

Can Color-Codes Help Us Make Better Snack and Beverage Choices?

In the past few decades obesity has risen dramatically in the US. Centers for Disease Control and Prevention (CDC) report that more than 35% adults in the US are obese.¹ Studies indicate that behavioral and environmental changes have primarily led to this increase in obesity; increases in caloric intake; bigger portion sizes; increased availability of fast food; greater intake of sugary beverages; unhealthy snacks rich in calories, fats, and sodium; and lack of fruits and vegetables in the daily diet.² Leading federal and private agencies have stressed the need to reduce obesity through public health policies designed to address this pressing issue.³ Reduction in obesity means a healthy community and a healthier workforce.

Healthy People 2020, the national health promotion plan, recommends providing health promotion activities where people gather, such as schools and workplaces.⁴ These activities should include system and policy changes that make the *healthy choice the easy choice* for consumers, including snack and beverage items.

Vending machines are a major source of snacks and beverages in the environment, including schools and worksites. Studies indicate that vending machines typically carry energy-dense food, with high fat and sodium content, and sugar-sweetened beverages.⁵⁻⁶ While menu-labeling has evolved as a successful public health strategy for improving choices among food and beverages, point-of-purchase nutritional information is not available at vending machines.

Thomas Jefferson University and Hospitals (TJUH), a leading academic medical center in the Philadelphia area, has demonstrated its commitment to build a healthy community through its employee wellness program. In 2007, the organization signed Healthcare Without Harm's Healthy Food in Health

Care pledge, a national initiative committed to improving the food environments in hospitals.⁷ Signing this pledge demonstrates a healthcare institution's commitment to food procurement policies that are environmentally and socially responsible and promote good health choices among employees, patients and the community.⁸ According to Healthcare Without Harm, "hospitals throughout the country have begun to transform their food environments in a variety of ways by: creating healthy vending criteria; eliminating sugar-sweetened beverages from their facility offerings and increasing access to public drinking water; removing trans-fats from menus; shifting retail price structures to encourage healthy food selection; and last but certainly not least, by increasing the purchase of local and sustainable foods."⁸

In keeping with its commitment to this global initiative, Thomas Jefferson University Hospital's Department of Nutrition and Dietetics partnered with TJUH's Center for Urban Health and TriState Vending Company to create a point of purchase tool to facilitate healthier snack and beverage choices at vending machines throughout Jefferson's center city campus. This project, the *Choose Healthier Initiative (CHI)*, was spearheaded by an MPH student in the Jefferson School of Population Health as her Capstone project. To assist vending machine users in making healthier choices, CHI developed criteria that was used to group vending options based on caloric, fat and sodium content. Using nutritional information provided by the vending company and the criteria developed by CHI, each vending option was assessed and assigned to one of 3 color-coded groups: healthier choice (green); less healthy choice (yellow); and least healthy choice (red). A separate category was created for 'Nuts and Seeds' because they are a healthy food but are very high in calories (a lighter shade of green). Using these criteria, the initial review

of the vending machine product mix for snacks revealed that only 15.4% of the snacks in vending machines across campus were healthy, 3.4% were nuts and seeds, 23.7% were less healthy and 57.45% were unhealthy choices. The product mix for beverages revealed that 12.50% of the beverages were healthy, 23.21% were less healthy and 64.29% were unhealthy beverages.

The intervention was pre-tested to ensure users understood the criteria and how to use the color-coding system. Pilot testing at 7 locations across Jefferson's campus was initiated to test the intervention's feasibility and impact on consumer purchases.

By the end of December 2012, all vending items were color-coded and signs explaining how to use color codes to make healthier snack and beverage choices were posted on the machines throughout the campus, including the university and hospital. The student researcher monitored the vending machines daily during the months of January and February 2013 to ensure intervention fidelity. Implementation issues (e.g. removal of color-coding signs, placement of items in wrong slots) were addressed promptly. TriState Vending provided baseline sales data for November and December 2012 and post-intervention data for January and February 2013. The baseline and post-intervention data for all the 7 locations were compared to assess the effect of the intervention on consumer purchases. Study results indicated a significant reduction in post-intervention sales of unhealthy (red) snacks. Additionally, there were increases in the percentages of healthier snacks and beverages sold. Sales data for the university and clinical locations were also compared. The results from the university locations revealed a 166.67% increase in the sales of healthier snacks. Clinical locations had a significant increase in the sales of healthy beverages. It is important

to note that there was a significant reduction in the sales of unhealthy items despite the lack of healthier food choices in the vending machines. Improving the product mix to include more types of healthy food items could have the potential to increase the impact of the intervention.

A customer intercept survey was conducted to assess the effect of color codes on users' decision making related to snacks and beverage choices. A total of 35 surveys were completed and results showed that 51% of the respondents used color codes to select snacks and beverages; 94% of those who used color codes agreed that it helped them make a better choice.

Given the positive outcomes, Jefferson is expanding the program to all vending machines in its Center City Philadelphia campus by January 2014. To sustain and institutionalize the program, future contracts

with vending companies could include point-of-purchase color-coding as a required condition and an improved product mix to increase healthier choice options. This study demonstrated that point-of-purchase color-coding is a simple and inexpensive intervention that encourages users to make better choices. ■

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Ranita Chakrabarti conducted this initiative as her MPH Capstone Research project to complete her MPH at the Jefferson School of Population Health.

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