**Hwang, J., & Lorenzen, C. (2008). Effective nutrition labeling of restaurant menu and pricing of healthy menu. *Journal of Foodservice, 19,* 270-276.**

The purpose of this study was to identify the most preferred amount of nutritional information for a menu, whether the use of the preferred amount of nutritional information influenced healthier choices, and whether people are willing to pay more for food choices they perceive to be healthier. The study used surveys of customers entering local grocery stores. The participation rates where: in study 1: 120 customers entering a local grocery store participated in the survey and in study 2: 60 customers entering a local grocery store participated in the survey.

Two separate surveys were conducted at a local grocery store. For the first study, participants were presented with one menu item followed by five different amounts of nutritional information. Type 1, no nutritional information; type 2, only calories; type 3, calories plus macronutrients; type 4, calories and macronutrients, plus fat; and type 5, calories, macronutrients and fat, plus fiber. The participants' attitudes toward the amount of nutritional information being provided as well as the credibility of the source providing the nutritional information were measured. The participants were asked to rate on a scale of 1 to 7 how helpful they found the nutritional information to be. They were then asked to rate the dependability, honesty, and trustworthiness of the source of nutrition information. During the second study the participants were presented with a regular menu item without nutritional information and asked to rate the perceived healthiness of that item. They were then provided with the nutritional information for that menu item and asked to re-rate the healthiness. Lastly, they were presented with the low-fat menu item with nutritional information and asked to rate that item for healthiness. The participants' nutrition-related attitudes and overall attitudes toward the regular menu item and the low-fat menu item were measured. The participants’ willingness to pay more for the presence of nutritional information was also measured. After being asked to rate the healthiness of the regular item given its nutritional information, the participants were asked how much they would be willing to pay for the item. The process was repeated for the low-fat menu item.

Significant differences were found among the five nutritional information types in the first survey. The analysis indicated that as the amount of nutritional information increased, the helpfulness of the nutritional information and the source's credibility increased. The results confirmed that the more nutritional information presented, the more it was preferred by the participants. The participants' nutrition-related and overall attitudes toward the regular menu item decreased after being presented with the nutritional information about the item. The nutrition-related attitude and the overall attitude significantly increased after the respondents were given the nutritional information about the low-fat item. The study found that the participants were willing to pay approximately $2.00 more for the low-fat menu item when the nutritional information was given. The participants, however, were unwilling to pay anything extra for the menu item they considered unhealthy even if the nutritional information was provided. Overall, the subjects felt the more nutritional information the restaurant menu had, the more preferable the menu.

This study used only one menu item. Examining only a single food item raises issues concerning the generalization of this study for other menu items. This study used $6.99 as a reference price for the regular menu item without nutritional information. If the reference price is either lower or higher than the price, the responses might have been different.

**Larson, N., & Story, M. (2009). Menu Labeling: Does providing nutrition information at the point of purchase affect consumer behavior? *Robert Wood Johnson Foundation.* Retrieved January 2015 from healthyeatingresearch.org**

This review looked at studies that have examined the use of menu labeling in away-from-home food establishments, such as restaurants and cafeterias, and the potential impact of labeling on consumers' food and beverage selections. The authors analyzed numerous studies to answer the following questions or statements: 1. The number of U.S. restaurants that provide nutrition information to consumers has increased of over the past decade; however, the majority of restaurants do not provide consumers with nutrition information at the point of purchase. 2. Most consumers underestimate the number of calories and fat in away-from-home foods, and they tend to make greater errors when menu items are high in calories or when they're ordering from establishments that promote their menu items as healthy. 3. Most consumers would like to see nutrition information at places where they go out to eat; however, only limited research has explored how well this information is understood by consumers and which consumers may be most likely to see menu labels in making decisions about what to purchase. 4. Providing nutrition information reduces consumers' intentions to purchase menu items high in calories and fat, especially when there is a greater discrepancy between the perceived and actual nutrition content. 5. Although some research has found that menu labeling at the point of purchase modestly improves consumers' selection of healthier menu items, a few studies have shown labeling may lead to higher energy intake among some population subgroups. 6. Requiring restaurants to provide point-of-purchase nutrition information could help reduce obesity by promoting the introduction of healthier menu options. 7. In the past, restaurant industry raised several potential obstacles to providing point-of-purchase nutrition information

Some important points include: Most consumers underestimate the number of calories and fat in away-from-home foods and tend to make greater errors when menu items are high in calories or when ordering from establishments that promote their menu items are healthy; menu labeling reduces consumers' intentions to purchase items high in calories and fat, especially when there is a greater discrepancy between the perceived content and actual content; in 2005, the NRA launched the "Ask Us!" program to assist restaurant operators in providing nutrition information to consumers through the provision of free resources and tools; one study found that if on-premises nutrition information is not displayed prominently, it may not be used frequently; The U.S. FDA conducted 8 focus groups in 4 geographically diverse cities to explore the reaction of consumers to having nutrition information on menu boards. Focus group participants reacted favorably to the idea of labeling menu items with just calorie information or identifying healthier options with a uniform, commonly defined symbol to help them make better choices; five out of six studies showed some evidence that providing nutrition information to patrons form menu items higher in calories or fat results in lower intent to purchase; research suggests many consumers may have difficulty understanding calorie information in the context of daily needs

 The limitations of this review included that the analysis of information included in the review dated as far back as 1976, this could indicate an analysis of outdated material.

**Pulos, E., & Leng, K. (2010). Evaluation of a Voluntary Menu-Labeling Program in Full-Service Restaurants. *American Journal of Public Health, 100(6)*, 1035-1039.**

The purpose of this study was to assess whether labeling restaurant menus with information on the nutrient content of menu items would cause customers to alter their ordering patterns**.** The authors evaluated a pilot menu-labeling program, SmartMenu Program, in full-service restaurants in Pierce County, Washington. A total of 18 restaurants were participating in the program by the time of conclusion in December.

Each restaurant provided the health department staff with standardized recipes for all regular menu items that were analyzed using Food Processor. In most restaurants, labels consisted of 4 numbers separated by slashes corresponding to calories, fat (g), sodium (mg), and carbohydrates (g). Sales information was studied for 30 days before and after implementation of menu labeling as well as during the intervention. Sales information consisted of how many of each menu item were sold in the 2 periods of interest. Surveys were conducted to assess behavior change in restaurant patrons. All adult diners who completed their meals during a 2-hour sampling period were offered a survey.

Results showed that in 4 restaurants, entrees sold in the post-labeling period contained significantly fewer calories, in 5 restaurants post-labeling entrees contained less fat. On average, entrees purchased in the post-labeling period contained about 15 fewer calories, 1.5 fewer grams of fat, and 45 fewer milligrams of sodium than did entrees purchased in the pre-labeling period. There was no before-and-after difference in the carbohydrates content of entrees purchased. The most frequently reported actions taken as a result of seeing nutrition information were choosing entrees lower in calories and fat. About 1/3 of patrons reported that they had made at least 1 behavior change because of seeing nutrition information on the menu. The limitations of this study included that all sales data did not appropriately represent all consumption. The study also lacked a comparison group and control. Only small convenience restaurants were samples, which may not accurately translate to general restaurants.

**Webb, K., Solomon, L., Sanders, J., Akiyama, C., & Crawford, P. (2011) Menu labeling responsive to consumer concerns and shows promise for changing patron purchases. *Journal of Hunger & Environmental Nutrition, 6,* 166-178.**

The purpose of this study was to examine patron views regarding a worksite calorie labeling programs and examines rigorous information on change in patron purchases in control and intervention cafeteria settings. In this study, six Kaiser Permanente (KP) hospital cafeterias in California were selected to be either a control or an intervention site. A total of 554 patrons of the cafeterias participated in customer surveys regarding the intervention menu labeling. Nearly half of the survey respondents reported eating in the cafeteria at least several days a week and over half of them reported that they were trying to lose weight. Approximately two-thirds of the respondents were female, with nearly half being between 30-49 years of age.

KP cafeterias were selected to participate in a 12-week pilot program of calorie labeling of menu choices. Calorie labeling was in addition to the "Healthy Picks" program already in place, in which a logo identified the healthiest choices. Two different menu labeling interventions were designed: 1) calorie information was posted on countertop menu boards at the consumer point of decision and nutrition information including calories was listed on a poster in the central location in the cafeteria, 2) calorie and nutrition information was provided only on posters placed away from the point of decision. Both patron satisfaction and nutrition information posting usage was measured via surveys. Purchase changes were calculated in 2 cafeterias (electronic cash registers) before and after intervention.

Results showed that survey respondents from sites with menu boards plus poster were significantly more likely to notice calorie information compared to respondents at the site with posters alone. 74% agreed that posted calorie information was useful to making purchase decisions. Nearly all respondents agreed that cafeterias should provide calorie information and that by providing calorie information, KP was helping to look after their health. The proportion of target side dishes (<250 kcals) increased by 4.8% at the intervention site and decreased by 4.8% at the nonintervention site. The proportion of target snacks (<150 kcals) increased by 1.3% at the intervention site and decreased by 8.1% at the nonintervention site. Little change was observed in the proportion of target entree items purchased.

The study limitations included that the electronic cash registers used to collect data were only available in two sites, a control and an intervention. Also, the electronic cash registers did not allow for tracking of beverage types.