

A Story of Inequity: Tobacco's Impact on Health Disparities in California

Methodology Report

Updated October 27, 2020

Introduction

Development of [A Story of Inequity: Tobacco's Impact on Health Disparities in California](#) was pursued as a result of the [Health Equity Summit](#) convened by the California Tobacco Control Program (CTCP) in June 2013. Additional guidance from stakeholders on the development of *A Story of Inequity* was obtained from three regional [Health Equity Roundtables](#) held in 2014.

A Story of Inequity is used to track and communicate the progress made in reducing tobacco-related disparities among priority populations, foster accountability and transparency in the progress made, and assist in refining CTCP activities around reducing tobacco-related disparities. Measures used in *A Story of Inequity* are grouped into the following five categories:

- Adult Tobacco Use
- Youth Tobacco Use
- Availability of Tobacco & Tobacco Industry Influence
- Secondhand Smoke
- Cessation

It is CTCP's intent to align *A Story of Inequity* with the tobacco-related priority populations identified in the [2015-17 Tobacco Education and Research Oversight Committee \(TEROC\) Master Plan](#). These groups have higher rates of tobacco use and tobacco-related disease compared to the general population, experience greater secondhand smoke exposure at work and at home, and are disproportionately targeted by the tobacco industry. The priority population groups outlined in the TEROC Master Plan include:

- African Americans, other people of African descent, American Indian and Alaska Natives, Native Hawaiians and Pacific Islanders, some Asian American men, and Latinos
- People of low socioeconomic status, including the homeless, who are at or below 185% of the federal poverty level

- People with limited education, including high school non-completers
- Lesbian, gay, bisexual, and transgender (LGBT)
- Rural residents
- Current members of the military and veterans
- Individuals employed in jobs or occupations not covered by smokefree workplace laws
- People with substance use disorders or behavioral health issues
- People with disabilities
- Formerly incarcerated individuals

CTCP's *Initiative to Reduce Tobacco-Related Disparities*, which funds projects to address tobacco-related disparities, focuses on the following eight population groups:

- African American/Black
- American Indian
- Hispanic/Latino
- Asian/Pacific Islander
- Low Income
- Lesbian, Gay, Bisexual, Transgender, Queer (LGBTQ)
- People with Mental Health Challenges
- Rural Communities

Measure Selection and Methodology

Twenty measures were chosen to be included in *A Story of Inequity* based on internal and external stakeholder input, data availability, and CTCP's priorities. Table 1 identifies each measure and its data source. Several data sources were used. Not all measures will have data for all priority populations due to limitations of each data source. However, data are available for the majority of measures highlighted on *A Story of Inequity*. CTCP intends to update data from *A Story of Inequity* annually each spring.

For each measure, a “thumbs up” (👍) or “thumbs down” (👎) icon may appear next to the result for a priority population. This indicates that the population's result is significantly more (“thumbs up”) or less (“thumbs down”) favorable compared to the general California population. Details about how “thumbs up” or “thumbs down” is defined for each measure is outlined below.

Table 1. Measures and data sources in *A Story of Inequity*

Measure	Data Source
ADULT TOBACCO USE	
• Adult Cigarette Use: Adult cigarette smoking prevalence ...	CHIS
• Change in Adult Cigarette Use: Rate of change in adult cigarette smoking, 2014 to 2017.....	CHIS
• Adult Tobacco Use: Adult tobacco use prevalence (e.g. cigarettes, e-cigarettes and other vaping products, other tobacco products)	CHIS
YOUTH TOBACCO USE	
• Youth Cigarette Use: Youth cigarette smoking prevalence..	CSTS
• Change in Youth Cigarette Use: Rate of change in youth cigarette smoking, 2016 to 2018.....	CSTS
• Youth Tobacco Use: Youth tobacco use prevalence (e.g. cigarettes, e-cigarettes and other vaping products, other tobacco products)	CSTS
AVAILABILITY OF TOBACCO & TOBACCO INDUSTRY INFLUENCE	
• Cheapest Cigarettes: Average price for the cheapest pack of cigarettes	HSHC ¹
• Flavored Little Cigar Price: Average price for a single flavored little cigar/cigarillo	HSHC ¹
• Tobacco Retail Licensing: Proportion of population protected by a strong tobacco retail licensing law	PETS ^{1,2}
• Tobacco Stores: Density of stores selling tobacco per 100,000 residents	CDTFA ^{1,2}
• Flavored Tobacco: Proportion of stores that sell flavored non-cigarette tobacco products.....	HSHC ¹
• Menthol Cigarettes: Proportion of stores that sell menthol cigarettes.....	HSHC ¹
• Tobacco Advertising: Proportion of stores that keep 90% of their storefront free from any advertising	HSHC ¹
SECONDHAND SMOKE	
• Smokefree Multi-unit Housing: Proportion of population protected by a smokefree multi-unit housing law.....	PETS ^{1,2}
• Smokefree Homes: Proportion of adults with smokefree homes.....	CHIS
• Adult Secondhand Tobacco Exposure: Proportion of adults exposed to secondhand smoke	CHIS
• Youth Secondhand Tobacco Exposure: Proportion of youth exposed to secondhand smoke or vape.....	CSTS

Measure	Data Source
CESSATION	
• California Smokers' Helpline Enrollees: Proportion of California Smokers' Helpline enrollees.....	CSH ³
• Quitting: Proportion of smokers who tried quitting in the last 12 months.....	CHIS
• Doctor Advice to Quit: Proportion of smokers whose doctors advised them to quit	CHIS
CANNABIS USE	
• Adult Cannabis Use: Adult cannabis use prevalence	CHIS
• Youth Cannabis Use: Youth cannabis use prevalence.....	CSTS

Abbreviations: CDTFA, California Department of Tax and Fee Administration; CHIS, California Health Interview Survey; CSH, California Smokers' Helpline; CSTS, California Student Tobacco Survey; HSHC, Healthy Stores for a Health Community; PETS, Policy Evaluation Tracking System.

Notes: (1) Matched to data from the American Community Survey (ACS). (2) Matched to data from the 2010 Decennial Census. (3) CSH data is compared to the percentage of current adult smokers from CHIS and not the general population.

A. California Department of Tax and Fee Administration Measures

The September 2018 list of licensed tobacco retailers from the California Department of Tax and Fee Administration (CDTFA) was matched to the 2014-2018 [American Community Survey](#) (ACS) data and the 2010 [Decennial Census](#). The data were analyzed to produce results for the following indicator:

- **Tobacco Stores:** Density of stores selling tobacco per 100,000 residents

ACS is a mixed-mode survey conducted by the US Census Bureau and provides estimates of community characteristics at the census-tract level. For each priority population (with the exception of the Rural Communities), ACS data were used to estimate the proportion of the priority population among census tracts in California. The number of stores in the highest 5% of census tracts for each priority population was then divided by the total population in those census tracts and multiplied by 100,000. The total population in each census tract includes all residents, both those in the priority population group and those not in the group. Census tracts with zero population were removed from the analysis.

Results for the rural priority population group were calculated by dividing the number of stores in ZIP Code Tabulation Areas (ZCTAs) with fewer than 500 people per square mile by the total population for those ZCTAs, multiplied by

100,000. ZCTAs with zero population were removed from the analysis. ZCTAs are geographical approximations of zip codes developed by the US Census Bureau. The US Census Bureau generated county-level land area in square miles for the 2010 Decennial Census.

Results were calculated for priority populations using the definitions from ACS and the US Census Bureau:

- **African American/Black:** Black or African American, not Hispanic or Latino
- **American Indian:** American Indian or Alaska Native, not Hispanic or Latino
- **Asian/Pacific Islander**
 - **Asian:** Asian alone, not Hispanic or Latino
 - **Pacific Islander:** Native Hawaiian or other Pacific Islander, not Hispanic or Latino
- **Hispanic/Latino:** Hispanic or Latino
- **Low Income:** People living in households below 185% of the Federal Poverty Level.
- **LGBTQ:** Unmarried-partner same-sex households (male household and male partner, and female household and female partner).
- **Rural Communities:** People living in ZCTAs with fewer than 500 people per square mile.

These data were not available for the following priority population: **People with Mental Health Challenges.**

For the “Tobacco Stores” measure, a “thumbs up” icon indicates that the estimate is at least 10.0 stores per 100,000 *lower* than the general population. A “thumbs down” icon indicates that the estimate is at least 10.0 stores per 100,000 *higher* than the general population

B. California Health Interview Survey Measures

The 2013, 2014, 2017, and 2018 [California Health Interview Survey](#) (CHIS) data were analyzed to produce results for the following measures:

- **Adult Cigarette Use:** Adult cigarette smoking prevalence
- **Change in Adult Cigarette Use:** Rate of change in adult cigarette smoking, 2014 to 2018
- **Adult Tobacco Use:** Adult tobacco use prevalence (e.g. cigarettes, e-cigarettes and other vaping products, other tobacco products)
- **Smokefree Homes:** Proportion of adults with smokefree homes

- **Adult Secondhand Tobacco Exposure:** Proportion of adults exposed to secondhand smoke or e-cigarette vapor
- **Quitting:** Proportion of smokers who tried quitting in the last 12 months
- **Doctor Advice to Quit:** Proportion of smokers whose doctors advised them to quit
- **Adult Cannabis Use:** Adult cannabis use prevalence

CHIS is a population-based survey of the residential, non-institutionalized population in California. CHIS utilizes a large sample size in order to increase the statistical power and provide county-level health and health-related estimates for adults in most counties. The survey is conducted by the University of California, Los Angeles (UCLA) Center for Health Policy Research in partnership with the California Department of Health Care Services (DHCS), CDPH, and other public and private organizations. Since 2011, CHIS data have been collected on a continuous basis with annual data releases. Prior to 2011, CHIS data were collected during a seven- to nine-month period every other year.

The final sample size was 20,724 adult respondents for the 2013 survey, 19,516 adult respondents for the 2014 survey, 21,153 adult respondents for the 2017 survey, and 21,177 adult respondents for the 2018 survey. To achieve statistically stable estimates for priority population groups, the 2013 and 2014 survey data were pooled together, and the 2017 and 2018 survey data were pooled together, except for the following measures that were only asked in 2018: adult tobacco use, smokefree homes, and adult secondhand tobacco exposure. The data was weighted to represent the non-institutionalized California population and to compensate for the probability of selection and factors from the sampling design and administration of the survey.

Adult cigarette prevalence is based on current smoking habits. Adults who have not smoked more than 100 or more cigarettes in their lifetime are classified as non-smokers. Adult tobacco use prevalence is based on current or past 30-day use of either cigarettes, big cigars, little cigars or cigarillos, chewing tobacco, snuff, snus, hookah, or e-cigarettes and other vaping products. Smokefree home is defined as a household policy in which smoking and vaping is wholly prohibited inside the house. Secondhand tobacco exposure is based on exposure of secondhand tobacco smoke or e-cigarette vapor in the past two weeks in California. Quit attempt is based on current smokers who had stopped smoking for one day or longer to try to quit smoking during the past 12 months. Doctor advice to quit is based on current smokers who were advised to quit smoking by a doctor or other health professional in the past 12 months.

Results were calculated for priority populations using the definitions from CHIS:

- **African American/Black:** Black or African American, not Hispanic or Latino
- **American Indian:** American Indian or Alaska Native, not Hispanic or Latino
- **Asian/Pacific Islander:** Asian, Native Hawaiian, or other Pacific Islander, not Hispanic or Latino
- **Hispanic/Latino:** Hispanic or Latino
- **Low Income:** People living in households below 185% of the Federal Poverty Level.
- **LGBTQ:** People who identify as lesbian, gay, bisexual, or transgender.¹ Data is not available for people identifying as another sexual orientation or gender identity.
- **People with Mental Health Challenges:** People who likely had serious psychological distress during the past month based on the Kessler Psychological Distress Scale (K6).
- **Rural Communities:** People who live in an area with fewer than 1,000 people per square mile, as defined by the Nielsen Consumer Activation.

For the “Adult Cigarette Use”, “Adult Tobacco Use”, “Adult Secondhand Tobacco Exposure”, and “Adult Cannabis Use” measures, a “thumbs up” icon indicates that the estimate is *lower* than the general population’s estimate and the 95% confidence interval do not overlap. A “thumbs down” icon indicates that the estimate is *higher* than the general population’s estimate and the 95% confidence interval do not overlap.

For the “Change in Adult Cigarette Use” measure, a “thumbs up” icon indicates that the 2018 estimate is *lower* than the population’s 2014 estimate and the 95% confidence interval do not overlap. A “thumbs down” icon indicates that the 2018 estimate is *higher* than the population’s 2014 estimate and the 95% confidence interval do not overlap.

For the “Smokefree Homes”, “Quitting”, and “Doctor Advice to Quit” measure, a “thumbs up” icon indicates that the estimate is *higher* than the general population’s estimate and the 95% confidence interval do not overlap. A “thumbs down” icon indicates that the estimate is *lower* than the general population’s estimate and the 95% confidence interval do not overlap.

¹ For the “Change in Adult Cigarette Use” measure, data only includes people who identify as lesbian, gay, or bisexual as gender identity was not asked in 2013 or 2014.

C. California Smokers' Helpline Measures

Data from the January to December 2019 [California Smokers' Helpline](#) (CSH) call reports were analyzed to produce results for the following indicator:

- **California Smokers' Helpline Enrollees:** Proportion of California Smokers' Helpline enrollees

CSH publishes aggregate data about callers who completed intake when contacting the Helpline biannually. Reports include age, gender, ethnicity, language spoken, referral source, and caller's county of residence. Data on Medi-Cal enrollees was provided to CTCP from the California Smokers' Helpline. The total number of CSH enrollees between January and December 2019 was 22,974

Results were calculated for priority populations using the definitions from CSH:

- **African American/Black:** Black or African American, not Hispanic or Latino
- **American Indian:** American Indian or Alaska Native, not Hispanic or Latino
- **Asian/Pacific Islander:** Asian or Pacific Islander, not Hispanic or Latino
- **Hispanic/Latino:** Hispanic or Latino
- **LGBTQ:** People who identify as lesbian, gay, or bisexual. Data is not available for people identifying as another sexual orientation or gender identity.
- **People with Mental Health Challenges:** People reported having one or more of the following conditions: anxiety, depression, bipolar disorder, schizophrenia, or substance abuse disorder.

These data were not available for the following priority population: **Low-Income** or **Rural Communities**.

For the "California Smokers' Helpline Enrollees" measure, a "thumbs up" icon indicates that the estimate is *higher* than the population's make-up of California's adult smokers and the 95% confidence interval do not overlap. A "thumbs down" icon indicates that the estimate is *lower* than the population's make-up of California's adult smokers and the 95% confidence interval do not overlap.

D. California Student Tobacco Survey Measures

The 2015-16 and 2017-18 California Student Tobacco Survey (CSTS) data were analyzed to produce results for the following indicators:

- **Youth Cigarette Use:** Youth cigarette smoking prevalence
- **Change in Youth Cigarette Use:** Rate of change in youth cigarette smoking, 2016 to 2018²
- **Youth Tobacco Use:** Youth tobacco use prevalence (including all tobacco products, e.g. cigarettes, e-cigarettes and other vaping products, other tobacco products)
- **Youth Secondhand Tobacco Exposure:** Proportion of youth exposed to secondhand smoke or vape
- **Youth Cannabis Use:** Youth cannabis use prevalence

The CSTS assesses behavior, attitude, and tobacco usage from middle school and high school students in California. The University of California, San Diego has conducted the CSTS survey, in collaboration with CTCP, since the 2015-16 survey. The 2015-16 survey was conducted using both paper surveys and online surveys before switching to an online-only survey in 2017-18. The latest cycle utilizes a multi-stage cluster sampling design. The sample only consists of public and non-sectarian schools. Schools that were special education only, juvenile court schools, district/county community schools, continuation high schools, online-only schools, or other alternative schools were excluded.

The final sample size was 47,981 students from 117 randomly selected schools for the 2015-16 survey and 151,404 students from 333 randomly selected schools for the 2017-18 survey. The analytic sample for the CSTS measures of interest is only of high school students (2015-16, n=41,821; 2017-18, n=130,387). The data were weighted to account for the probability of selection.

Youth cigarette prevalence is based on past 30-day use of cigarettes. Youth tobacco use prevalence is based on past 30-day use of either cigarettes, little cigars or cigarillos, big cigars, hookah, e-cigarettes and other vaping products (including vape pens, tanks, mods, e-hookah, and hookah pens), or smokeless tobacco (including chew, dip, snuff, and snus). Secondhand smoke or vape exposure is based on being in a car or in a room where someone was either smoking a cigarette, little cigar, or cigarillo in the past 30 days, or using an e-cigarette or other vaping product in the past 30 days.

Results were calculated for priority populations using the definitions from CSTS:

² Caution should be utilized for the “Change in Youth Cigarette Use” measure as respondent had the option to select “I prefer not to answer” for the race/ethnicity questions in the 2017-18 CSTS. This option was not provided in the 2015-16 CSTS.

- **African American/Black:** Black or African American, not Hispanic or Latino
- **American Indian:** American Indian or Alaska Native, not Hispanic or Latino
- **Asian/Pacific Islander**
 - **Asian:** Asian, not Hispanic or Latino
 - **Pacific Islander:** Native Hawaiian or other Pacific Islander, not Hispanic or Latino
- **Hispanic/Latino:** Hispanic or Latino
- **LGBTQ:** People who identify as LGBTQ.
- **Rural Communities:** People who currently attend a school located in a town or a rural locale, as defined by the National Center for Education Statistics.

These data were not available for the following priority population: **Low Income** or **People with Mental Health Challenges**.

For the “Youth Cigarette Use”, “Youth Tobacco Use”, “Youth Secondhand Tobacco Exposure”, and “Youth Cannabis Use” measures, a “thumbs up” icon indicates that the estimate is *lower* than the general population’s estimate and the 95% confidence interval do not overlap. A “thumbs down” icon indicates that the estimate is *higher* than the general population’s estimate and the 95% confidence interval do not overlap.

For the “Change in Youth Cigarette Use” measure, a “thumbs up” icon indicates that the 2018 estimate is *lower* than the population’s 2016 estimate and the 95% confidence interval do not overlap. A “thumbs down” icon indicates that the 2018 estimate is *higher* than the population’s 2016 estimate and the 95% confidence interval do not overlap.

E. Healthy Stores for a Healthy Community Measures

The 2016 [Healthy Stores for a Healthy Community](#) (HSHC) retail survey data were matched to the 2011-2015 ACS data and analyzed to produce results for the following measures:

- **Flavored Little Cigar Price:** Average price for a single flavored little cigar/cigarillo

The 2019 [Healthy Stores for a Healthy Community](#) (HSHC) retail survey data were matched to the 2014-2018 ACS data and analyzed to produce results for the following measures:

- **Cheapest Cigarettes:** Average price for the cheapest pack of cigarettes

- **Flavored Tobacco:** Proportion of stores that sell flavored non-cigarette tobacco products
- **Menthol Cigarettes:** Proportion of stores that sell menthol cigarettes
- **Tobacco Advertising:** Proportion of stores that keep 90% of their storefronts free from any advertising

The HSHC retail survey is a statewide data collection effort conducted by CTCP in coordination with the Nutrition Education and Obesity Prevention, Chronic Disease Control Branch, and the Sexually Transmitted Diseases Control Branches at CDPH, as well as the Substance Use Disorders Program at the California DHCS. The observational survey of tobacco retail stores began in 2013 and is conducted every three years, measuring the availability of a range of unhealthy and healthy products, as well as marketing practices for tobacco, alcohol, and food and beverage items. HSHC retail survey data were used to estimate the average price for the cheapest pack of cigarettes sold in stores, the average price of a single flavored Swisher Sweet cigarillo, retail availability of flavored tobacco and menthol cigarettes, and the proportion of stores with less than 10% of the storefront covered by signs.

The sampling frame for the HSHC retail survey was based on the CDTPA list of licensed tobacco retailers. Zip codes were randomly selected within each county as well as in three funded municipal agencies to ensure a sufficient sample size for each county and funded municipality. The final statewide random sample size was 7,152 stores in 2016 and 7,969 stores in 2019.

ACS data were used to estimate the proportion of the priority population among census tracts in California. Store neighborhoods were defined by their census tract characteristics. Results for HSHC measures were generated for each group by ranking all stores in the sample by their neighborhood characteristics. Stores ranked in the highest 20% for each neighborhood characteristic were included in the analysis. For example, the results for the average price of the cheapest pack of cigarettes for the African American/Black population is the average price sold in the 20% of surveyed stores with the largest proportion of non-Hispanic African American/Black residents.

Results for the rural group were calculated by analyzing HSHC survey results in only rural ZCTAs, where a rural zip code was defined as a ZCTA with less than 500 people per square mile.

Results were calculated for priority populations using the definitions from ACS:

- **African American/Black:** Black or African American, not Hispanic or Latino
- **American Indian:** American Indian or Alaska Native, not Hispanic or Latino
- **Asian/Pacific Islander**
 - **Asian:** Asian alone, not Hispanic or Latino
 - **Pacific Islander:** Native Hawaiian or other Pacific Islander, not Hispanic or Latino
- **Hispanic/Latino:** Hispanic or Latino
- **Low Income:** People living in households below 185% of the Federal Poverty Level
- **LGBTQ:** Unmarried-partner same-sex households (male household and male partner, and female household and female partner).
- **Rural Communities:** People living in ZCTAs with fewer than 500 people per square mile.

These data were not available for the following priority population: **People with Mental Health Challenges.**

For the “Flavored Tobacco” and “Tobacco Menthol Cigarettes” measures, a “thumbs up” icon indicates that the estimate is *lower* than the general population’s estimate and the 95% confidence interval do not overlap. A “thumbs down” icon indicates that the estimate is *higher* than the general population’s estimate and the 95% confidence interval do not overlap.

For the “Cheapest Cigarettes”, “Flavored Little Cigar Price”, and “Tobacco Advertising” measures, a “thumbs up” icon indicates that the estimate is *higher* than the general population’s estimate and the 95% confidence interval do not overlap. A “thumbs down” icon indicates that the estimate is *lower* than the general population’s estimate and the 95% confidence interval do not overlap.

F. Policy Evaluation Tracking System Measures

The Policy Evaluation Tracking System (PETS) is a longitudinal policy surveillance database of tobacco control policies in local jurisdictions in California. It was developed for CTCF to meet its tobacco control policy evaluation needs in the areas of tobacco retail licensing (TRL), outdoor secondhand smoke (OSHS), multi-unit housing (MUH), and sampling. Policies are scored in PETS according to a set of instructions on a scoring rubric for each policy type. PETS data were matched to the 2013-2017 ACS data and the 2010 Decennial Census data. The data were analyzed to produce results for the following measures:

- **Tobacco Retail Licensing:** Proportion of population protected by a strong tobacco retail licensing law
- **Smokefree Multi-unit Housing:** Proportion of population protected by a smokefree multi-unit housing law

Data on TRL policies and MUH policies included policies passed as of December 2018. The database contains 143 total local MUH laws and 112 total local “strong” TRL laws, defined as a policy with language that dictates sufficient fees to cover enforcement.

Results were calculated for each priority population group by adding up the total population for each group in jurisdictions with the policy type of interest and then dividing that by the total population for each group statewide. The rural population was defined as people living in jurisdictions with fewer than 500 total population per square mile. The US Census Bureau generated county-level land area in square miles for the 2010 Decennial Census. Unincorporated county land areas were calculated by subtracting the land area for all incorporated areas in that county from the total county land area.

Results were calculated for priority populations using the following definitions from the ACS and the US Census Bureau:

- **African American/Black:** Black or African American, not Hispanic or Latino
- **American Indian:** American Indian or Alaska Native, not Hispanic or Latino
- **Asian/Pacific Islander**
 - **Asian:** Asian alone, not Hispanic or Latino
 - **Pacific Islander:** Native Hawaiian or other Pacific Islander, not Hispanic or Latino
- **Hispanic/Latino:** Hispanic or Latino
- **Low Income:** People living in households below 185% of the Federal Poverty Level.
- **Rural Communities:** People living in jurisdictions with fewer than 500 people per square mile.

These data were not available for the following priority population: **LGBTQ or People with Mental Health Challenges.**

For the “Tobacco Retail Licensing” and “Smokefree Multi-unit Housing” measures, a “thumbs up” icon indicates that the estimate is at least 10.0 percentage point *higher* than the general population. A “thumbs down” icon indicates that the estimate is at least 10.0 percentage point *lower* than the general population.