Healthier Beverage Policies & Drinks with Artificial Sweeteners

Hospitals implementing healthy beverage policies are replacing sugary drinks with healthier beverage options in their vending machines, soda fountains, catering services and other food services. These institutions are quickly faced with questions about whether to include beverages that have been sweetened with artificial or non-caloric sweeteners. Tap water and unsweetened lowfat/nonfat milk are still the healthiest replacements for sugary drinks and contribute to the body’s daily nutrient needs. Unsweetened coffee and tea, and 100% fruit or vegetable juices (in appropriate serving sizes and with sodium limits, as applicable) also rank high as healthy beverage options. A review of model beverage standards reveals that many model standards include another option — low or no calorie beverages, which may include so-called

The Public Health Law Center has created a series of resources designed to inform and support efforts to promote healthy beverage choices within workplace settings, with a special focus on healthcare. This fact sheet answers some of the commonly asked questions about artificial sweeteners.
“diet” drinks (drinks sweetened with non-caloric or artificial sweeteners). Many institutions are choosing to include “diet” drinks as replacements for sugary drinks, with the rationale that they would like to offer the widest range of low/no-calorie beverages as possible and “diet” drinks are preferable to sugary beverages in terms of calorie and carbohydrate intake.

Federal regulations permit the use of some artificial sweeteners in food and beverages, and some national authorities recognize that artificially sweetened drinks can be a useful alternative to sugary beverages as a calorie reduction strategy. Research on the overall health impacts of consuming artificial sweeteners (including impacts related to obesity concerns as well as chronic disease risk) remains inconclusive. In a 2012 analysis of available research, the Centers for Disease Control and Prevention (CDC) noted that while switching from sugary to “diet” drinks as a calorie reduction strategy may contribute to short term weight loss, it is unclear if long-term consumption leads to weight loss, weight maintenance or even weight gain.

While there can be positive calorie reduction benefits in switching from sugary to artificially sweetened beverages, a growing body of research suggests that a simple net calorie calculation may not tell the whole story. The potential weight loss and other health impacts of “diet” drink consumption appear to be more complex and warrant continued research.

What Are Artificial Sweeteners?

For purposes of this document, we use the phrase “artificial sweeteners” to refer to all substances that are added to food and drinks to make them taste sweeter, without adding other nutrients or calories (or few calories). Some experts also refer to these as “nonnutritive sweeteners,” or low calorie or non-caloric sweeteners. The term as used in this document includes sweeteners derived from stevia.

In 2012, the American Heart Association and the American Diabetes Association issued a Scientific Statement on artificial sweeteners, which they refer to as “nonnutritive sweeteners.” They examined the question of whether artificial sweeteners reduce caloric intake, suppress appetite and/or reduce weight. They noted the lack of data on the impact of artificial sweeteners and concluded that the research to date is inconclusive: “The evidence reviewed suggests that when used judiciously, [nonnutritive sweeteners] could facilitate reductions in added sugars intake, thereby resulting in decreased total energy and weight loss/weight control, and promoting beneficial effects on related metabolic parameters. However, these potential benefits will not be fully realized if there is a compensatory increase in energy intake from other sources.”
or “sugar alcohols.” Most artificial sweeteners have a higher intensity of sweetness per gram as compared to sugar, offering roughly 150 to over 600 times the sweetness of sugar with no or few calories. 

Artificial sweeteners are used in “diet” and other beverages and food products to reduce the number of calories and carbohydrates in these products.

How Are Artificial Sweeteners Regulated?

Under federal law, substances — including artificial sweeteners — may only be used in food or beverages if the use is permitted by the U.S. Food and Drug Administration (FDA) through a food additive regulation or if the use is “generally recognized as safe” (GRAS). The FDA has issued food additive regulations for at least seven artificial sweeteners: acesulfame-potassium, aspartame, mannitol, neotame, saccharin, sucralose, and xylitol. These food additive regulations specify how these substances may be used in food — in what types of food, in what quantities, and for what uses. The FDA has also designated uses of certain artificial sweeteners as GRAS. Over a dozen companies have submitted notices to the FDA that they have determined that stevia-based sweeteners are GRAS, and the FDA has not questioned these determinations.

What Are the Recommended Practices Around Children and Artificial Sweeteners?

Artificially sweetened beverages are not generally recommended for children. The Robert Wood Johnson Foundation’s Healthy Eating Research Program convened an expert panel to develop a set of healthy beverage guidelines. These guidelines do not recommend beverages with added sweeteners (whether caloric or non-caloric) for children under 14 years old. For older youth, the only consensus is that water and milk continue to be the best healthy options. The Institute of Medicine recommended standards for foods and beverages sold or served in schools include artificially sweetened beverages only as an option for high school aged youth, after the school day ends. U.S. Department of Agriculture (USDA) regulations do not allow drinks with added sugars, nor artificially sweetened drinks, to be sold at all in elementary and middle schools, or through the National School Lunch and Breakfast programs. However, the USDA will continue to allow artificially sweetened beverages to be sold in high

What Does “Generally Recognized as Safe” Mean When It Comes to Food Safety?

In most cases, food companies are responsible for deciding whether the use of a substance in food is “generally recognized as safe” or GRAS. In the past, the FDA has affirmed the GRAS status of many substances added to food but due to lack of resources, the FDA announced in 1997 that it would no longer review GRAS affirmation petitions and instead would accept GRAS notifications submitted by manufacturers or other interested parties and respond with a “no questions” letter, a letter stating there is an insufficient basis for the GRAS determination, or a letter ceasing review at the company’s request. Under the current system, companies are not required to notify the FDA about their GRAS determinations, though they often do so.
schools as “competitive foods” (which are foods sold outside of the national school meal programs, through a la carte menus, vending machines, fundraisers, school stores, etc.). This federal interim final rule, which went into effect in July 2014, states that in addition to unflavored water, calorie-free flavored water, low- and non-fat milk, and 100% fruit and/or vegetable juices (which may be diluted with water but may not have added sweeteners), the sale of other low- and no-calorie beverages will be allowed (within specified size and calorie limits) during and outside of the school day in high schools. It should be noted that states can pass their own competitive food regulations that are more restrictive than federal law.

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Do “Diet” Drinks Really Help with Weight Loss?

Research on the implications of using artificially sweetened beverages as a substitute for sugary drinks and dietary aid is not conclusive. Research has consistently shown, and most authorities agree, that individuals who switch from sugary to artificially sweetened drinks do reduce their calorie intake from beverages. However, some research findings also indicate that individuals drinking artificially sweetened beverages may still end up consuming many additional calories through other food and beverages, ultimately nullifying the overall calorie reduction achieved by drinking a “diet” beverage.

A growing, but not definitive, body of research suggests the possibility that drinking beverages with artificial sweeteners may actually be detrimental to reducing preferences for sugary foods. Sweet cravings are a natural human tendency and the amplified sweet taste of artificially sweetened beverages may over time enhance a person’s inclination for sugary and sweet-tasting foods or beverages, triggering a desire for more sugar. As a result, some findings suggest that the intense sweetness of artificial sweeteners may actually increase cravings for intensely sweet food or beverages, potentially undermining weight loss efforts.

What Does the Research Indicate about Other Health Risks Associated with Artificial Sweeteners?

The National Cancer Institute states that “there is no clear evidence that the artificial sweeteners available commercially in the United States are associated with cancer risk in humans.” In 2012, the Academy of Nutrition and Dietetics published a position paper on the use of nutritive and nonnutritive sweeteners which states that “consumers can safely enjoy a range of nutritive sweeteners and nonnutritive sweeteners..."
(NNS) when consumed within an eating plan that is guided by current federal nutrition recommendations, such as the Dietary Guidelines for Americans (DGA) and the Dietary Reference Intakes.” With respect to other possible associations with chronic disease risk, emerging research shows mixed results. Additional high quality, long term research is needed in this area.

**What Approach Should Institutions Use in Developing Their Healthier Beverage Policies?**

Hospitals can choose from a variety of approaches with respect to artificially sweetened beverages. Most continue to offer artificially sweetened drinks, but do not include them in the category of a “healthy” beverage; some of those who do so may deliberately choose to refer to their policies as a “Beverage Policy” rather than a “Healthy Beverage Policy.” Another option is to continue to offer artificially sweetened beverages in certain outlets such as cafeterias, but not in vending machines or gift stores, for example. Similarly, a number of hospitals use a “red, yellow, green” labeling system that includes artificially sweetened beverages as a “yellow” option in all outlets, and may give these products less favorable pricing or placement compared to “green” options such as water or unsweetened milk. And of course, a hospital could choose to not sell beverages with artificial sweeteners and focus only on healthy offerings, such as tap water, infused water, bottled water, carbonated waters, low- and nonfat milk, 100% juices, and unsweetened coffee and teas. These are all valid choices; which one is the best depends on the culture and dynamics of the institution.
Conclusion

The healthiest beverage choices continue to be water and low and nonfat milk. Although the federal government and expert panels have deemed some artificial sweeteners safe from a food safety perspective, the science is not conclusive when it comes to other health impacts from drinking artificially sweetened beverages. It is important to note that when it comes to sugary beverages, the science is clear that they have contributed to the obesity epidemic, and also are linked with serious chronic diseases including diabetes and heart disease. For this reason, the Public Health Law Center has developed a number of resources to support efforts to promote healthy beverages and reduce sugary drinks within hospital and worksite settings, which are available at www.publichealthlawcenter.org.

Endnotes

1 Ctrs. for Disease Control and Prevention [CDC], The CDC Guide to Strategies for Reducing the Consumption of Sugary Drinks 4 (2010), available at http://www.cdph.ca.gov/SiteCollectionDocuments/StrategiesToReduce_Sugar_Sweetened_Bevs.pdf. The CDC defines “sugar sweetened beverages” to include soft drinks (soda or pop), fruit drinks, sports drinks, tea and coffee drinks, energy drinks, sweetened milk or milk alternatives, and any other beverages to which sugar, typically high fructose corn syrup or sucrose (table sugar), has been added.

Deborah F. Tate et al., Replacing Caloric Beverages with Water or Diet Beverages for Weight Loss in Adults: Main Results of the Choose Healthy Options Consiously Everyday (CHOICE) Randomized Clinical Trial, 95 Am. J. Clinical Nutrition 555, 555 (2012), available at http://ajcn.nutrition.org/content/95/3/555.full.pdf+html.


Federal regulations define “nonnutritive sweeteners” as “[s]ubstances having less than 2 percent of the caloric value of sucrose per equivalent unit of sweetening capacity.” 21 C.F.R. § 170.3(o)(19) (2014).


Id. at 517.


21 C.F.R. § 180.37 (2014) (interim food additive regulation permitting use in “special dietary foods” including beverages, pending further study).


21 C.F.R. § 184.1835 (2014) (affirming certain uses of sorbitol, a “sugar alcohol” as generally recognized as safe). For more information about the FDA’s GRAS process, see GAO GRAS Oversight Report, supra, note 10.

A search of the FDA’s GRAS notices inventory database for the word “stevia” returned 18 records indicating that the FDA had no questions for each notice. See U.S. Food & Drug Admin. [FDA], GRAS Notices: Stevia, http://www.accessdata.fda.gov/scripts/fdcc/?set=GRASNotices&sort=GRN_No&order=DESC&startrow=1&type=basic&search=stevia (last visited Mar. 28, 2014).

Christine Munsell et al., Perceived Healthfulness of Sugary Drinks for Children: A Survey of Parents 5, Table 3 (2014) (manuscript under review) (on file with the Public Health Law Center). Parents are also ambivalent about artificial sweeteners — in a recent study, 59% of parents of children ages 2 to 17 years old who were surveyed reported concern about artificial sweeteners in their children’s drinks.
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25 Nonetheless, a recent study by the Pew Charitable Trusts found that an estimated 1,000 chemicals have been self-af


28 Gardner et al., supra note 6, at 513. Acad. of Nutrition & Dietetics, supra note 7. See, e.g., Sara N. Bleich et al., supra note 27.

29 David S. Ludwig, Artificially Sweetened Beverages: Cause for Concern, 302 JAMA 2477, 2477-78 (2009).


32 Acad. of Nutrition & Dietetics, supra note 7, at 739.


34 Baldwin Area Medical Center in Baldwin, Wisconsin decided to stop selling all sugary drinks and artificially-sweetened beverages as well. Emily Miels, Baldwin Area Medical Center Drops Sugary and Artificially Sweetened Beverages, Leader-Telegram (June 4, 2014), http://www.leadertelegram.com/news/front_page/article_944c2a86-ec6a-11e3-8062-0019bb2963f4.html?mode=story.