Health

Product Safety

- No federal guidelines on pesticide use for cannabis cultivation
 - Pesticide levels up to 10x higher in cannabis concentrates than in flower; vaping and dabbing are highly efficient methods for inhaling contaminants
- Due to federal prohibition, state product testing relegated to private labs
 - Creates a potential conflict of interest supported by anecdotal reports of cheating
 - Variation in lab results also due to lack of industry standards
 - Some health departments have begun requiring inspections, but this is not yet widespread and most inspections do not involve product testing

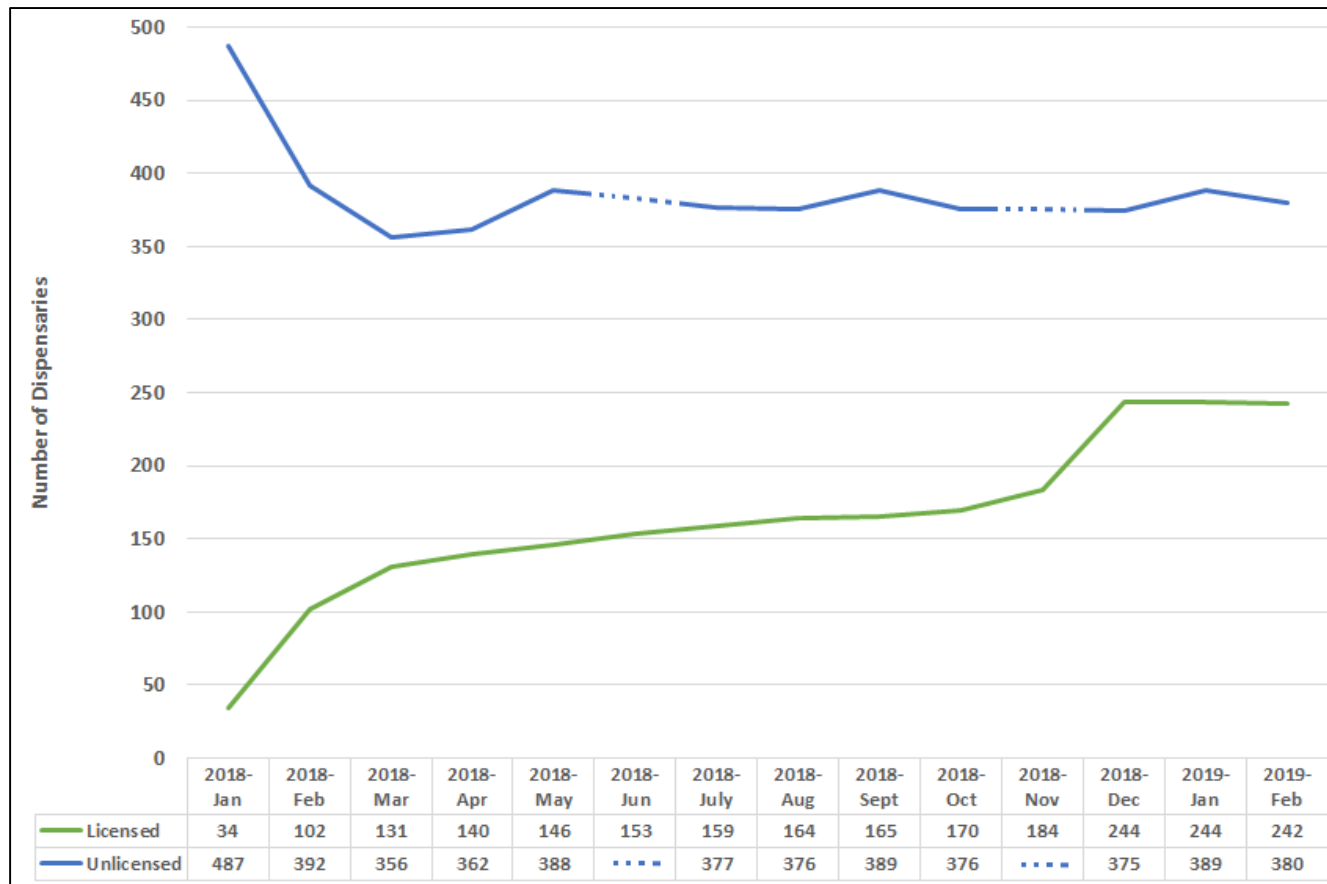


Literature Review: Regulatory Enforcement and Health

Cannabis Impaired Driving

- Robust evidence that cannabis use increases risk of traffic crashes
- Mixed evidence of effect of liberalization of cannabis laws on traffic crashes; Several studies have shown no effect or a reduction in crash fatalities
 - Possibly due to substitution effect or lower severity of cannabis-related traffic crashes
- Limited evidence of strategies to deter cannabis impaired driving (Per se laws; Drug Recognition Expert training)
- Evidence of persistent disproportionate enforcement on racial/ethnic minorities

Figure 12: Licensed and Unlicensed Dispensaries in Los Angeles County, January 2018 to February 2019

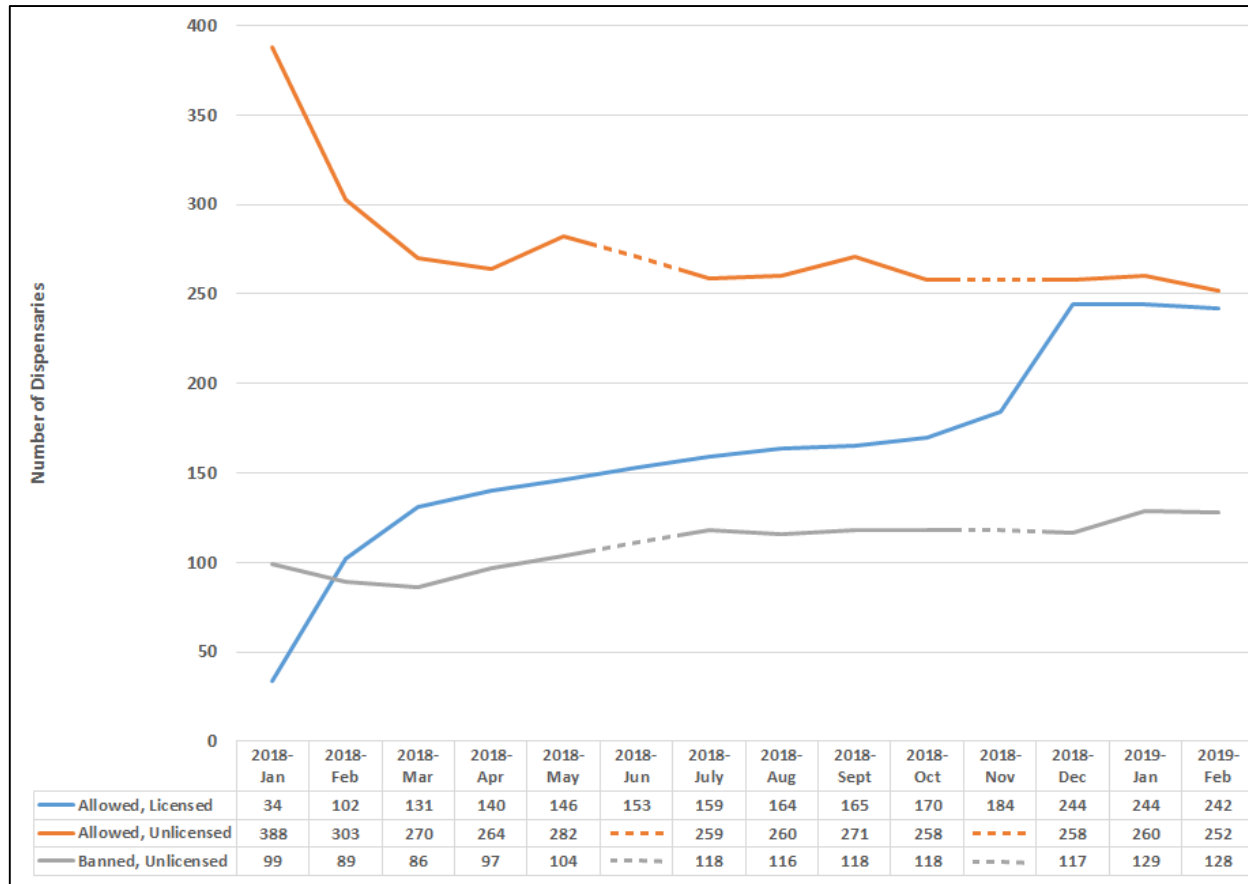


Note: Dotted lines indicate Weedmaps data was not available for June and November.

Sources: Weedmaps, California Bureau of Cannabis Control (BCC)



Figure 13: Licensed and Unlicensed Dispensaries in Los Angeles County, by Whether they are in an Area Currently Banning Dispensaries, January 2018 to February 2019

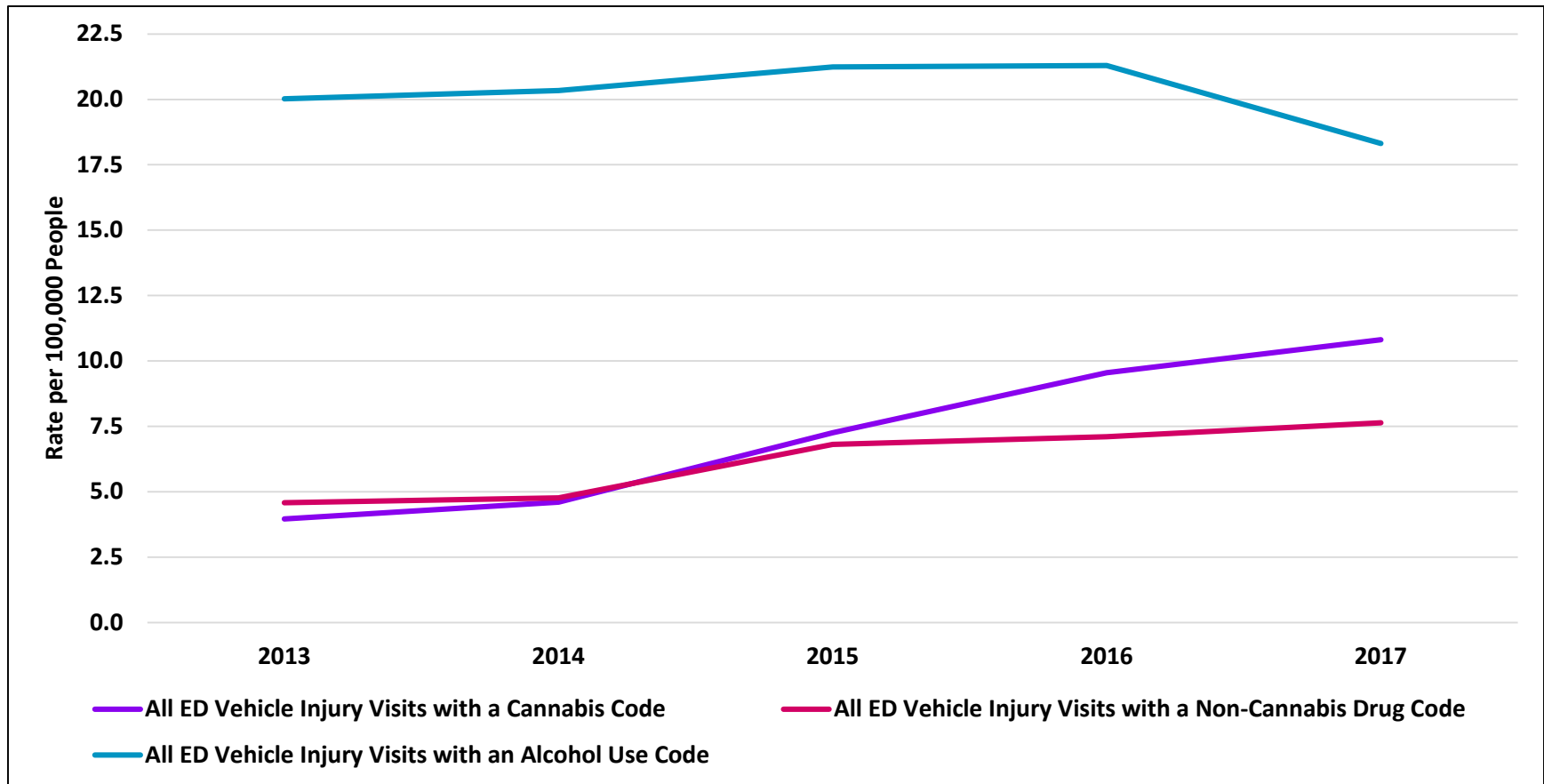


Note: Dotted lines indicate Weedmaps data was not available for June and November.

Sources: Weedmaps, California Bureau of Cannabis Control (BCC)



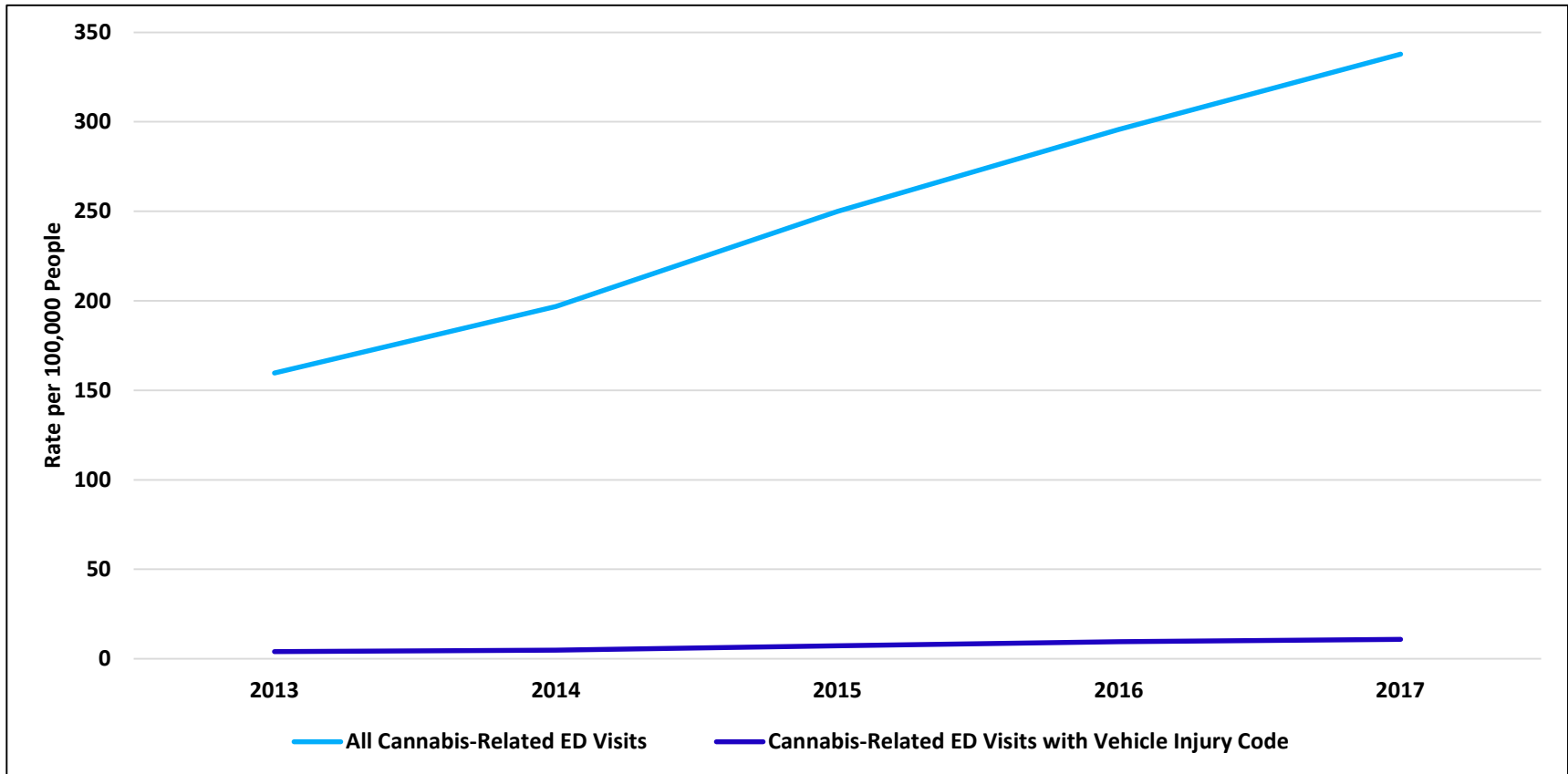
Figure 16: Vehicle Injury-Related ED Visits with Cannabis, Other Drug, and Alcohol-Related Codes, Los Angeles County, 2013 to 2017



Source: California Office of Statewide Health Planning and Development (OSHPD)



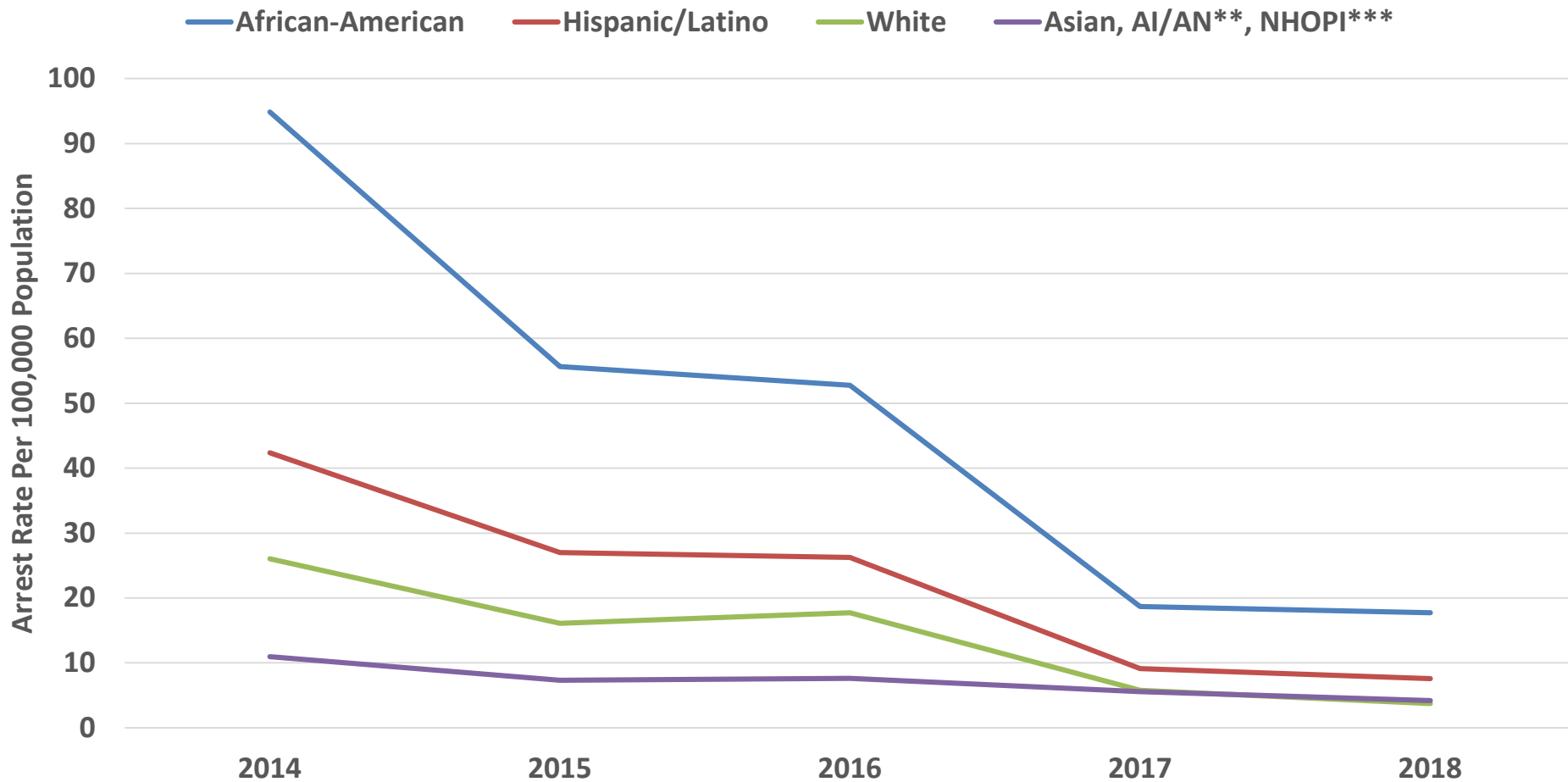
Figure 17: All Cannabis-Related ED Visits and Cannabis-Related ED Visits with a Vehicle Injury Code, Los Angeles County, 2013 to 2017



Source: California Office of Statewide Health Planning and Development (OSHPD)



Cannabis Arrest Rate in LA County by Race/Ethnicity, 2014-2018*



Sources: LA County Sheriff Department; U.S. Census Bureau

*Rates were calculated based on yearly population estimates and race/ethnicity distribution as of 2017

American Indian/Alaska Native *Native Hawaiian or Other Pacific Islander

Qualitative Findings: Regulatory Enforcement

- Licensed dispensary operators were universally concerned about their own viability in the face of unfair competition from unlicensed dispensaries.
- Local cannabis regulators acknowledged the problem of unlicensed operators but noted that administrative enforcement may be more effective than police enforcement.
- Licensed operators believed that government had an important role to play in ensuring product safety and protecting the public's health. City regulators welcomed the support of LA County DPH on this front.
- July 2018 shift to new product testing, labelling and packaging regulations may have helped sustain unlicensed market by flooding it with large quantities of cheap products.



Summary

- California's long history of loosely regulated medical marijuana has contributed to an entrenchment of unlicensed dispensaries in LA County.
- Comparative trends in areas allowing and banning licensed dispensaries suggest that local cannabis licensing may exert some downward pressure on unlicensed operators.
- From an equity perspective, using administrative penalties for unlicensed operators may be preferable to a criminal justice approach which could create barriers for those eligible for social equity licensing programs.



Summary Cont.

- Unlicensed operators pose a serious health risk to the public through their sale of potentially contaminated products, but improved industry standards for cannabis testing could help reduce risks associated with legal sales as well.
- An examination of trends in cannabis-related ED visits shows that, in both absolute and relative terms, the increase in these visits overall was much greater than the increase in the very small subset of them that involved vehicle injuries.



Results

Research Question #4: Cannabis Tax Revenue

How could cannabis taxation impact equity in the distribution of cannabis-related SDOH and health outcomes in LA County?



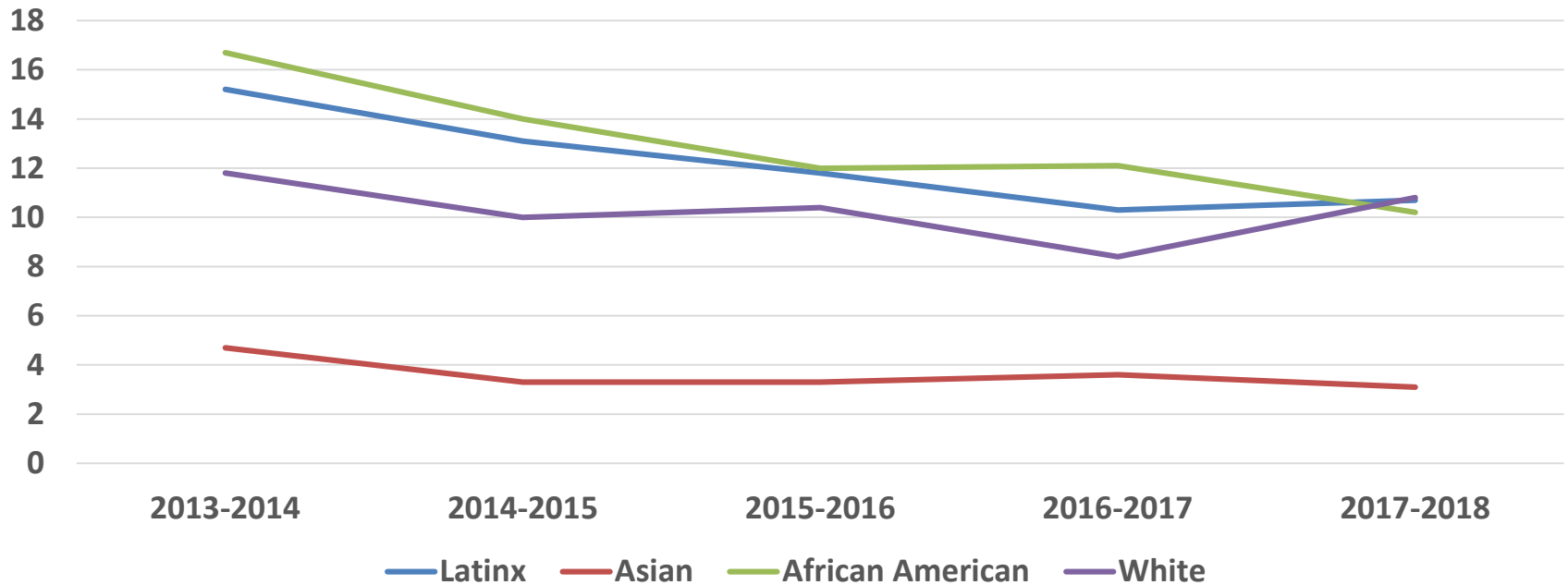


Literature Review: Cannabis Taxation and Health

- Screening, Brief Intervention, and Referral to Treatment (SBIRT) effective among adults; Evidence for adolescents not conclusive but another evidence review is under way.
- Challenge of reaching adolescents in clinical settings; community and school-level positive youth development are promising but cannabis-specific evidence is limited.
- Student Assistance Programs (SAP) are widespread and provide a potential vehicle for evidence-based substance use programs in schools.
- Several pilot studies of SBIRT in school settings show feasibility.
- Teen Marijuana Check-Up (TMCU): Targeting secondary school students at risk for Cannabis Use Disorder (CUD).



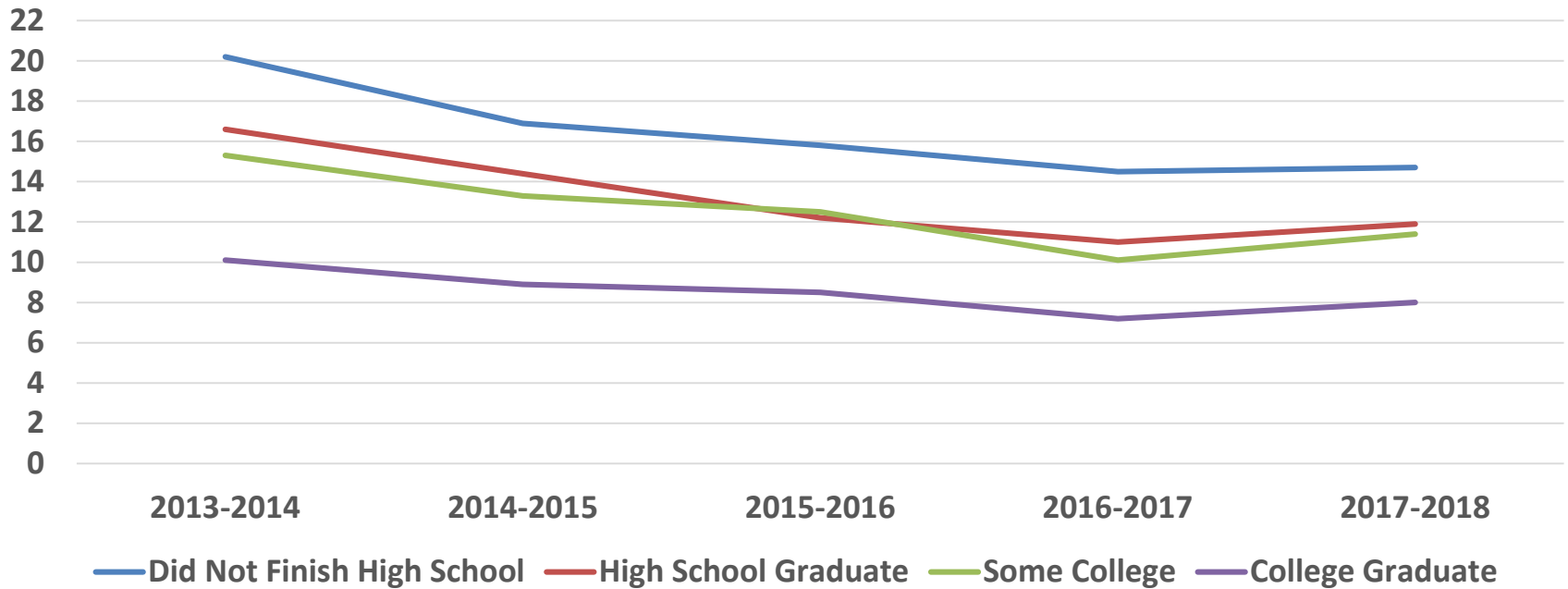
Percent of 7th, 9th and 11th Graders Who Reported Using Marijuana in the Past 30 Days, by Race/Ethnicity



Source: California Healthy Kids Survey (CHKS)



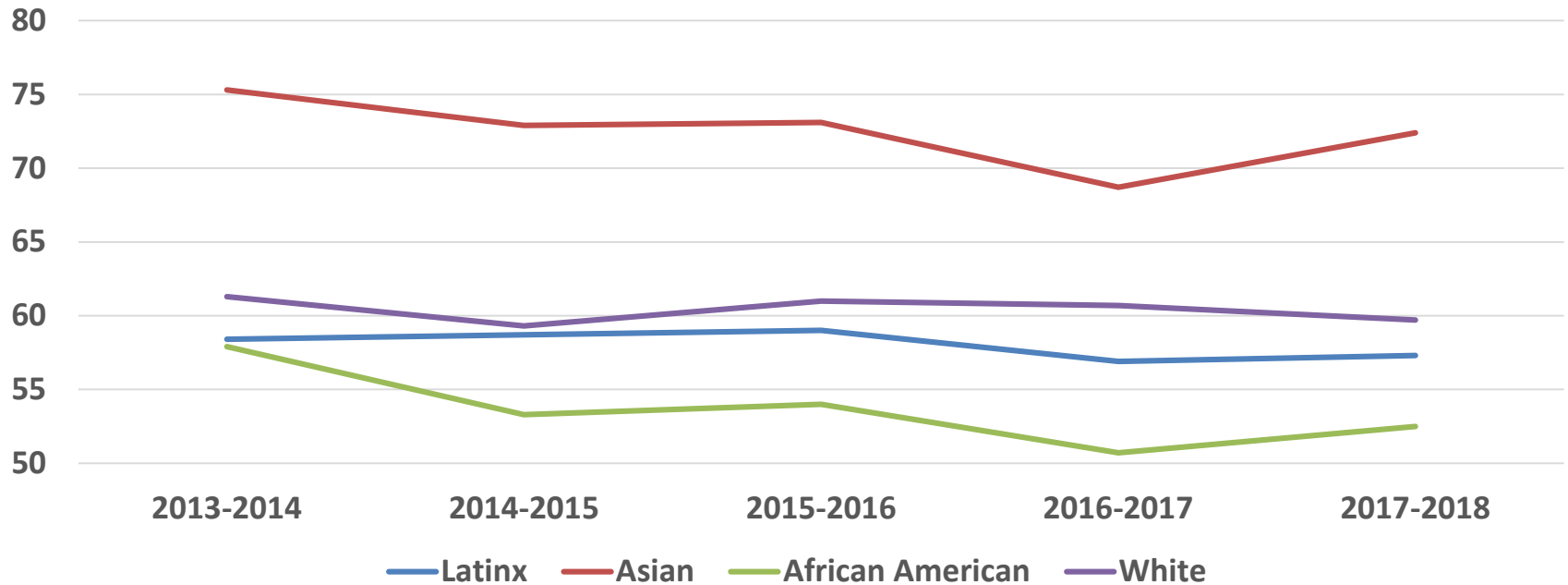
Percent of Students Who Reported Using Marijuana in the Past 30 Days, by Parents' Education



Source: California Healthy Kids Survey (CHKS)



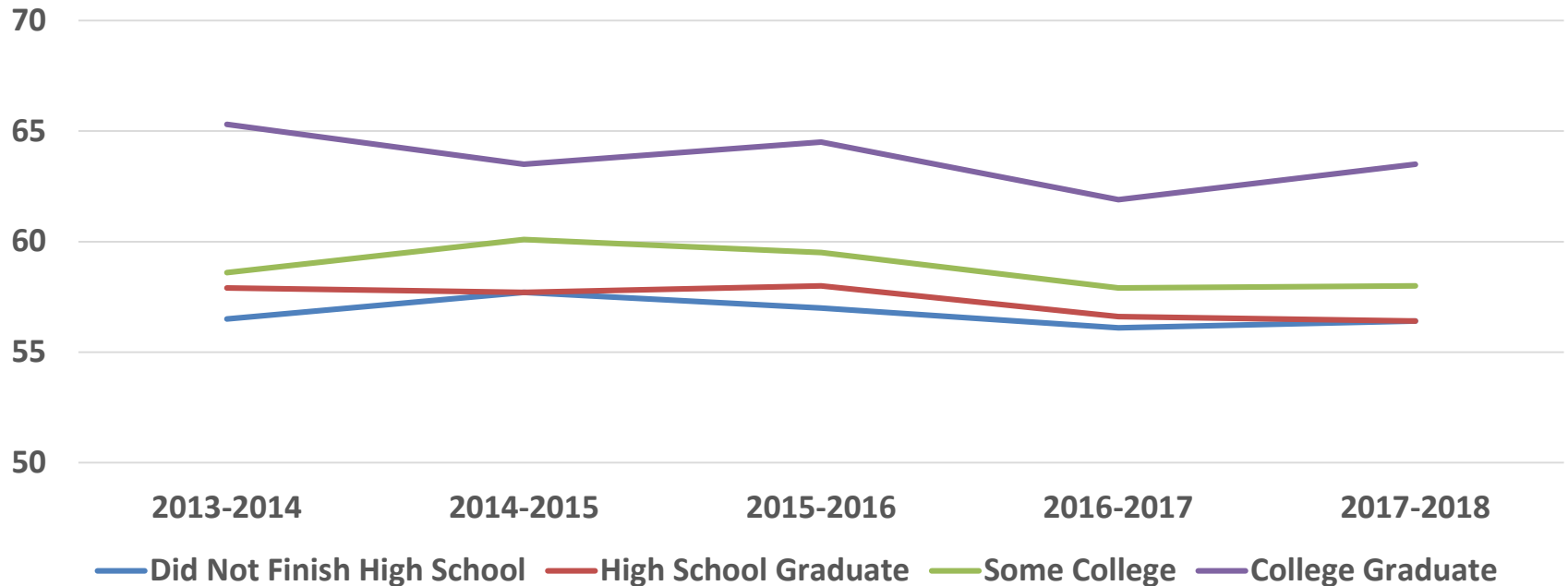
Percent of Students Who Reported Great or Moderate Harm Done by Occasional Use of Marijuana, by Race/Ethnicity



Source: California Healthy Kids Survey (CHKS)



Percent of Students Who Reported Great or Moderate Harm Done by Occasional Use of Marijuana, by Parents' Education



Source: California Healthy Kids Survey (CHKS)

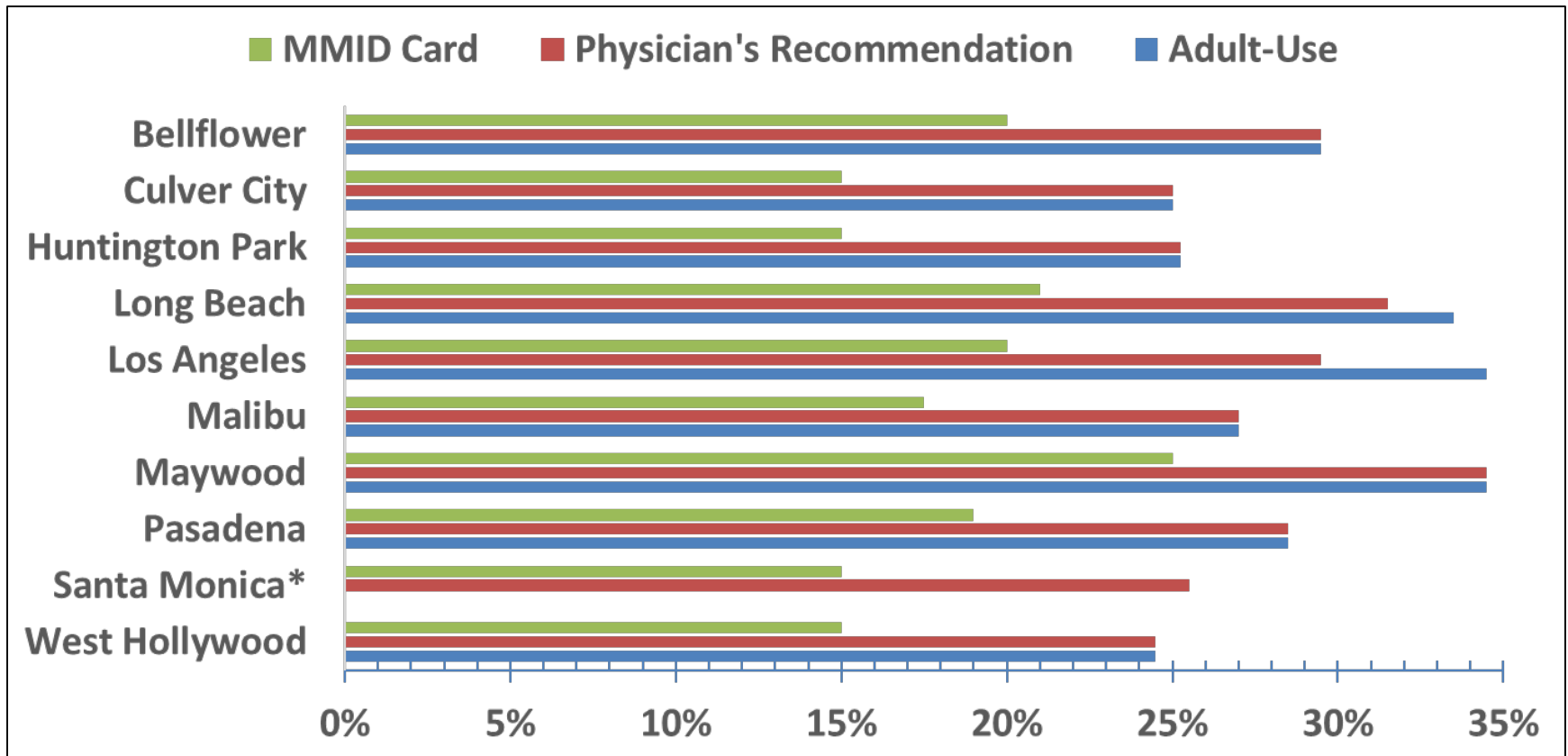


Statistical Analysis of Student and School-Level Factors Associated with Student Cannabis Use

- School Environment: caring adults in school; motivating adults in school; meaningful participation in school
 - A positive school environment was associated with lower odds of cannabis use.
- % of students receiving free or reduced price lunches associated with greater odds of cannabis use; parental education level associated with lower odds of cannabis use.
- Students identifying as non-heterosexual, non-gender conforming or Native American had higher odds of cannabis use.
- Dispensary density in school census tract not associated with student cannabis use.



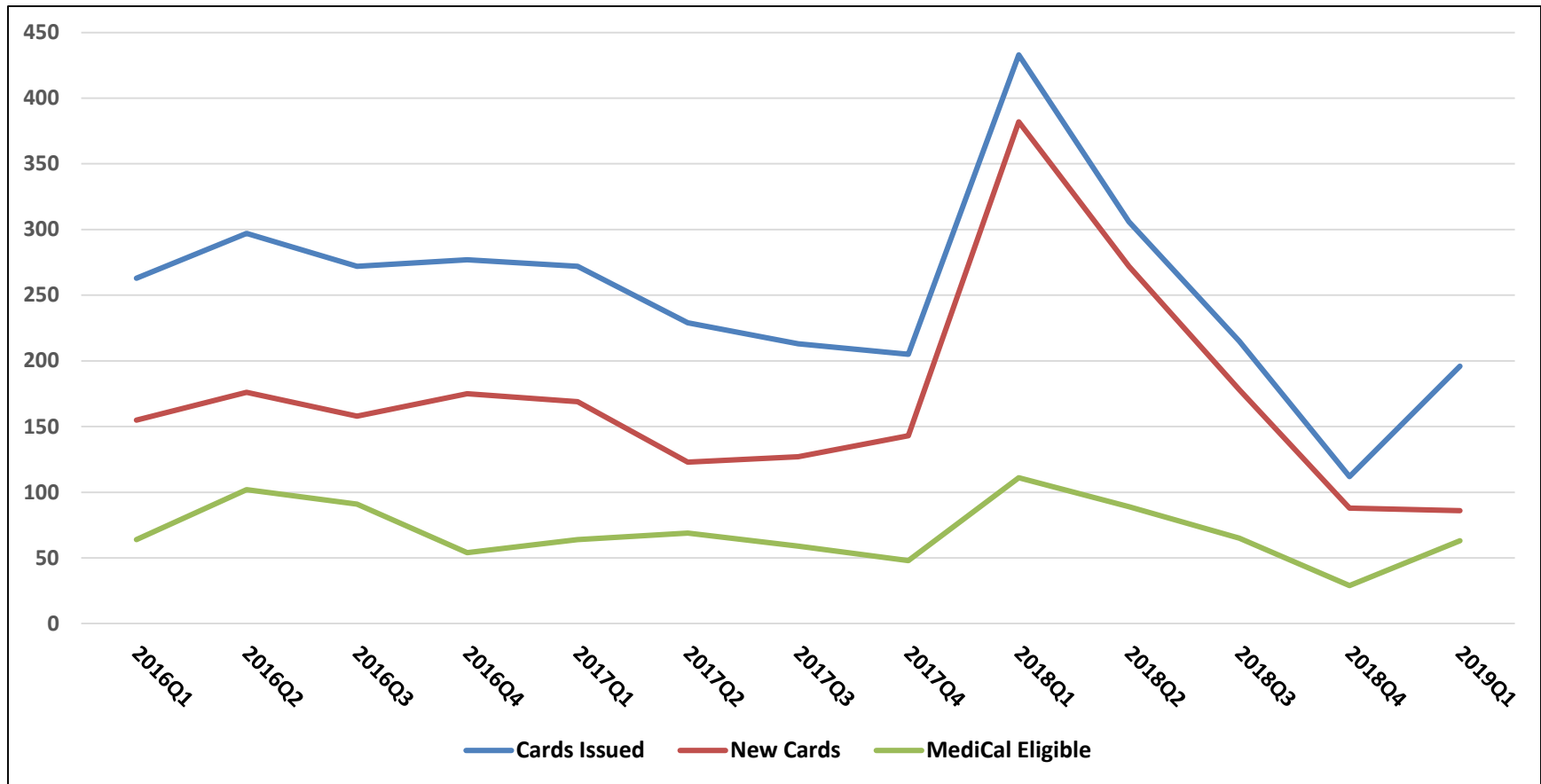
Figure 20: Retail Cannabis Tax Rates by Consumer Type and City, Los Angeles County, 2018



*Santa Monica currently does not allow for the sale of adult-use cannabis
Sources: City Municipal Codes and Ballot Measures



Figure 21: Total and New Medical Marijuana ID (MMID) Cards Issued in Los Angeles County by Quarter, January 2016 to March 2019



Source: California Medical Marijuana ID Card Program



Qualitative Findings: Cannabis Taxation

- Most dispensary operators reported that few medicinal users were opting to get their MMID cards renewed because:
 - Not required, adult use is legal; inconvenient to obtain; not worth the expense; risk of being on a government list.
- Some medicinal users were aware of the MMID tax savings and thought this would help defray costs, but feared negative consequences of being on a list.
- Other patients were unaware of or confused about tax savings for MMID card holders.
- Physicians expressed frustration at cannabis industry's disregard for tax regulations designed to lower costs for patients using cannabis strictly for medical purposes.



Summary

- Data suggests cannabis use among public secondary school students in LA County was decreasing until a small uptick in 2017/18; Too soon to tell if this is the beginning of a change in the overall trend.
- Youth use significantly associated with socioeconomic status and membership in potentially marginalized groups like Native American and sexually and gender non-conforming students.
- School environment factors promoting positive youth development are significantly predictive of abstinence from cannabis use among students.
- Low uptake of state MMID program post Prop. 64 may be due to lack of effort by government and industry to promote it, make it more consumer friendly, and address concerns about confidentiality.



Recommendations

- Consider a four-pronged strategy for reducing unlicensed dispensaries in local jurisdictions:
 - Authorize and begin shut-off of water and power, padlocking of entrances and fining of operators at all unlicensed dispensaries;
 - Establish a phased-in local cannabis tax regimen that starts low and gradually increases;
 - Implement a universal licensed dispensary emblem program and a user friendly web-based tool to assist consumers in recognizing and locating licensed dispensaries; and
 - Review strategies for initiating licensing and inspection of retail cannabis dispensaries.



Recommendations

- When developing scoring guidelines for cannabis dispensary siting, consider adding points to applicants locating near concentrations of unlicensed dispensaries and subtracting points from those locating near concentrations of liquor stores.
- Work with local public health and planning departments to periodically monitor the geographic distribution and density of licensed and unlicensed dispensaries in relation to the Healthy Places Index.
- Require all licensed dispensaries to undergo regular health inspections and explore options for including laboratory testing of products as part of the inspection process.



Recommendations

- Develop local cannabis advertising ordinances that complement state regulations. Look to other jurisdictions for model ordinances.
- Monitor trends in racial/ethnic disparities in cannabis-related emergency department visits. Further investigate potential explanations for these disparities and develop strategies to address them.
- Monitor trends in youth cannabis use in LA County by issuing an annual report using California Healthy Kids Survey data to describe trends in and factors associated with youth use.



Recommendations

- Invest youth prevention dollars in schools serving lower income communities and in programs that have both universal and targeted components. Incorporate evidence-based practices for positive youth development and motivational interviewing.
- Require licensed cannabis dispensaries to post visible information about the MMID program and about differential tax rates for consumers with physician recommendations and/or MMID cards. Require the itemization of taxes on purchase receipts.
- Post information about the MMID card program on all City/County websites where cannabis consumers go for information about cannabis. Include clear and transparent information about data privacy and about any potential negative repercussions of participation in the program.



THANK YOU!

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Questions?



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