

Table of Contents

-   Sugar industry and coronary heart disease research: a historical analysis of internal industry documents. Kearns et al. *JAMA Intern Med.*
-  The influence of sugar-sweetened beverage warnings: a randomized trial of adolescents' choices and beliefs. VanEpps & Roberto. *Am J Prev Med.*
-  Effects of plain packaging, warning labels, and taxes on young people's predicted sugar-sweetened beverage preferences: an experimental study. Bollard et al. *Int J Behav Nutr Phys Act.*
-  Effects of offering look-alike products as Smart Snacks in schools. Harris et al. *Child Obes.*
-  Prevalence of prediabetes and abdominal obesity among healthy-weight adults: 18-year trend. Mainous et al. *Ann Fam Med.*

-  Policy
-  Epidemiology
-  Science
-  Communications

FIND US ON SOCIAL MEDIA



We'd love to hear from you! Provide feedback on this publication at this [link](#). Send us articles you think should be included in future issues: pvallila@hfamerica.org.

SUGAR INDUSTRY

Sugar industry and coronary heart disease research: a historical analysis of internal industry documents.

Kearns CE, Schmidt LA, Glantz SA. *JAMA Intern Med.* 2016 (in press)

Key Question: Did the Sugar Research Foundation, a sugar industry trade association, influence a major scientific review on sugar, fat, and coronary heart disease (CHD)?

Key Finding: Industry documents demonstrate how the Sugar Research Foundation funded and participated in a *New England Journal of Medicine* review that used inconsistent criteria to conclude that sucrose had no impact on CHD; the industry's role in funding was never disclosed.

Implications: Past nutrition recommendations on the healthfulness of sugar were partially informed by an industry-sponsored review that was not scientifically based.

This narrative case study by Kearns and colleagues used materials from the Sugar Research Foundation (SRF), Harvard University Medical Library, and University of Illinois Archives to document the sugar industry's influence on science. Specifically, they examined how the SRF funded a *New England Journal of Medicine* review that downplayed sucrose consumption as a risk factor for coronary heart disease (CHD).

In the early 1960s, the SRF (now known as the Sugar Association) began to “embark

on a major program” to counter evidence that sugar was unhealthy. They paid a research team at Harvard to conduct a review that compared the effects of dietary interventions that reduce sucrose or saturated fat. In total, SRF paid \$48,900 (in 2016 dollars) to the authors of the review, which was published in 1967. However, the SRF’s role in funding and participating in the review was never disclosed.

The review concluded that there was “no doubt” that substituting polyunsaturated fat for saturated fat was the only dietary intervention needed to prevent CHD. To reach this conclusion, they appeared to use inconsistent, unscientific criteria when choosing which studies to focus on. For example, they discounted epidemiological studies that suggested sucrose was a risk factor for CHD, on the rationale that epidemiological studies were biased, but used epidemiological studies that suggested saturated fat was a risk factor for CHD.

They also used a single measure of CHD risk – serum cholesterol levels – to compare sucrose interventions to fat interventions, while dismissing other biomarkers. Even when randomized trials suggested that substituting fat or vegetables for sucrose improved serum cholesterol, the authors discounted results on the rationale that such an intervention was infeasible. ■

Limitations: Although documents show extensive correspondence between the SRF and authors during the review, there is no evidence that the SRF participated in writing the review. Documents that were analyzed may not be representative of all industry materials related to the review.

POLICY

Several jurisdictions in the U.S. have considered placing text warning labels on sugary drinks to provide information on the harmful effects of consuming these beverages and to deter purchase and consumption. This policy approach is based on the success of other warning labels efforts, in particular tobacco. Little is known about how warning labels on sugary drinks may work, however. Two articles in this issue explore this approach, VanEpps & Roberto 2016 and Bollard et al. 2016

The influence of sugar-sweetened beverage warnings: a randomized trial of adolescents’ choices and beliefs.

VanEpps EM and Roberto CA. *Am J Prev Med.* 2016 (in press).

Key Question: What influence do text warning labels on sugary drinks have on youth behaviors and perceptions related to these beverages?

Key Finding: American youth (12-18 years) were less likely to select sugary drinks that bore labels warning that added sugar(s) can contribute to obesity, diabetes and tooth decay.

Implications: Warning labels on sugary drinks are a promising strategy to steer youth away from buying sugary drinks.

Earlier this year, Roberto and colleagues conducted an online, randomized controlled trial with 2,381 parents to assess the effects of beverage warning labels on their purchasing behavior and perceptions of different drinks. Authors found warning labels may reduce parents' intent to purchase sugary drinks for their children. This study extends that work to youth. A demographically diverse sample of 12-18 year olds (n=2,202) were recruited in 2015 to complete an online survey experiment.

During the experiment, participants made a hypothetical beverage purchase from a vending machine that included 20 popular 20-oz. beverages, including 12 sugary drinks. Participants were randomly assigned to view one of five beverage labels, or a beverage without any label. One label simply stated the number of calories in the drink, while four bore warnings about various health effects. Beverages included sodas, juices, iced teas, waters, lemonade, and sports drinks with different levels of added sugars. The labels were presented in a highly visible and enlarged format and participants were told, "Drinks with a lot of added sugar have a safety warning label on them".

While 77 percent chose a sugary drink when no label was shown, participants in three of the four warning label conditions were less likely to choose a sugary drink (61-64 percent). In the fourth warning label condition, 69 percent of youth chose a sugary drink, but this finding was not statistically significant. The warning labels contributed to the youths' understanding of the risk of regularly consuming sugary drinks for developing diabetes.

Following their purchase, youth reported perceptions related to ten beverages, six of which were sugary drinks. During the last task, all participants viewed a warning label and reported whether the label would change their health beliefs about and willingness to buy sugary drinks, and level of support for a warning label policy. Youth who viewed one of the four warning labels were less likely to report that regularly drinking sugary drinks would make you feel energized, help you focus in school, or help you live a healthier life. 63 percent of surveyed youth said they would support a warning label policy for sugary drinks. ■

Limitations: Because the label was presented in a highly visible and enlarged format and participants were told, "Drinks with a lot of added sugar have a safety warning label on them," the effect size of the label may be overestimated relative to the effect that would be seen in the real world. The researchers noted that the survey decisions were hypothetical and may have been influenced because of the potential for over-reporting "good behavior".

Effects of plain packaging, warning labels, and taxes on young people's predicted sugar-sweetened beverage preferences: an experimental study.

Bollard T, Maubach N, Walker N, Ni Mhurchu C. *Int J Behav Nutr Phys Act.* 2016 1;13(1):95.

Key Question: What influence do text and graphic warning labels on sugary drinks have on youth and young adult behaviors and perceptions related to these beverages?

Key Finding: Plain packaging and warning labels reduced young people's preference for and likelihood of purchasing sugary drinks, with graphic labels having the largest impact.

Implications: Though no jurisdiction to date has proposed graphic warning labels for sugary drinks, this approach may be more effective than text-only warning labels in influencing perceptions of sugary drinks and likelihood to purchase these beverages.

In August 2014, youth and young adults (13-24 years) in New Zealand (n=604) who reported sugary drink consumption in the last two months were recruited from a market research firm to complete an online survey experiment. The purpose of the experiment was to explore the effect of plain packaging, warning labels (text and graphic), and a 20 percent tax on product preferences, beliefs and intention to purchase sugary drinks.

During the experiment, participants were randomly assigned to one of 12 conditions. Specifically, they saw images of branded versus plain packaged cans of sugary drinks; different warning labels (none, a text warning, or a graphic warning); and different prices (with or without a 20 percent tax). The images were of a well-known soda, and the same brand name was used throughout. The text warning label stated "WARNING: high sugar content". The graphic warning label was modeled on New Zealand's current tobacco health warning label and displayed an image of dental caries with this message "WARNING: consuming beverages with added sugar contributes to tooth decay".

In all 12 conditions, after viewing the image, participants reported attitudes about the displayed sugary drink and likelihood he or she would purchase the beverage at a convenience store. Participants also reported attitudes about warning labels and taxes on sugary drinks.

Compared with branded packaging, plain packaging significantly reduced reported likelihood of buying sugary drinks. Text and graphic warning labels also significantly decreased likelihood of buying sugary drinks compared with no warning label, with graphic warning labels having the greatest impact. The 20 percent tax had no significant effect on probability of purchasing a sugary drink. The authors propose two reasons for this finding: 1) the price information may not have been sufficiently noticeable, and 2) without a comparable price, participants may not have been aware of the relative price increase.

Two-thirds of participants "agreed" or "strongly agreed" that sugary drinks should carry a text warning label, and half agreed/strongly agreed with the introduction of graphic warning labels. Fewer participants agreed with application of a tax to sugary drinks (35 percent supported a proposed 10 percent price increase, and 26 percent supported a proposed 20 percent price increase). ■

Limitations: Youth and young adults may behave differently in a real world setting compared with the hypothetical one presented in the experiment. Sample was not representative of New Zealand. Outcomes may not apply to other brands and sizes of sugary drinks. The text warning label included some graphic elements since the text was framed within an orange octagon that may have appeared to some participants like a stop sign.

Effects of offering look-alike products as Smart Snacks in schools.

Harris JL, Hyary M, Schwartz MB. *Child Obes.* 2016 (in press)

Key Question: When look-alike versions of junk food are sold as “Smart Snacks” in school, does it affect how parents or students perceive products’ healthfulness or taste?

Key Finding: Students and parents perceived few differences in healthfulness or taste between look-alike Smart Snacks and less nutritious store versions of the same product. Both versions were rated as less healthy and having better taste compared to other packaging or products.

Implications: Allowing brands to sell look-alike versions of unhealthy products may confuse students and parents about products’ healthfulness.

Since 2013, the USDA has required healthier nutrition standards for foods and beverages sold in school. These products are now commonly known as “Smart Snacks” due to the healthier standards, but they’ve been criticized because they are often reformulated versions of existing products. A Smart Snack could include a reduced-fat bag of Cheetos, for example, that contains slightly less fat, salt, and calories, but otherwise looks identical to a regular bag of Cheetos.

Can students or parents tell the difference between a look-alike Smart Snack and a regular version? Harris and colleagues answered this question in a randomized trial of 859 parents and 659 teenagers. They assigned parents and teens to four groups that each saw a different version of similar products: 1) look-alike Smart Snacks, 2) Smart Snacks that were repackaged to highlight differences from unhealthy versions, 3) a store version of the same brand that was less healthy, and 4) a consistent brand that sold the same Smart Snacks version inside and outside of schools. Parents and students were asked to rate products in terms of perceived taste, healthfulness, and intent to buy.

Students rated look-alike Smart Snacks and store versions as having the same taste and healthfulness, and were equally likely to buy them, even though the products were different. Parents also rated these two versions equally in terms of taste and their child’s desire to buy. In contrast, Smart Snacks were perceived as healthier if presented in a repackaged format, even though the nutritional quality was the same as regular Smart Snacks. Both parents and students in the “consistent brand” category rated those products as healthier but less tasty.

These results demonstrate how existing look-alike Smart Snacks may confuse students and parents. Allowing look-alike products in school enables brands to market to students, and implies that schools endorse the brands, which could increase sales of unhealthy versions outside of school. The authors recommended that USDA standards could be improved by either requiring different packaging or banning brands that sell less nutritious versions outside of school. ■

Limitations: The study was an online experiment; choices were hypothetical and may not reflect what would take place in the real world. The sample may have been more educated and had higher income than the general population.

Employment changes associated with the implementation of the sugar-sweetened beverage and the nonessential energy dense food taxes in Mexico.

Instituto Nacional de Salud Pública, Mexico (*unpublished*)

Opponents of sugary drink taxes often predict that taxes will increase unemployment, but independent research has not supported this claim. New results from Mexico continue to question opponents' predictions, as researchers found no evidence that Mexico's taxes on sugary drinks and nonessential energy dense foods led to job loss. The number of employees remained stable in food and beverage industries, and in commercial businesses, after the tax was introduced. National unemployment rates in Mexico were also unaffected by the tax. These results are currently unpublished but have been submitted to a peer-reviewed journal.

DIABETES TRENDS

Prevalence of prediabetes and abdominal obesity among healthy-weight adults: 18-year trend.

Mainous AG, Tanner RJ, Jo A, Anton SD. *Ann Fam Med*. 2016;14(4):304-10.

Key Question: What are the trends in prediabetes among adults of healthy weight?

Key Finding: Over the course of 23 years (1988-1994 to 2011-2012) the prevalence of prediabetes among healthy weight adults almost doubled.

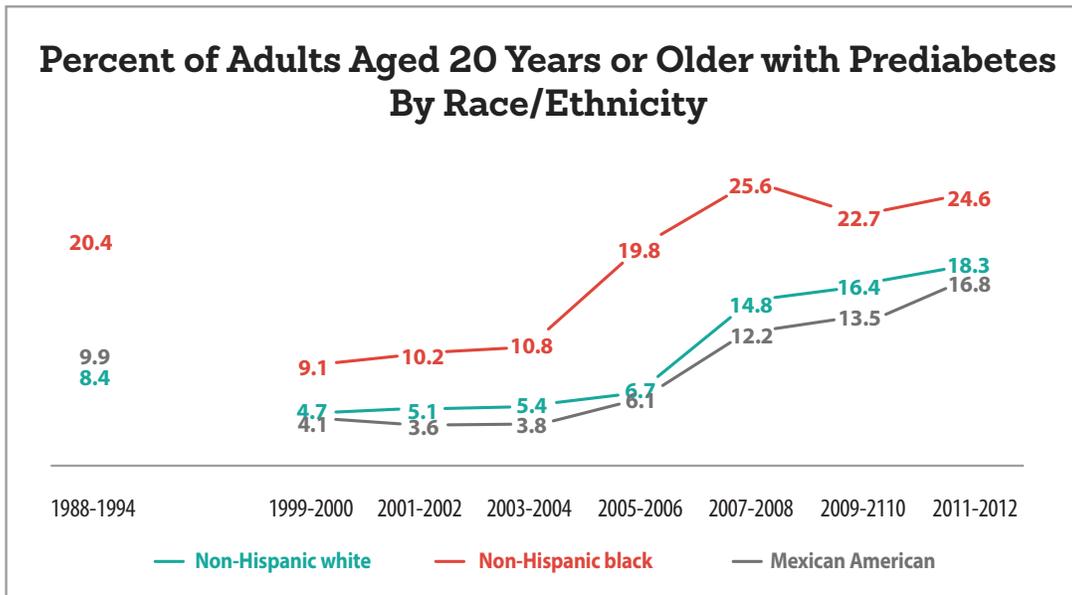
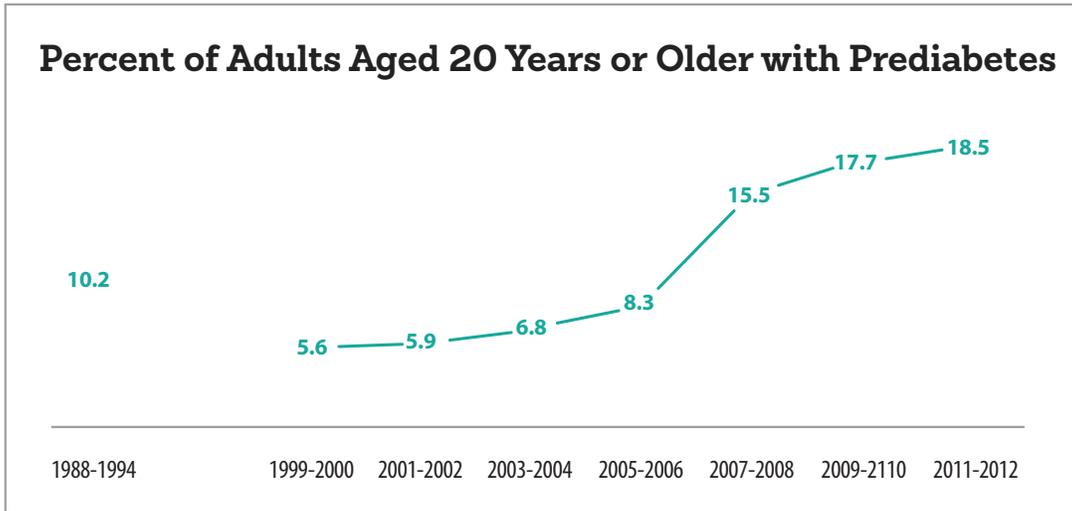
Implications: Current screening practices for prediabetes may need to be revised to include adults of healthy weight, not just those who are overweight or obese.

By some estimates, one in three Americans is pre-diabetic and many do not know it. Detection and treatment of prediabetes is a fundamental diabetes prevention strategy. Mainous and colleagues analyzed data from eight waves of the National Health and Nutrition Examination Survey (NHANES) to identify what percent of healthy weight US adults (20 years and older) were pre-diabetic based on blood sugar level (HbA1c level). Authors restricted their analysis to only adults with a healthy weight who were not diabetic.

Over the course of two decades, the percent of healthy weight, non-diabetic adults with prediabetes almost doubled, rising from 10.2 percent to 18.5 percent. Non-Hispanic black adults were more likely than non-Hispanic white adults to be pre-diabetic in all years.

Authors note that current prediabetes screening recommendations focus on the screening of overweight or obese adults, which makes it less likely that healthy weight adults will be screened despite the increased prevalence of this condition among this group. ■

Limitations: Authors noted a drop in the proportion of adults with prediabetes in 1988-1994 to 1999-2000 before a rise, and did not offer an explanation for this. Three waves of data were combined for the baseline data point, whereas one wave was presented for the subsequent years. The study uses only HbA1c blood sugar levels to identify adults with prediabetes, noting that there is some evidence that this approach may lead to underdiagnoses.



Research Watch reviews the evidence on the health effects of sugar and the effectiveness of policy and other interventions to curb consumption to inform sugar reduction activities across the US.

Healthy Food America acts on scientific evidence to drive change in food policy and industry practice, giving people greater control over their health and reducing diet-related illnesses, such as obesity, diabetes, and heart disease.

This publication was prepared by Dan Taber (@DanTaber47) and Petra Vallila-Buchman.