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Sugary Beverage Consumption Among California Children and Adolescents

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SUMMARY: This policy brief examines patterns of sugary beverage consumption among children and adolescents in California. Using data from the California Health Interview Survey (CHIS), this study found that while sugary beverage consumption decreased among adolescents ages 12-17 between 2011-12 and 2013-14, it increased among children under age 12 between 2009 and 2013-14. The trend

among children under age 12 may be attributed to a shift in sugary beverage consumption from soda to sports and energy drinks. Establishing and strengthening policies that focus on reducing consumption of sugary beverages could counter the increasing consumption trend among younger children as well as result in further reductions in consumption among teens.

“Sugary beverages are the largest source of added sugar in the diets of U.S. children.”

Beverages with added sugar (such as soda, energy drinks, 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 sugary beverages has increased considerably since the 1970s. Between 1977 and 2002, Americans increased their caloric intake from soft drinks by more than 200 percent.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 among children and adolescents.^{4,5} Despite recent declines, children and adults still consume at least 150 calories on average from sugary beverages on any given day.³ Because liquid calories do not satiate to the same extent as solid foods, sweetened beverages tend to add to the calories people consume rather than replace them.^{6,7}

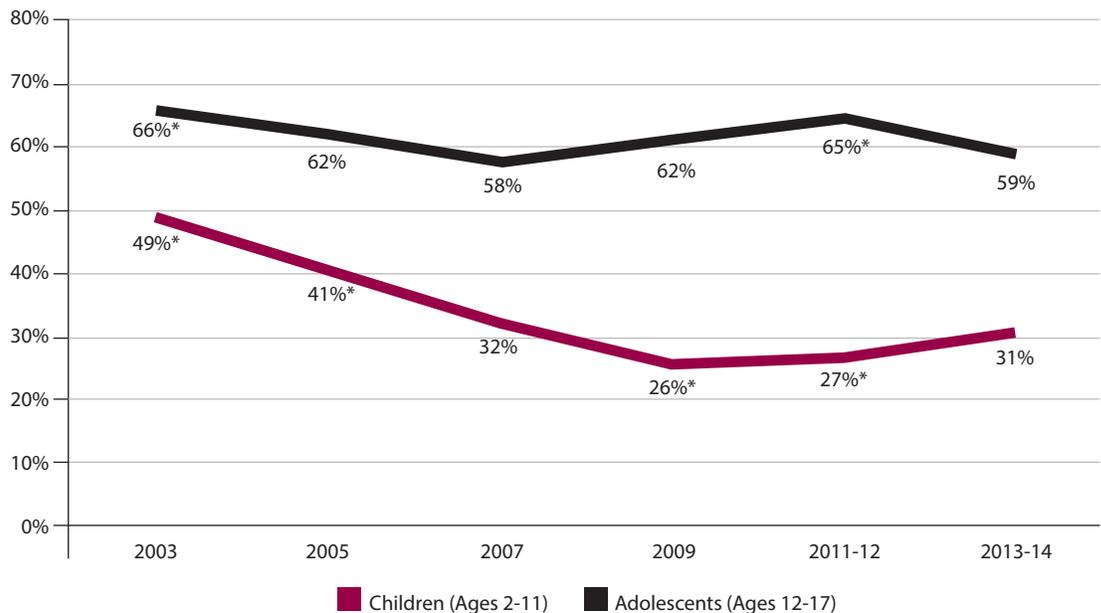
sweetened beverages is associated with overweight and obesity among both adults and children.⁸⁻¹⁰ Overweight and obesity are associated with serious health risks in children and adolescents, including the increased risks of being overweight or obese in adulthood; of having cardiovascular disease indicators, such as high total cholesterol; of developing high blood pressure; and of having high fasting insulin, an early indicator of diabetes risk.^{11,12} In addition, consumption of sugary drinks has been associated with increased risk of Type 2 diabetes, metabolic syndrome, liver disease, and dental decay.¹³⁻¹⁵ Finally, sugar-sweetened beverage intake has been associated with decreased consumption of more nutritious foods, such as milk, fruits, and vegetables.¹⁵

Consuming beverages that have added caloric sweeteners (such as sucrose or high-fructose corn syrup) is associated with less healthy diets as well as with various health problems. Numerous studies have found that drinking

This policy brief uses data from the California Health Interview Survey (CHIS) to examine the prevalence of and changes in consumption of sugar-sweetened beverages among California children and adolescents between 2003 and 2014. In this brief, the term sugary beverages refers to regular soda, sports drinks, energy drinks, and juice drinks with added caloric sweeteners. It does not include 100 percent

Exhibit 1

Percentages of Children Ages 2-11 and Adolescents Ages 12-17 Consuming One or More Sugar-Sweetened Beverages per Day, California, 2003 to 2013-14



Source: 2003 through 2013-14 California Health Interview Survey

Note: * indicates significantly different from 2013-14

“Reductions in consumption of sugary beverages among children may be reversing.”

juice or diet beverages. Prevalence and trends in consumption of sports and energy drinks versus soda are also presented. The policy brief concludes by discussing policy options for reducing consumption of sugary beverages among children and adolescents.

Sugary Beverage Consumption in California

In California, 42 percent of youth ages 2-17 drank at least one sugary beverage every day in 2013-14. Consumption was considerably higher among adolescents than among children: on average, nearly one in three (31 percent) children (ages 2-11) consumed one or more sugary beverages per day in 2013-14, compared to 59 percent of adolescents (ages 12-17) (Exhibit 1).

Trends in Sugary Beverage Consumption

Between 2003 and 2009, the proportion of children consuming at least one sugary drink per day decreased from 49 percent to 26 percent. However, between 2009 and 2013-14, the number increased to 31 percent. Although consumption levels were still not as high as they were in 2003, this trend is troubling because it suggests the reductions in consumption observed among children

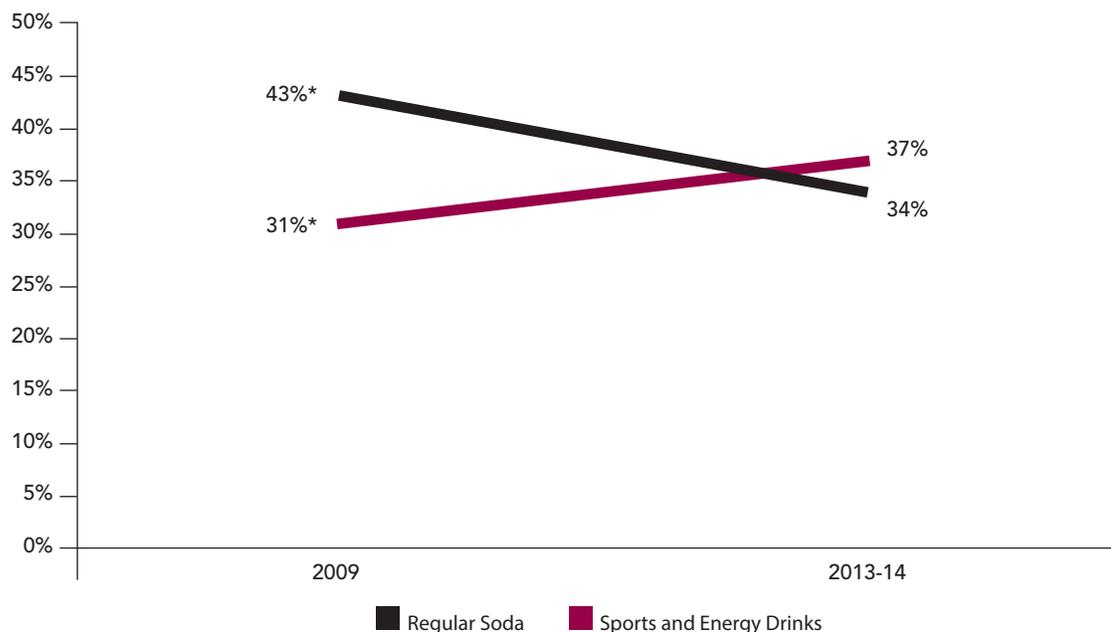
may be reversing. Among adolescents, sugary drink consumption decreased from 66 percent to 58 percent between 2003 and 2007, then increased to 65 percent in 2011-12. However, consumption of sugar-sweetened beverages in 2013-14 among this group was lower than in 2011-12 (59 percent vs. 65 percent).

Adolescent Consumption of Sports and Energy Drinks Increases, Soda Consumption Declines

Among teens, the percentage drinking one or more regular sodas per day declined from 43 percent in 2009 to 34 percent in 2013-14 (Exhibit 2). However, over that same time period, the percent consuming one or more sports or energy drinks per day increased from 31 percent to 37 percent. Additionally, sports and energy drinks are now more commonly consumed than regular soda. In 2009, consumption of regular soda was higher than consumption of sports and energy drinks (43 percent vs. 31 percent), but in 2013-14 the opposite pattern emerged (34 percent drinking soda vs. 37 percent drinking sports and energy drinks, although this difference is not statistically significant).

Percentage of Adolescents Ages 12-17 Consuming One or More Sugary Beverages per Day by Type of Beverage, California, 2009 and 2013-14

Exhibit 2



Source: 2009 and 2013-14 California Health Interview Survey

Note: * indicates significantly different from 2013-14

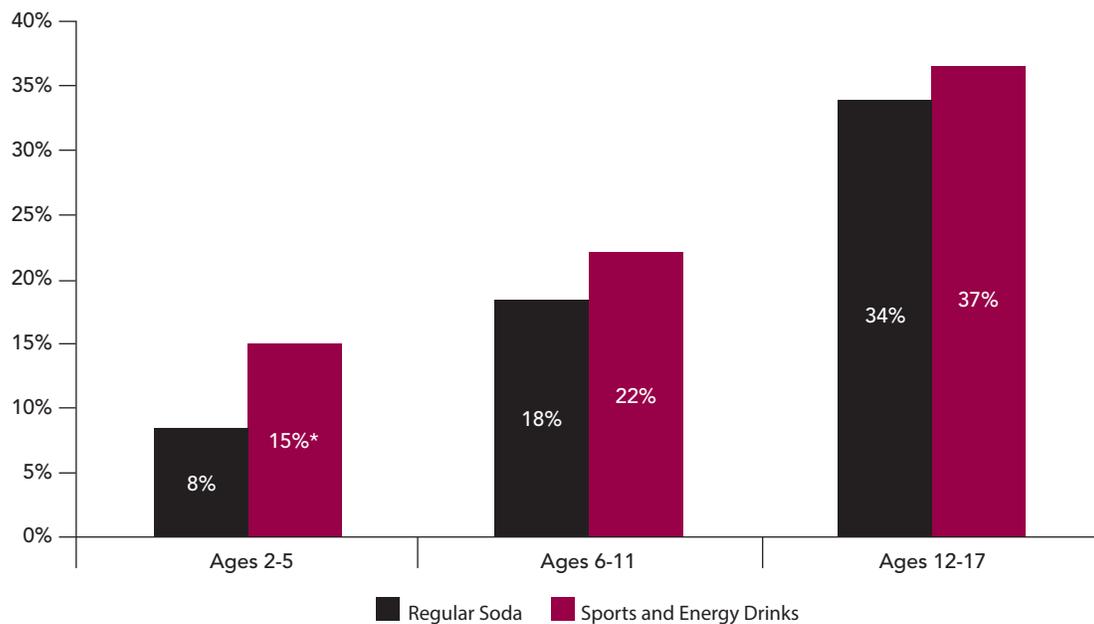
More Children Consuming Sports and Energy Drinks than Regular Soda

Sports and energy drinks were also more commonly consumed than soda among younger children. Fifteen percent of children

ages 2-5 consumed at least one sports or energy drink per day in 2013-14, compared to 8 percent who consumed at least one soda (Exhibit 3). Twenty-two percent of children ages 6-11 consumed at least one sports or

Percentage of Youth Ages 2-17 Consuming One or More Regular Sodas and One or More Sports/Energy Drinks per Day as a Function of Age, California, 2013-14

Exhibit 3

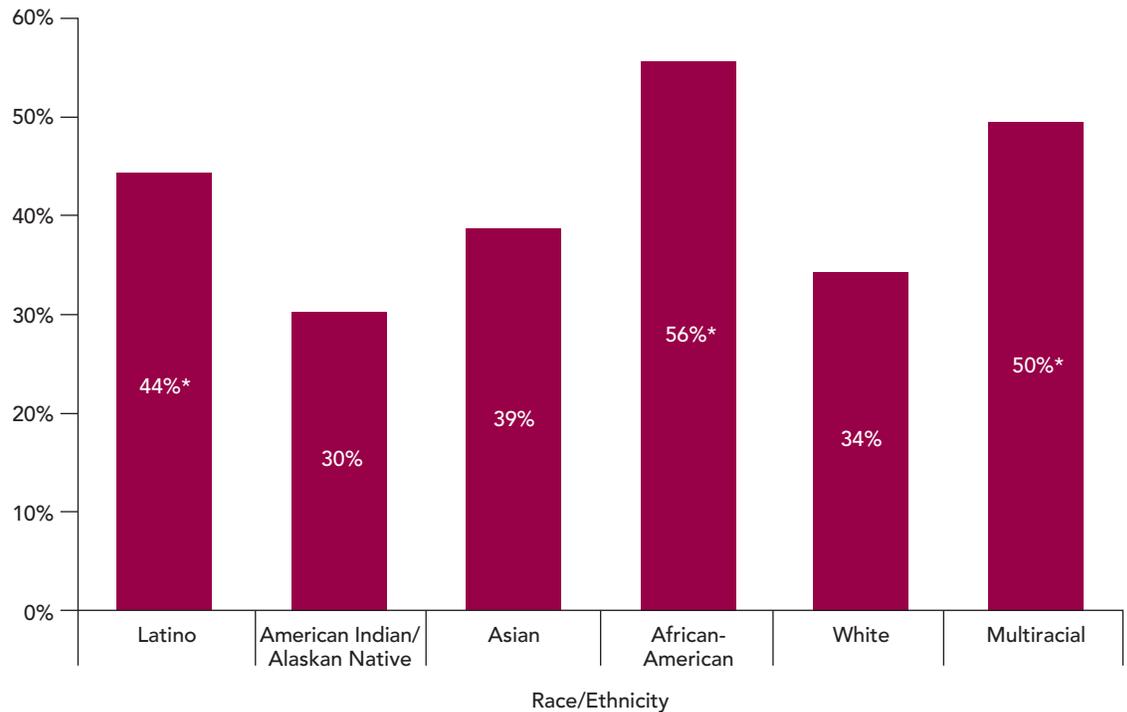


Source: 2013-14 California Health Interview Survey

Note: * indicates significantly different from regular soda

Exhibit 4

Percentage of Youth Ages 2-17 Consuming One or More Sugary Beverages per Day as a Function of Race/Ethnicity, California, 2013-14



Source: 2013-14 California Health Interview Survey

Note: * indicates significantly different from white youth

“Sports and energy drinks could replace soda as the leading source of liquid sugar in young people’s diets.”

energy drink per day, compared to 18 percent who consumed at least one soda, but this difference was not statistically significant.

These patterns in sugary drink consumption by age represent another troubling trend. Although consumption of regular soda declined among adolescents, consumption of sports and energy drinks increased. Both children and adolescents consumed more sports and energy drinks than regular soda, but this difference was largest among young children ages 2-5. If the proportion of younger children drinking sports and energy drinks continues to increase, consumption of sugary beverages overall could increase, and sports and energy drinks could replace soda as the leading source of liquid sugar in young people’s diets.

African-American, Latino, and Multiracial Youth Consume More Sugary Beverages

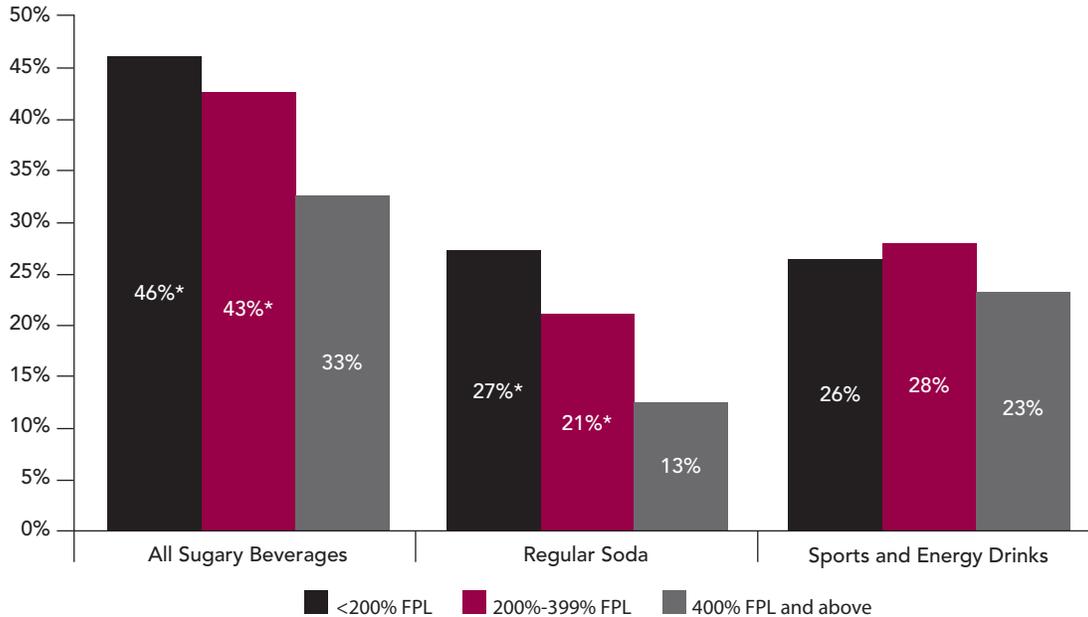
Consumption of sugary beverages among African-American, Latino, and multiracial youth was significantly higher than among

whites (Exhibit 4). More than half of African-American youth ages 2-17 drank one or more sugary beverages per day (56 percent) in 2013-14, followed by 50 percent of multiracial youth and 44 percent of Latino youth, compared to just over one-third of white youth (34 percent).

Consumption of sugary drinks declined for many racial/ethnic groups between 2003 and 2013-14, but not all differences were statistically significant. The percentage drinking at least one sugary beverage per day was significantly lower in 2013-14 than in 2003 among Latino, American Indian/Alaskan Native, Asian, and white youth. Despite these declines, some groups showed trends of increasing consumption again after a decrease for several years. In 2003, 49 percent of Asian youth consumed one or more sugary beverages per day. By 2009, the proportion had dropped to 31 percent, but it climbed back to 39 percent in 2013-14. African-American and multiracial youth experienced similar patterns of decreasing and then increasing

Percentage of Youth Ages 2-17 Consuming One or More Regular Sodas and One or More Sports/Energy Drinks per Day as a Function of Income, California, 2013-14

Exhibit 5



Source: 2013-14 California Health Interview Survey

Note: * indicates significantly different from 400% and above; FPL = Federal Poverty Level

consumption rates, but these differences were not statistically significant.

African-American and white youth had higher rates of consumption of sports and energy drinks than of regular soda (41 percent vs. 26 percent for African-American youth, and 21 percent vs. 17 percent for white youth). In fact, African-American youth had the highest rates of consumption of sports and energy drinks (41 percent) across all racial/ethnic groups. Rates of consumption of sports and energy drinks and regular soda were similar among Latino and multiracial youth, and both of these groups had higher rates of consumption of both types of sugary beverages than whites did.

Low-Income Youth Consume More Sugary Beverages

Sugary drink consumption varied by income among youth. Nearly half of low-income youth (46 percent) drank at least one sugary beverage per day, compared to one-third (33 percent) of

youth with family incomes at least 400 percent of the federal poverty level (FPL) (Exhibit 5). A similar pattern was found for consumption of regular soda, with a lower proportion of higher-income youth than low-income youth consuming soda. On the other hand, consumption of sports and energy drinks did not vary significantly by income. This suggests that soda consumption is driving income-based differences in overall sugary beverage consumption. Youth from higher-income families consume more sports and energy drinks than regular soda, and the difference is greatest within the highest-income group. Among youth with family incomes at or above 400 percent FPL, 23 percent consumed at least one sports or energy drink per day, compared to 13 percent who consumed regular soda every day.

Summary and Recommendations

National health organizations recommend reducing consumption of sugar-sweetened beverages to help prevent obesity and improve public health.⁴ The findings in this policy

“More than half of African-American youth ages 2-17 drank one or more sugary beverages per day.”

brief suggest that California has experienced some success among adolescents in its efforts to reduce consumption of sugary beverages. However, consumption of sugary beverages among children ages 2-11 is increasing. Child and adolescent sugar-sweetened beverage consumption is influenced by a variety of social and environmental factors, including the food environment, marketing, education, and norms.

The consumption of sugary beverages by so many California children and adolescents and the increase in consumption among young children suggest that continued efforts are needed to reduce sugary beverage consumption among all children, with particular emphasis on younger children. The higher levels of sports and energy drink consumption among young people are also cause for concern, and additional efforts should focus on this particular type of sugary beverage. Policymakers can consider the following recommendations for reducing consumption of sugary beverages among children and adolescents:

- ***Remove all types of sugary beverages from schools, including sports drinks and beverages sweetened with concentrated fruit juice.*** Policies that remove sugar-sweetened beverages from schools and other places where children spend significant amounts of time have been implemented successfully around the state. In January 2017, the California Department of Education updated its sugary beverage policy to prohibit the sale of high-calorie beverages at all grade levels. Approved 12-ounce, low-calorie sports drinks can contain approximately 50 calories and 25 grams of added sweeteners. While this is a step in the right direction, these policies still allow for the sale of sugary drinks—albeit lower-calorie ones—and of beverages that contain large quantities of artificial sweeteners.

Research has found that state laws that ban soda but allow other sugary beverages may lead students to substitute other nonsoda beverages, like sports and energy drinks.¹⁶ The same 2017 policy that banned high-calorie sports drinks from schools considered any fruit or vegetable drink

containing at least 50 percent juice and no added sweeteners to be compliant with the policy. While these drinks do not contain sucrose or high fructose corn syrup, many approved beverages are made from fruit juice concentrate and therefore have similar amounts of calories and sugar as other sugary beverages. For example, one beverage on the Los Angeles Unified School District's list of approved "juice" drinks is a 5.5-ounce fruit drink containing 21 grams of sugar—nearly as much sugar as a 12-ounce sports drink that is no longer permitted at schools.

National health organizations recommend limiting added sugar intake to no more than 10 percent of total calories (50 grams per day for a 2,000-calorie diet) and note that greater health benefits can be achieved if added sugar intake is limited to 5 percent of total calories (25 grams per day for a 2,000-calorie diet). Many of the beverages still allowed under the current policy contribute nearly half of the recommended limit on added sugars.

The American Academy of Pediatrics recommends that children eat whole fruits and be educated about the benefits of fruit as compared with juice, which lacks dietary fiber and may contribute to excessive weight gain.

- ***Ensure access to safe drinking water.*** Water should be available and easily accessible in places where children congregate, including schools and other public areas. Despite state and national requirements for students to have access to drinking water at school, one-quarter of California students reported not having access to free drinking water at school during lunch.¹⁷
- ***Limit marketing of sugary beverages targeted at youth.*** Youth are regularly exposed to advertisements and marketing for sugary beverages. Research suggests that adolescents view more than 400 television ads for soda, energy, sports, and fruit drinks in a year.¹⁸ 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 Institute of Medicine (IOM) have called for standards



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.

CHIS is a collaboration of the UCLA Center for Health Policy Research, California Department of Public Health, California Department of Health Care Services, and the Public Health Institute. Learn more at: www.chis.ucla.edu

in the marketing of foods and beverages to children. For example, the IOM recommends that foods and beverages marketed to children and adolescents be consistent with the Dietary Guidelines for Americans.

- **Engage athletes and other role models in responsible marketing.** Nearly all beverages endorsed by athletes had 100 percent of their calories from added sugar.¹⁹ Athletes and other role models are able to influence behaviors. For example, studies have found that having an athlete as a role model is associated with increased physical activity.²⁰ To leverage the influence of athletes to improve public health, advocacy groups and campaigns promoting healthy diets could engage them in sending messages about healthy beverage consumption.
- **Educate youth and parents.** Both children and parents need continued education about the negative health effects of consumption of all types of sugary beverages, including energy drinks and sports drinks. Sports drinks, in particular, are marketed as a healthy alternative to regular soda through an emphasis on their electrolyte, vitamin, mineral, and natural flavor content, as well through claims about their ability to improve hydration.¹⁸ As a result, many youth and parents think these beverages are healthy for children.

Educational campaigns such as “Rethink Your Drink” have been implemented throughout California as well as nationally to help people identify beverages with added sugar and to provide information about healthy drink options. While these efforts have been successful at educating people about the negative health effects of soda, there is still consumer confusion about the downsides of other sugary beverages.

Data Source and Methods

This policy brief examines the prevalence of and trends in consumption of sugar-sweetened beverages among California children and adolescents using data from the 2003, 2005, 2007, 2009, 2011-12, and 2013-14 California Health Interview Survey (CHIS). 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 more than 20,000 households, drawn from every county in the state. Interviews are conducted in English, Spanish, Chinese (both Mandarin and Cantonese), Vietnamese, Tagalog, and Korean. Adolescents self-reported their consumption of soda and other sweetened beverages.

In CHIS 2003, 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, this was 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.” Starting with CHIS 2013-14, this was split into the same two separate questions from the adolescent survey.

For all respondents, consumption of 100 percent fruit juice was reported in a separate question and is not included in our estimates of sweetened beverage consumption.

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“There is still consumer confusion about the downsides of other sugary beverages, such as sports drinks.”



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Endnotes

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