UCLA CENTER FOR HEALTH POLICY RESEARCH

Health Policy Brief

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Still Bubbling Over: California Adolescents Drinking More Soda and Other Sugar-Sweetened Beverages

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SUMMARY: This policy brief examines changes in consumption of soda and other sugar-sweetened beverages among youth in California. Using data from the California Health Interview Survey, this study found that although the percent of children under the age of 12 who drink at least one sugar-sweetened beverage (SSB) per day dropped between 2005 and 2012, SSB consumption increased among adolescents. Establishing and strengthening policies that focus on reducing SSB consumption, especially among adolescents, could counter the SSB consumption trend among adolescents as well as result in further reductions among younger children.

"Sugar-sweetened beverage consumption is increasing among adolescents."

Soda and other sugar-sweetened beverages (such as energy and sports drinks) are the largest source of added sugar in the diets of both children and adults in the U.S.[1] Consumption of sugar-sweetened beverages has increased considerably since the 1970s. Between 1977 and 2002 Americans increased their caloric intake from soft drinks by more than 200%.[2] Recent research suggests that consumption declined between 2000 and 2010.[3] Nevertheless, sweetened beverages, which lack essential nutrients, continue to be a significant contributor to total caloric intake, especially for children and adolescents.[4,5] Despite recent declines, both adults and children still consume at least 150 calories from SSBs on any given day.[3] Because liquid calories do not satiate as well as solid foods, sweetened beverages tend to add to the calories people consume rather than replace them.[6,7]

Drinking sweetened beverages that have added caloric sweeteners (such as sucrose or high fructose corn syrup) is associated with less healthy diets as well as health problems, including overweight and obesity, type 2 diabetes and dental decay.[8-13] Numerous studies have found that consumption of sweetened beverages is associated with overweight and obesity among both adults and children.[8-10] Overweight and obesity are associated with serious health risks in children and adolescents, including increased risk for being overweight or obese in adulthood, as well as cardiovascular disease indicators such as high total cholesterol, high blood pressure and high fasting insulin.[14,15] In addition, consumption of sugar-sweetened beverages has been associated with increased risk of type 2 diabetes and metabolic syndrome.[13] Finally, consumption of sugar-sweetened beverages has been associated with decreased intake of more nutritious foods such as milk, fruits and vegetables.[11,12]

This policy brief, produced by the UCLA Center for Health Policy Research with funding from the California Center for Public Health Advocacy, examines the prevalence of and changes in consumption of soda and other sugar-sweetened beverages among California youth. The findings presented are based on data from the California Health Interview Survey (CHIS). This policy brief

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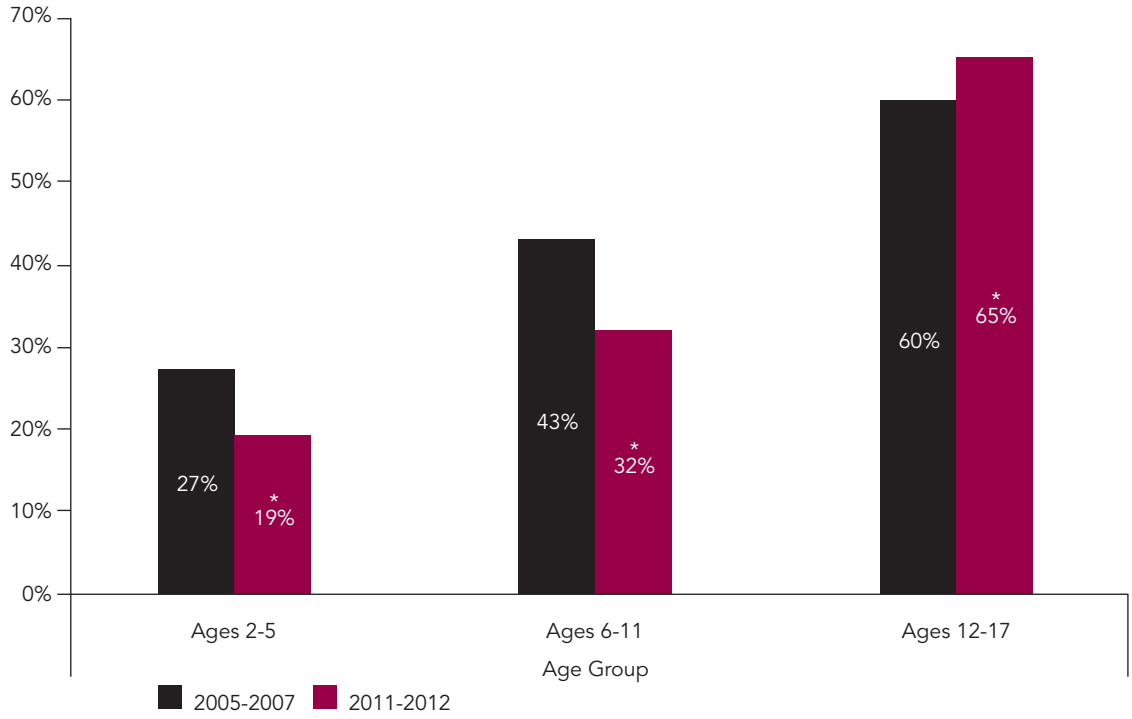
This policy brief was developed with funding from the California Center for Public Health Advocacy

Exhibit 1

Percent of Children and Adolescents Drinking One or More Sodas or Other Sugar-Sweetened Beverages Per Day by Age Group, California, 2005-07 and 2011-12



*Significantly different from 2005-07, p<0.05
Source: 2005-07 and 2011-12 California Health Interview Surveys

"SSB consumption among young children has declined 27% since 2005."

also presents county-by-county variation in consumption of sugar-sweetened beverages.

Understanding the Numbers

In order to produce stable estimates at the county level, two cycles of CHIS data were combined, encompassing the time period from 2005 to 2007. This time period was then compared with the most recent CHIS survey, CHIS 2011-12, to examine changes over time.

Sugary Drink Consumption Declined in All Age Groups Except Adolescents

In California, 41% of children ages 2-17 drank at least one soda or other sugary beverage every day in 2011-12. Consumption of sugary drinks varied considerably by age (Exhibit 1). Nearly two-thirds of adolescents ages 12-17 (65%) drank at least one SSB per day—more than twice the proportion of children ages 6-11 (32%) and more than three times that of 2-5 year olds (19%).

Consumption of soda or other sugary drinks declined for all age groups except adolescents over the last seven years (Exhibit 1). Among children ages 2-5, the percent drinking at least one SSB per day dropped from 27% in 2005-07 to 19% in 2011-12. Similar declines were seen among children ages 6-11, from 43% to 32% over this same time period. However, among adolescents, 60% drank at least one SSB per day in 2005-07 compared

Exhibit 2

Percent of Children (Ages 2-11) and Adolescents (Ages 12-17) Drinking At Least One Soda or Other Sugar-Sweetened Beverage Per Day, Largest Counties, California, 2005-07 and 2011-12

	Children (Ages 2-11)			Adolescents (Ages 12-17)		
County	2005-07	2011-12	Percent Change	2005-07	2011-12	Percent Change
Alameda	25%	31%	24%	58%	64%	10%
Contra Costa	35%	16%*	-54%	43%	52%	21%
Fresno	45%	48%	7%	73%	76%	4%
Kern	49%	36%	-27%	63%	63%*	0%
Los Angeles	41%	26%	-37%	62%	68%	10%
Orange	34%	20%	-41%	57%	60%	5%
Riverside	39%	35%	-10%	65%	65%	0%
Sacramento	33%	23%	-30%	54%	58%	7%
San Bernardino	43%	34%	-21%	65%	71%	9%
San Diego	31%	28%	-10%	61%	61%	0%
San Francisco	15%	+		48%	48%*	0%
San Joaquin	38%	35%	-8%	70%	80%*	14%
San Mateo	28%	15%*	-46%	48%	56%	17%
Santa Clara	32%	22%	-31%	51%	53%	4%
Ventura	35%	16%*	-54%	62%	52%	-16%
California	**37%**	**27%**	**-27%**	**60%**	**65%**	**8%**

Note: Few differences between 2005-07 and 2011-12 were statistically significant. Estimates for less populous counties could not be broken down by age group. Exhibit 4 displays estimates among all youth ages 2-17 for all counties.

* Data from CHIS 2011-12 and CHIS 2009 were combined to provide a statistically reliable estimate.

\+ Data not statistically reliable

Source: 2005-07 and 2011-12 California Health Interview Surveys

to 65% in 2011-12. This trend is particularly troubling because adolescents also had the highest rates of consumption. The increase in consumption among adolescents was likely due, in part, to increased consumption of sports and energy drinks. Between 2009 and 2011-12, the percent of adolescents drinking at least one sports or energy drink per day increased significantly from 31% to 38%; whereas consumption of soda decreased slightly (from 43% to 41%), but the decrease was not statistically significant.

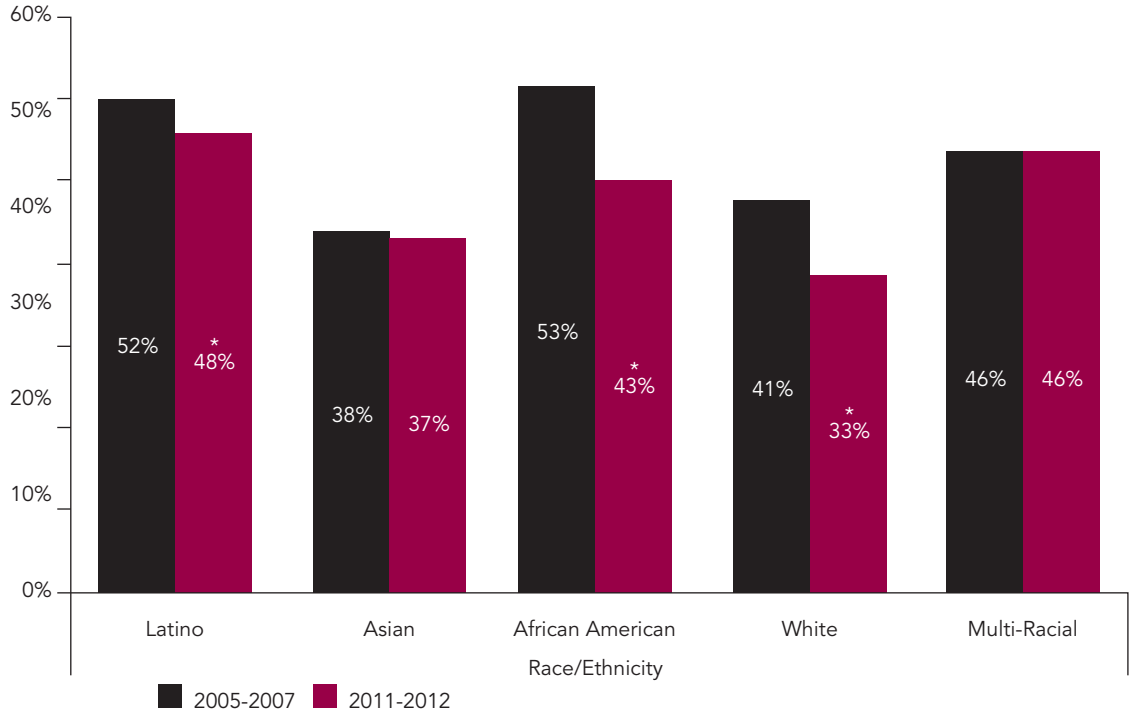
Adolescent Sugar-Sweetened Beverage Consumption Declined in Only One Large County

Exhibit 2 shows changes in SSB consumption among children (ages 2-11) and adolescents (ages 12-17) for the most populous counties in California. Among younger children, SSB consumption declined in 12 of the 15 largest counties and increased in only two, though few differences in consumption between 2005-07 and 2011-12 are statistically significant. In contrast, consumption among adolescents increased in 10 of the 15 largest counties and declined in only one.

"Energy and sports drinks are likely driving the increase in consumption among adolescents."

Exhibit 3

Percent of Youth Ages 2-17 Drinking One or More Sodas or Other Sugar-Sweetened Beverages Per Day by Race/Ethnicity, California, 2005-07 and 2011-12



*Significantly different from 2005-07, $p<0.05$

Source: 2005-07 and 2011-12 California Health Interview Surveys

"In nine California counties at least 50% of youth ages 2-17 drank at least one SSB each day."

Disparities in Sugary Drink Consumption Persist

Among California youth overall, consumption of sugary drinks declined across all racial/ethnic groups (Exhibit 3). The percent drinking at least one SSB per day was significantly lower in 2011-12 than in 2005-07 among Latino, African-American and white youth.[16] However, among adolescents (ages 12-17) consumption increased across all racial/ethnic groups except whites, with statistically significant increases occurring among Latino and Asian youth.

Even with declines in consumption among Latino and African-American youth, racial/ethnic disparities in SSB consumption persist (Exhibit 3). The proportion of youth drinking at least one sugary beverage per day was highest among Latinos at 48%, significantly higher than among whites at 33%. African-American youth (43%) and multi-racial youth (46%) also had significantly higher consumption than whites.

Central Valley Counties Have Highest Sugar-Sweetened Beverage Consumption

Exhibit 4 shows prevalence of consumption of sugary drinks by county for youth ages 2-17. Combining youth across all ages allows for comparison of consumption estimates for all counties. Consumption of sugary drinks varied considerably from county to county in California. In 2011-12, there were nine counties in which at least 50% of youth ages 2-17 drank at least one SSB each day. Among those, consumption was highest in Fresno and Kings Counties (58% and 60%, respectively). Six counties had a prevalence of daily SSB consumption below 30%, with the lowest prevalence in San Francisco and Marin Counties (21% and 25%, respectively).

Exhibit 4

Prevalence and Changes in Percent of Youth Ages 2-17 Drinking One or More Sodas or Other Sugar-Sweetened Beverages Per Day by County or County Group, California, 2005-07 and 2011-12

County or County Group	2005-07	2011-12	Percent Change
Alameda	37%	43%	16%
Butte	43%	39%	-9%
Contra Costa	38%	29%	-24%
Del Norte, Siskiyou, Lassen, Trinity, Modoc, Plumas, Sierra	45%	45%	0%
El Dorado	44%	36%	-18%
Fresno	56%	58%	4%
Humboldt	35%	33%	-6%
Imperial	57%	51%	-11%
Kern	54%	48%	-11%
Kings	57%	60%	5%
Lake	39%	53%	36%
Los Angeles	49%	42%	-14%
Madera	52%	48%	-8%
Marin	31%	25%	-19%
Mendocino	34%	34%	0%
Merced	57%	56%	-2%
Monterey	41%	53%	29%
Napa	42%	29%	-31%
Nevada	35%	37%	6%
Orange	43%	35%	-19%
Placer	42%	35%	-17%
Riverside	50%	47%	-6%
Sacramento	42%	36%	-14%
San Benito	48%	36%	-25%
San Bernardino	52%	49%	-6%
San Diego	42%	40%	-5%
San Francisco	25%	21%*	-16%
San Joaquin	50%	54%	8%
San Luis Obispo	46%	50%	9%
San Mateo	35%	29%	-17%
Santa Barbara	42%	34%	-19%
Santa Clara	39%	33%	-15%
Santa Cruz	38%	30%	-21%
Shasta	44%	39%	-11%
Solano	45%	56%	24%
Sonoma	40%	30%	-25%
Stanislaus	48%	49%	2%
Sutter	50%	42%	-16%
Tehama, Glenn, Colusa	48%	46%	-4%
Tulare	54%	49%	-9%
Tuolumne, Calaveras, Amador, Inyo, Mariposa, Mono, Alpine	40%	32%	-20%
Ventura	46%	29%	-37%
Yolo	42%	40%	-5%
Yuba	44%	30%	-32%
California	**46%**	**41%**	**-11%**

*For San Francisco County, data from CHIS 2011-12 and CHIS 2009 were combined to provide a statistically reliable estimate. Few differences between 2005-07 and 2011-12 were statistically significant.

Source: 2005-07 and 2011-12 California Health Interview Surveys

"Policies that discouraged soda may have had the unintended consequence of driving up consumption of sports and energy drinks."

Summary and Conclusions

The findings in this policy brief suggest that California has experienced some success in its efforts to reduce consumption of sugar-sweetened beverages. However, consumption among adolescents is on the rise. National health organizations recommend reducing consumption of sugar-sweetened beverages to help prevent obesity and improve public health.[17] Youth SSB consumption is influenced by a variety of social and environmental factors, including the food environment, marketing, education and norms. For example, research suggests that adolescents view more than 400 television ads for soda, energy drinks, sports drinks and fruit drinks in a year.[18] The consumption of SSBs by so many California children and the increase in SSB consumption among adolescents suggest that continued efforts are needed to reduce SSB consumption for all children, with a particular emphasis on adolescents. Policymakers could consider the following options:

- **Remove SSBs.** Policies that remove SSBs from schools and other places where youth spend significant amounts of time have been implemented successfully around the state. Unfortunately, many of the policies have focused solely on elementary school-age children or a single type of sugary beverage such as soda and may have the unintended consequence of encouraging consumption of other SSBs, like sports and energy drinks.

- **Provide Alternatives.** Water, fat-free or low-fat milk, and other unsweetened beverages should be available and easily accessible where youth congregate, including at schools and other public areas.

- **Limit Marketing of SSBs.** The marketing of high-calorie, low-nutrient foods and beverages is linked to overweight and obesity. As a result, both the World Health Organization and the Institute of Medicine (IOM) have called for standards in the marketing of foods and beverages to children. For example, the IOM recommends that foods and beverages marketed to children and adolescents should be consistent with the Dietary Guidelines for Americans.

- **Educate Youth and Parents.** Continue to educate youth and parents about the health effects of SSB consumption. For example, "Rethink Your Drink" campaigns have been implemented throughout California as well as nationally to help people identify beverages with added sugar and provide information about healthy drink options.

Data Source and Methods

This policy brief examines the prevalence of and trends in consumption of soda and other sugar-sweetened beverages in California using data from the 2005, 2007, 2009 and 2011-12 California Health Interview Surveys. All statements in this report that compare rates for one group with another group reflect statistically significant differences ($p<0.05$) unless otherwise noted. Each year, CHIS completes interviews with adults, adolescents and parents of children in over 40,000 households, drawn from every county in the state. Interviews are conducted in English, Spanish, Chinese (both Mandarin and Cantonese), Vietnamese and Korean. Adults and adolescents self-reported their consumption of soda and other sweetened beverages. Adults were asked the following question: "During the past month, how many times (per day, per week or per month) did you drink soda such as Coke or 7-up? Do not include diet soda." Responses to these questions were converted to a common metric to estimate daily consumption of soda. In CHIS 2005 and 2007, Adolescents were asked "Yesterday, how many glasses or cans of soda such as Coke, or other sweetened drinks such as fruit punch or Sunny Delight did you drink? Do not count diet drinks." Starting with CHIS 2009, these were split into the following two questions: "Yesterday, how many glasses or cans of soda such as Coke, did you drink? Do not count diet drinks." and "Yesterday, how many glasses or cans of sweetened fruit drinks, sports, or energy drinks, did you drink?" Responses to these questions were combined to estimate daily consumption of soda and other sweetened beverages. For children ages 2-11, the most knowledgeable parent or guardian responded to the following question: "Yesterday, how many glasses or cans of soda such as Coke or other sweetened drinks such as fruit punch or Sunny Delight did (he/she) drink? Do not count diet drinks." For all respondents,

This publication contains data from the California Health Interview Survey (CHIS), the nation's largest state health survey. Conducted by the UCLA Center for Health Policy Research, CHIS data give a detailed picture of the health and health care needs of California's large and diverse population. Learn more at: ***www.chis.ucla.edu***

consumption of 100% fruit juice was reported in a separate question and is not included in our estimates of sweetened beverage consumption.

The California Health Interview Survey is a collaboration of the UCLA Center for Health Policy Research, California Department of Public Health, the California Department of Health Care Services and the Public Health Institute. For funders and additional information on CHIS, visit *www.chis.ucla.edu*.

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