



2024 Sugary Drinks Distributor Tax (SDDT) Data Brief - Revised August 2025

APPENDIX

This Appendix accompanies the [2024 Sugary Drinks Distributor Tax \(SDDT\) Data Brief](#)

CONTENTS

[References](#)

[Data Sources and Caveats](#)

[Sugary Drink Consumption Among Youth](#)

[Oral Health](#)

[Diet-Sensitive Diseases](#)

[Mortality](#)

[Social Determinants of Health](#)

[Sugary Drink Sales and Pricing](#)

[Data Graphs not included in 2024 Data Brief](#)

[Photo Captions](#)

REFERENCES:

1. Malik, V. S., & Hu, F. B. (2012). Sweeteners and risk of obesity and type 2 diabetes: the role of sugar-sweetened beverages. *Current diabetes reports*, 12(2), 195-203. <http://link.springer.com/article/10.1007/s11892-012-0259-6>
2. Sugar-sweetened or artificially-sweetened beverage consumption, physical activity, and risk of cardiovascular disease in adults: a prospective cohort study. Lorena S Pacheco, Deirdre K Tobias, Yanping Li, Shilpa N Bhupathiraju, Walter C Willett, David S Ludwig, Cara B Ebbeling, Danielle E Haslam, Jean-Philippe Drouin-Chartier, Frank B Hu, Marta Guasch-Ferré. *The American Journal of Clinical Nutrition*, Volume 119, Issue 3, 2024, Pages 669-681, ISSN 0002-9165, doi.org/10.1016/j.ajcnut.2024.01.001.
3. Sohn W, Burt BA, Sowers MR. Carbonated soft drinks and dental caries in the primary dentition. *J Dent Res*. Mar 2006;85(3):262-266.
4. Bleich SN, Vercammen KA. The negative impact of sugar-sweetened beverages on children's health: an update of the literature. *BMC Obes*. 2018;5. doi 10.1186/s40608-017-0178-9.
5. Park S, Lin M, Onufrak S, Li R. Association of Sugar-Sweetened Beverage Intake during Infancy with Dental Caries in 6 year-olds. *Clin Nutr Res*. 2105;4(1):9-17. doi:10.7762/cnr.2015.4.1.19.
6. Kim S, Park S, Lin M. Permanent tooth loss and sugar-sweetened beverage intake in U.S. young adults. *J Public Health Dent*. 2017;77(2):148-154. doi:10.1111/jphd.12192.
7. Chi DL, Scott JM. Added Sugar and Dental Caries in Children: A Scientific Update and Future Steps. *Dent Clin North Am*. 2019;63(1):17-33. doi:10.1016/j.cden.2018.08.003.
8. World Health Organization. Oral Health Programme. Oral Health. http://www.who.int/oral_health/en/. Accessed August 13, 2019.
9. [San Francisco 2023 Biennial Food Security and Equity Report](#).

DATA SOURCES AND CAVEATS

Sugary Drink Consumption Among Youth

Source: Youth Risk Behavior Surveillance Survey, 2016-2023

Caveats:

- The Youth Risk Behavior Surveillance Survey (YRBS) is a national biennial survey that asks students a range of health-related questions. The YRBS generally administers surveys to high schools on odd years and middle schools on even years. With respect to SSB consumption, the survey asks two questions:
- **High school:** “During the past 7 days, how many times did you drink a can, bottle, or glass of a sugar-sweetened beverage such as a soda, sports drink, energy drink, lemonade, sweetened tea or coffee drink, or flavored milk? Examples include Coke, Sprite, Gatorade, Red Bull, Arizona, Snapple, Sunny Delight, bubble tea, and agua fresca?” and
- **Middle School:** “Yesterday, how many times did you drink a can, bottle, or glass of a sugar-sweetened beverage such as a soda or pop (for example, Coke or Sprite), sports drink (for example, Gatorade or PowerAde), energy drink (for example, Red Bull or Jolt), 100% fruit juice (for example, orange juice), lemonade, sweetened tea or coffee drinks (for example, Arizona), flavored milk, Snapple, Sunny Delight, bubble tea, or agua fresca?”

Oral Health

Data sources:

- Emergency Department and Hospitalization rates for 2017-2022 obtained from the Health Care Access Information (HCAI) dataset made available through a Data User Agreement between SFDPH and the California Department of Public Health. <https://hcai.ca.gov/data-and-reports/>
- US Census Bureau. American community survey. <https://www.census.gov/programs-surveys/acs/>, 2010-2021. Caveats:
- Non-Traumatic Dental Conditions: ICD-10 codes for non-traumatic dental conditions were adopted by the Association of State and Territorial Dental Directors’ Recommended Guidelines for Surveillance of Non-Traumatic Dental Care in Emergency Departments.

Diet-Sensitive Diseases

Data sources:

- Emergency Department and Hospitalization rates for 2017-2022 obtained from the Health Care Access Information (HCAI) dataset made available through a Data User Agreement between SFDPH and the California Department of Public Health. <https://hcai.ca.gov/data-and-reports/>
- California Department of Finance. Demographic Research Unit. 2024. State And County Population Projections 2020-2070.

Sacramento: California Department of Finance. September 2024.

Caveats:

- Hospitalization and ER rates measure the number of discharges or visits, not the number of residents who are hospitalized. Admissions records may include multiple admissions by the same person.
- Diabetes. ICD-10 codes for Diabetes are based on PQI 01 and PQI 03: Prevention Quality Diabetes Composite (July 2024) technical specifications published by the Agency for Healthcare Research and Quality. A medical visit was determined to be primarily due to Diabetes if the primary diagnosis field contained the identified ICD-10 codes (October 2015 and later). To identify visits where Diabetes was the primary cause, a co-morbidity, or coexisting with another primary cause, the patient's primary diagnosis field was searched.

Mortality

Data sources:

- Vital Records Business Intelligence System (VRBIS). Data requested from the California Department of Public Health March 5th, 2024. Includes data through 2023.
- US Census Bureau. American community survey. <https://www.census.gov/programs-surveys/acs/>, 2010-2021. Caveats:

- The California Department of Public Health maintains a dataset of all deaths in California. Each death has a recorded and coded primary cause of death. The analysis presented in this document examines only the indicated primary cause of death and cannot consider co-morbid or contributing causes of death. Specific cause-of-death categories were designed based on the World Health Organization Global Burden of Disease and Injury (WHO GBD) and the National Center for Health Statistics 113 Selected and 50 Rankable Causes of Death. Race/ ethnicity was categorized according to San Francisco ethnicity data guidelines.
- Life expectancies for American Indian or Alaska Native residents by sex cannot be reported due to small numbers, indicated by "NA". Data are 3-year pooled estimates.

Social Determinants of Health

Data sources: California Health Interview Survey. 2022

Caveats:

- The California Health Interview Survey (CHIS) is an annual telephone survey that uses a random-digit-dial technique to landlines and cell-phones and asks respondents to answer health-related questions. In San Francisco, CHIS samples about 400 adults, which provides data for the county, but does not allow annual stratification across different demographic categories for all variables. Data results were obtained either through <http://ask.chis.ucla.edu/> or through analysis of the San Francisco-specific dataset. In the latter all weighting was done according to documentation provided by CHIS.
- To assess food security, CHIS asks persons with incomes less than 200% of the federal poverty level to answer a series of questions. Questions asked are 1) "The food that {I/we} bought just didn't last, and {I/we} didn't have money to get more."-- Was that often true, sometimes true, or never true for you and your household in the last 12 months?"; 2) "{I/We} couldn't afford to eat balanced meals.-- Was that often true, sometimes true, or never true for you and your household in the last 12 months?"; 3) "Please tell me yes or no. In the last 12 months, did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food? - How often did this happen -- almost every month, some months but not every month, or only in 1 or 2 months?" 4) "In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money to buy food?"; and 5) "In the last 12 months, were you ever hungry but didn't eat because you couldn't afford enough food?".

Sugary Drink Sales and Pricing

Source: Information Resources, Inc.

Caveats:

- To evaluate the effects of the SDDT on beverage purchases in San Francisco, retail scanner data were obtained from Information Resources, Inc. (IRI), a market research company. IRI collects the average price during the period (a weighted quantity), dollar sales, unit sales, and volume sales in ounces for products with UPC codes from a sample of 108 stores. Stores included in the sample are predominately chain stores and include groceries, pharmacies and mass merchandizers. Not included in the sample are corner stores and warehouses. Data, going back to 2015, are aggregated to 4-week periods.
- IRI classifies UPCs into product categories. Beverage categories include—regular soda, diet soda, sports drinks, energy drinks, juice and juice drinks, bottled water, club soda, milk, and teas and coffees. All analyses included in this report rely on IRI's product classification scheme and should be treated as preliminary. IRI categories are not based on the added sugar of a beverage and therefore preliminary analysis are not available for the following categories which combine SBB and non-SSBs-juice and juice drinks, and teas and coffees. Future analyses should examine nutrition facts panels and lists of ingredients for each UPC to determine whether each meets the definition of a taxable SSB under the municipal tax ordinances (Section 552 for San Francisco).
 - » Important caveats to understand when interpreting IRI data:
 - » Only about 10% of stores in San Francisco were included in the IRI dataset during any year. The stores included may change over time and/ or make changes to their inventory that affect beverages sold in San Francisco.
 - » The IRI dataset only includes point-of-sale data on pre-packaged beverages and powders sold mostly at larger retailers and will not include beverages sold at many smaller corner stores. Made-to-order beverages such as boba, fountain soft drinks, and sugar-sweetened coffees and teas are also not included in this dataset.
 - » There are no data for the coffee/tea drink category after 2020.
 - » There are essentially no data (18 out of 20 4-week periods have zero data) for sugar-sweetened diet soft drinks after the middle of 2020, and prior years have sporadically missing data for 4-week periods.

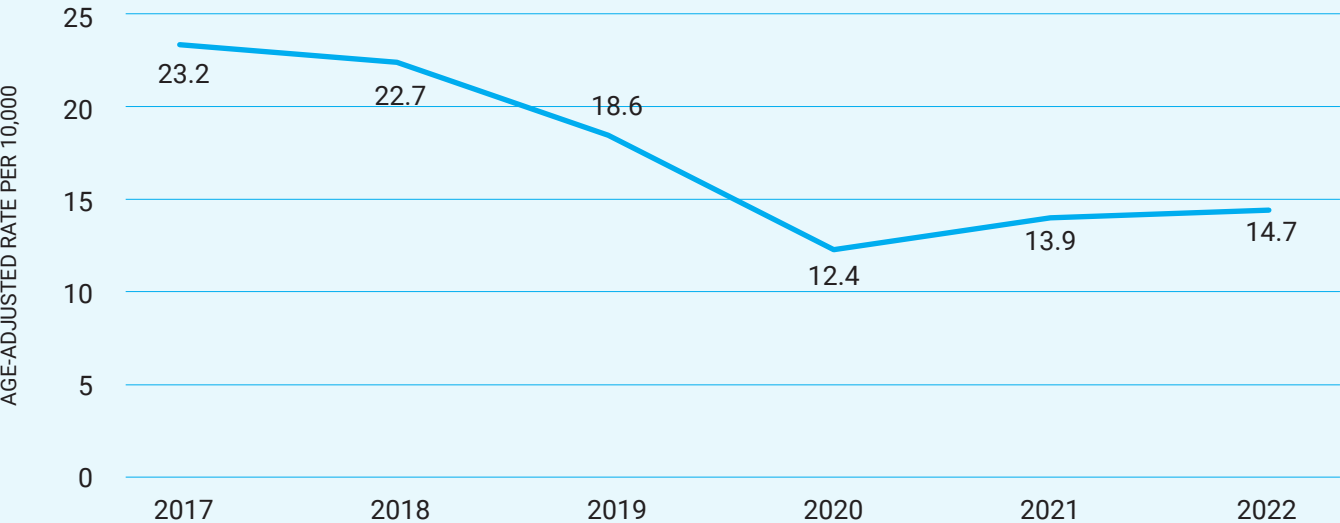
Data Graphs not included in 2024 Data Brief

PUBLIC HEALTH IMPACTS IN SAN FRANCISCO

Oral Health

HCAI oral health data

NON-TRAUMATIC DENTAL EMERGENCY DEPARTMENT VISITS, 2017-2022



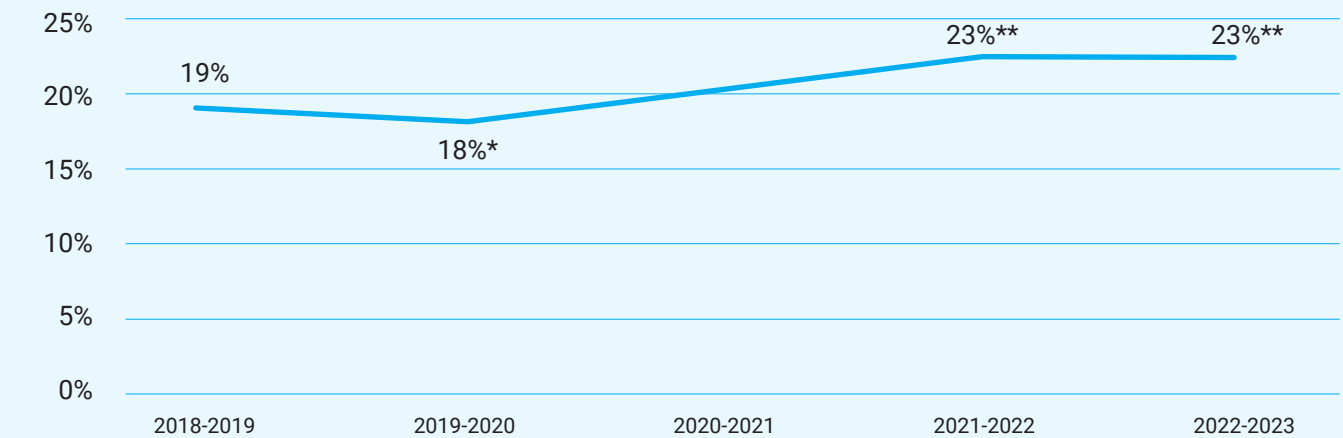
Source: California Department of Public Health, Department of Healthcare Access and Information 2017-2022

Graph interpretation:

- Prior to the COVID-19 pandemic in 2020, rates of non-traumatic dental emergency department visits were decreasing from 2017 through 2019. After 2020, rates have increased through 2022 – likely at least partly due to residents returning to live in San Francisco – but are still well below pre-pandemic levels.

Kindergarten Dental Caries

PERCENT OF SFUSD KINDERGARTNERS WITH UNTREATED CARIES BY YEAR, 2018-2023



SOURCE: San Francisco Unified School District – San Francisco Department of Public Health Dental Services Kindergarten Oral Health Screening Program

Note: The year refers to the school year, so 2018-2019 refers to the 2018-2019 school year.

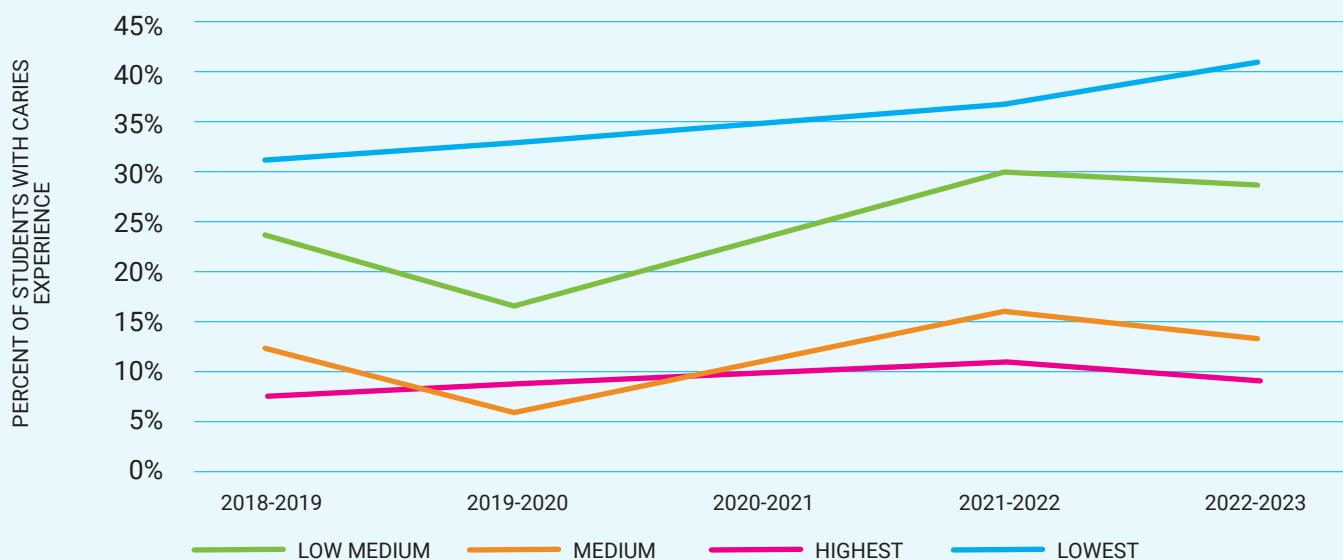
*Estimates based on incomplete data from screenings finished in Fall 2019, before the COVID-19 shelter in place orders, were weighted using enrollment data for 2019-2020.

**Estimates for 2021-22 and 2022-23 are not weighted. Note that screening response rates for 2021-2023 were below pre-pandemic levels. The unweighted estimates for 2019-2023 (based on n~3,000) may not be comparable to rates in 2018-2019 (n~4,000).

Graph interpretation:

- In 2022-2023, 23% of SFUSD Kindergartners had untreated caries.

PERCENT OF SFUSD KINDERGARTNERS WITH UNTREATED CARIES BY SCHOOL INCOME AND YEAR 2018-2023



Source: San Francisco Unified School District – San Francisco Department of Public Health Dental Services Kindergarten Oral Health Screening Program

Note: The year refers to the school year, so 2018-2019 refers to the 2018-2019 school year.

*Estimates based on incomplete data from screenings finished in Fall 2019, before the COVID-19 shelter in place orders, were weighted using enrollment data for 2019-2020.

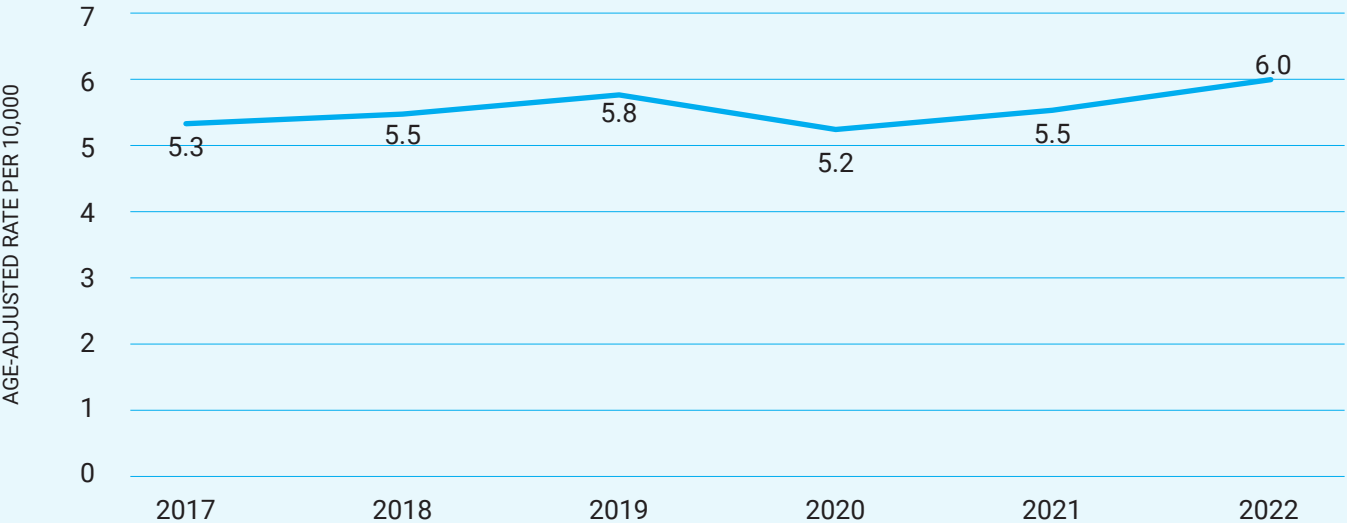
**Estimates for 2021-22 and 2022-23 are not weighted. Note that screening response rates for 2021-2023 were below pre-pandemic levels. The unweighted estimates for 2019-2023 (based on n~3,000) may not be comparable to rates to 2018-2019 (n~4,000).

Graph interpretation:

- Kindergartners attending schools with less income have a higher prevalence of untreated dental caries than schools with more income. Kindergartners attending the lowest income schools had around four times the prevalence of untreated decays than schools with the highest income.

Diet-Sensitive Disease:

HOSPITALIZATIONS DUE TO TYPE 2 DIABETES, 2017-2022



Source: California Department of Public Health, Department of Healthcare Access and Information, 2017-2022

Graph Interpretation:

- Prior to the COVID-19 pandemic in 2020, rates of hospitalizations due to type 2 diabetes were increasing from 5.3 visits per 10,000 in 2017 to 5.8 in 2019. In 2020 rates dropped to 5.2 and steadily began climbing again up to 6.0 in 2022.
- Part of this increase may be due to residents returning to live in San Francisco, however hospitalizations rates for type 2 diabetes in 2022 were higher than pre-pandemic levels.

TABLE OF AGE-ADJUSTED MORTALITY RATES FOR THE LEADING CAUSES OF DEATH, DIET-SENSITIVE DISEASES 2019-2023

Cause of Death	Asian	Black or African American	Latino(a)	Native Hawaiian or Other Pacific Islander	White	All
Alzheimer's Disease	18	27	18	NA	26	21
Cerebrovascular Disease	31	54	27	NA	27	30
Colon/Rectum Cancer	6	13	6	NA	8	7
Diabetes Mellitus	13	23	14	NA	7	12
Hypertensive Diseases	16	51	13	NA	18	19
Ischaemic Heart Diseases	48	80	43	876	56	54

Source: California Department of Public Health, Vital Records Business Intelligence System (VRBIS) Death Statistical Master File, 2019-2023

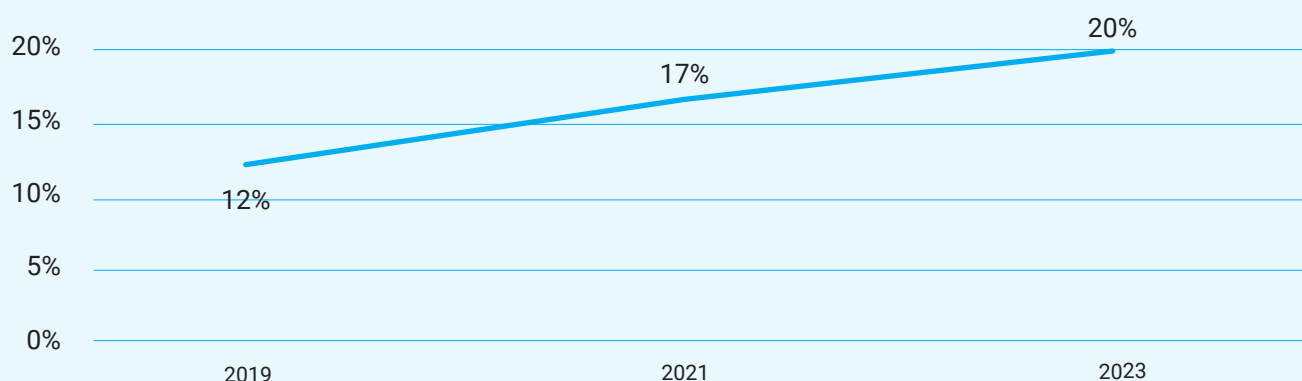
Note: NA indicates suppressed rates due to too few deaths to meet reporting requirements. Data are 5-year age-adjusted mortality rates per 100,000 residents using deaths from 2019 through the end of 2023.

Table interpretation:

- Across all diet-sensitive causes of death, aside from Alzheimer Disease, Black or African American residents experience mortality rates that are often twice as high as the mortality rates experiences by other race/ethnicities.
- Among diet-sensitive diseases, Ischaemic heart disease and cerebrovascular disease are the two leading causes of death.
- Importantly, while most mortality rates for Native Hawaiian and Other Pacific Islander residents were suppressed due to too few deaths, a mortality rate for deaths due to ischaemic heart diseases was available to report. This rate was suppressed in the graph because it prevented appropriate interpretation of the other mortality rates presented but is shown in the table.

Sugary Drink Consumption Among SFUSD Students

PERCENTAGE OF SFUSD HIGH SCHOOL STUDENTS CONSUMING SUGAR SWEETENED BEVERAGES DAILY 2015-2023



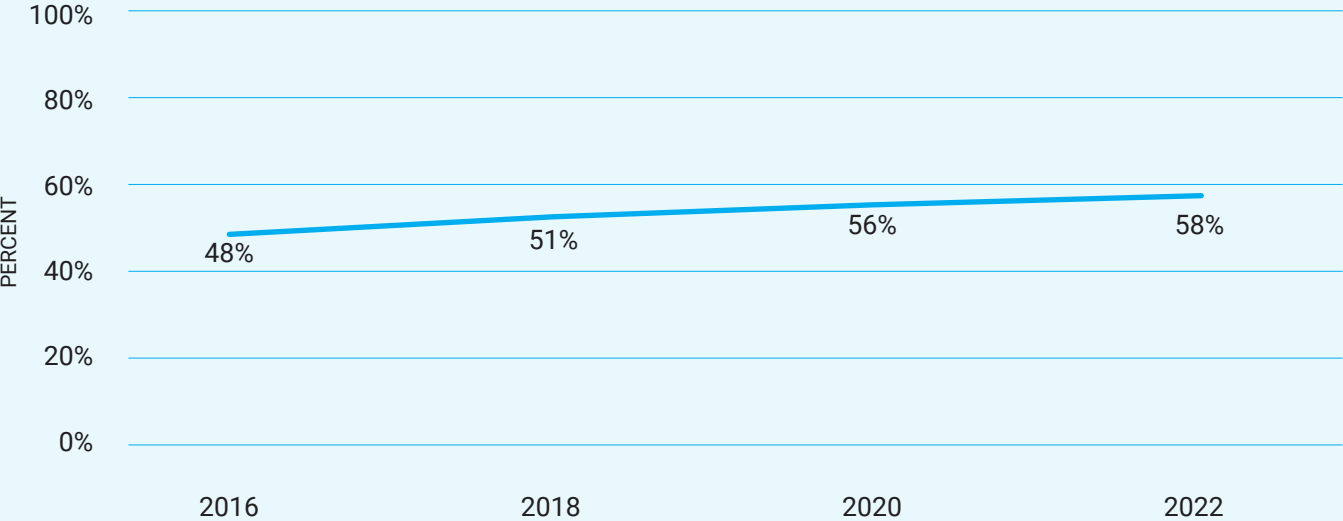
Source: Centers for Disease Control and Prevention. 2015 – 2023 Youth Risk Behavior Survey

Note: In 2019 the survey changed to include 100% fruit juices as a sugar-sweetened beverage.*

Graph Interpretation:

- From 2019 to 2023, the percent of SFUSD High School students that consumed at least one sugar-sweetened beverage every day for the week prior to the survey increased from 12% to 20% (a relative increase of 67%).

PERCENTAGE OF SFUSD MIDDLE SCHOOL STUDENTS CONSUMING
SSBS THE DAY BEFORE THE SURVEY, 2016-2022



Source: Centers for Disease Control and Prevention. 2016-2022 Youth Risk Behavior Survey

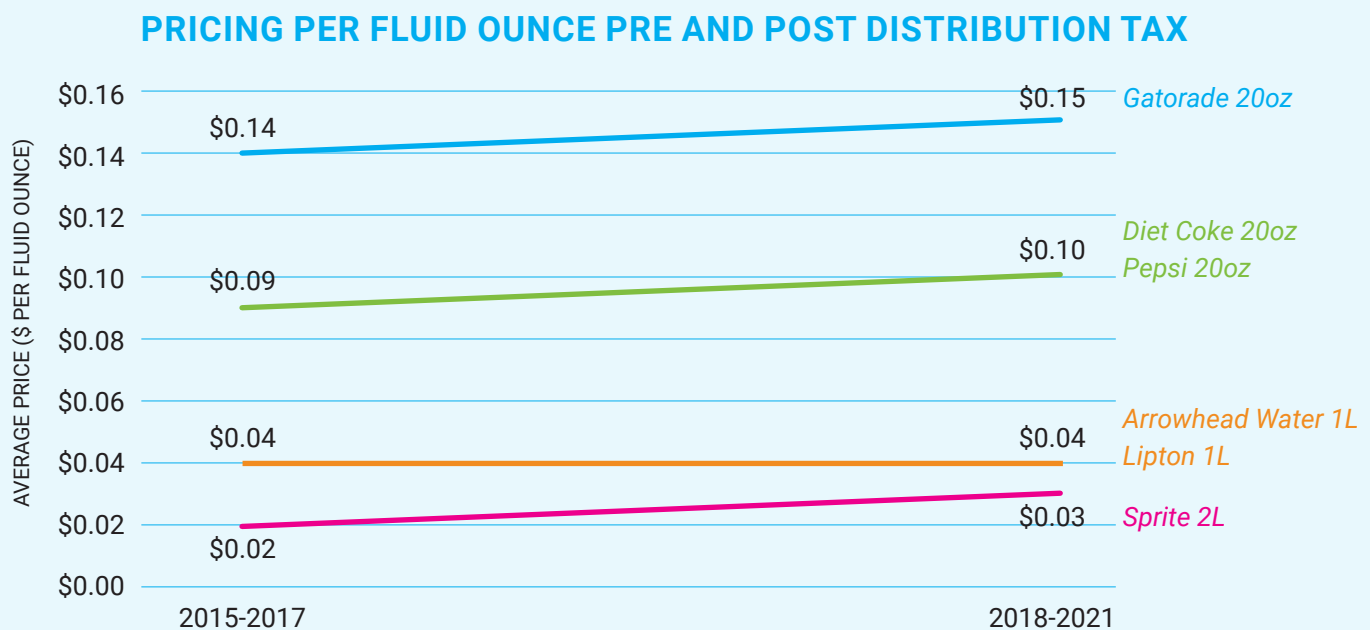
Graph Interpretation:

- From 2016 to 2022 the percent of SFUSD Middle School students that consumed at least one SSB the day before the survey increased from 48% to 58% (a relative increase of 20%).

* For years 2019 and on the YRBS asks, "During the past 7 days, how many times did you drink a can, bottle, or glass of a sugar-sweetened beverage such as a soda or pop (for example, Coke or Sprite), sports drink (for example, Gatorade or PowerAde), energy drink (for example, Red Bull or Jolt), 100% fruit juice (for example, orange juice), lemonade, sweetened tea or coffee drinks (for example, Arizona), flavored milk, Snapple, Sunny Delight, bubble tea, or agua fresca?"

Beverage Sales and Pricing in SF

IRI pricing data



Source: Information Resources, Inc. 2015 – 2021.

Note: This chart shows the average price per fluid ounce for the years before and after the distribution tax was implemented on 1/1/2018.

Graph Interpretation:

- From sales data we can observe a \$0.01 increase per fluid ounce for many sugar sweetened beverages. We can also observe a general increase for non-sugar sweetened beverages such as 1 liter bottles of arrowhead water and 20 ounce bottles of diet coke.

PRICING PER FLUID OUNCE BY YEAR

Beverage	2015	2016	2017	2018	2019	2020	2021
Arrowhead Water 1L	\$0.04	\$0.04	\$0.04	\$0.04	\$0.05	\$0.05	\$0.05
Diet Coke 20oz	\$0.09	\$0.09	\$0.09	\$0.10	\$0.10	\$0.10	\$0.10
Gatorade 20oz	\$0.14	\$0.14	\$0.14	\$0.14	\$0.15	\$0.17	\$0.17
Lipton 1L	\$0.04	\$0.04	\$0.04	\$0.05	\$0.05	\$0.04	
Pepsi 20oz	\$0.09	\$0.09	\$0.09	\$0.10	\$0.11	\$0.10	\$0.10
Sprite 2L	\$0.02	\$0.02	\$0.02	\$0.03	\$0.03	\$0.03	\$0.03

Source: Information Resources, Inc. 2015 – 2021.

Table Interpretation:

- Beverage prices increased by \$0.01 per fluid ounce starting in 2018 – reflecting the \$0.01 per fluid ounce tax on SSBs distributed in San Francisco starting on 01/01/2018. Other beverages not included in the distribution tax also saw increased in the cost per fluid ounce.
- Starting in 2020 – likely due to the COVID-19 pandemic and changes in tourism, commuting workforce, and other causes – some prices such as 20 ounce bottles of Gatorade increased an additional \$0.02 per fluid ounce.

PHOTO CAPTIONS

Page 1

- **Left:** 18 Reasons cooking class participants taste a freshly prepared salad. 18 Reasons is funded by the SF Sugary Drinks Distributor Tax.
- **Center:** The Mission Children's Oral Health Task Force, led by CARECEN, educates about the importance of oral health at a community event. The Task Force is funded by the SF Sugary Drinks Distributor Tax.
- **Right:** Florence Farm Community Farm Intern, Simone, harvests chiles on the farm. Florence Fang Community Farm is funded by the SF Sugary Drinks Distributor Tax.

Page 2

- **Top:** A community member picks fresh produce at a Amigo's Market, a participant of San Francisco's Healthy Retail SF program, funded by the SF Sugary Drinks Distributor Tax.
- **Middle:** Families and youth from America SCORES Bay Area line up to get blood pressure screenings. This wellness fair was sponsored by the SF Sugary Drinks Distributor Tax.
- **Bottom:** A student taste tests fruit and herb-infused water at Florence Fang Community Farm. Florence Fang Community Farm is funded by the SF Sugary Drinks Distributor Tax.

Page 3

- Dancers of Mixed Persuasion, a Bayview-based youth dance group specializing in Polynesian dance, perform at the Soda Tax 5-Year Community Celebration.

Page 4

- A student at Gordon Lau Elementary receives an oral health screening and sealant, funded by the SF Sugary Drinks Distributor Tax.

Page 5

- **Left:** A teen at June Jordan School for Equity demonstrates how much sugar is in popular drinks at a celebration of the 5-year anniversary of the SF Sugary Drinks Distributor Tax.
- **Right:** Community members pose with an educational poster created by SOMCAN Community Health Ambassadors about sugary drinks at the Pistahan Festival. SOMCAN receives funding from the SF Sugary Drinks Distributor Tax.

Page 6

- A family participates in a cooking class through a collaboration with 18 Reasons and the Tenderloin Neighborhood Development Corporation (TNDC) at Kain Na, a community food hub in Mission Bay that is funded by the SF Sugary Drinks Distributor Tax.

Page 7

- Ultimate Impact participants at Ocean Beach after competing in the popular ultimate Frisbee BADA Bongo Youth Tournament. Ultimate Impact receives funding from the SF Sugary Drinks Distributor Tax.

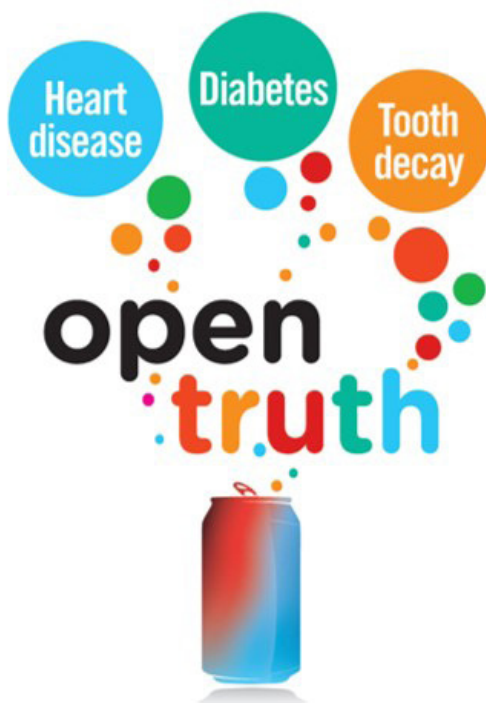
Page 9

- Urban Sprouts youth apprentices prepared water infused with herbs grown in their school garden for their classmates at June Jordan School for Equity. Urban Sprouts receives funding from the SF Sugary Drinks Distributor Tax.

Page 10

- Youth from America SCORES Bay Area learn about how too much liquid sugar can harm their bodies. This wellness fair was sponsored by the SF Sugary Drinks Distributor Tax.

SUGARY DRINKS ARE MAKING US SICK



The sugary drinks industry targets young people, parents, and communities of color to increase profits and brand loyalty despite scientific evidence that links sugary drinks to chronic diseases including **type 2 diabetes, heart disease, kidney diseases, non-alcoholic liver disease, tooth decay, obesity, and gout.**

THIS PROJECT WAS MADE POSSIBLE WITH FUNDING BY
WWW.SODATAX-SF.ORG

