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# Food Shelf Friendly: Increasing the Nutritional Quality of Food Shelf Donations

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## Introduction

Food insecurity is a household-level economic and social condition of limited access to nutritionally adequate and safe food (1). Food banks provide a major source of sustenance for individuals experiencing food insecurity, many of whom deal with obesity, diabetes and hypertension (2), however, the nutritional contents of many donations to these operations fail to meet the dietary recommendations set forth by the USDA for individuals with many chronic health conditions (3).

In the present economy there is increasing demand for the services of local food shelves, however, often these organizations are unable to sufficiently meet the needs of their clients with regard to quantity, and perhaps more importantly, the nutritional quality and variety of food available. One cause of the lack of nutritionally rich donations is poor public education about the needs of the food shelf and its clients (4).

This study seeks to determine if consumer education at the point of purchase can influence donation decisions to increase the quantity and improve the nutritional quality of items donated to the Chittenden Emergency Food Shelf in a sustainable and reproducible manner.

## Methods

•Seven major grocery stores in Chittenden County, VT with food collection bins benefiting the Chittenden Emergency Food Shelf (CEFS) were chosen to participate in the study.

•Each was assigned to a study group (Table 1), based on the ability of the store to participate in each intervention.

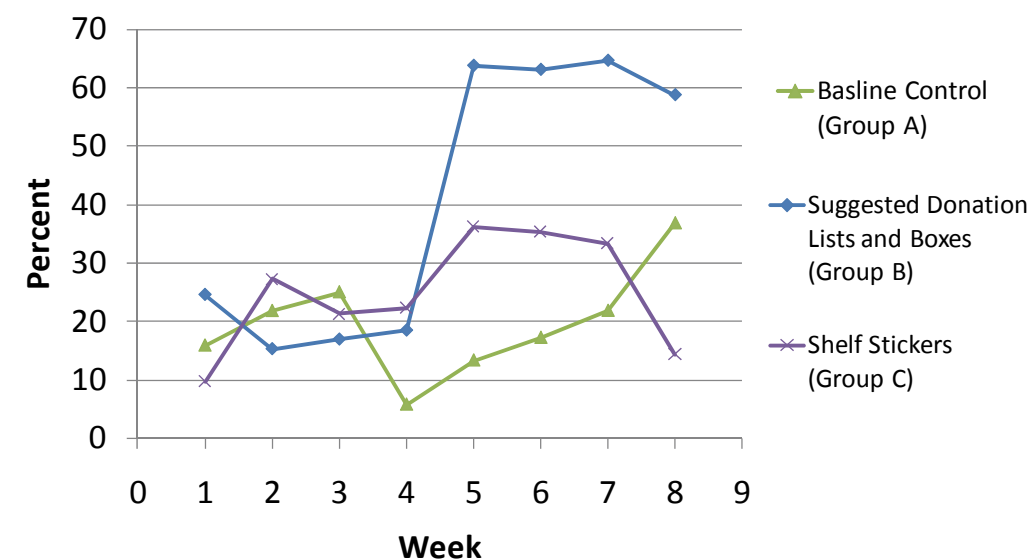
•Twenty healthy food items were chosen for promotion during the study using criteria created during prior UVM College of Medicine/CEFS projects (Figure 1) (5, 6).

•Baseline data were collected for four weeks, after which the interventions were implemented for four weeks. Donations were counted to determine the total number, as well as the number of items from the specified list of healthy foods.

•The resulting proportions were used as the dependent measures in the statistical analysis. Data were summarized using means and 95% confidence intervals; statistical analysis was done using one way ANOVA with  $\alpha=0.05$ .

## Results

### Donations from Project List



The proportion of healthy donations increased from the first 4 weeks (mean=19.9, CI 15.5-24.3) to the second 4 weeks of the study (mean=37.1, CI 28.5-45.8,  $F=12.9$ ,  $p=.001$ ).

When Groups B and C were grouped and compared to Group A there was a significant interaction of intervention versus control between the control period and the intervention period ( $F=4.75$ ,  $p=.034$ ).

Comparing Groups B vs. C during the intervention period revealed a significant effect in which the Group B means were higher (mean=58.4, CI=45.6-71.2 vs. mean=34.4, CI 21.1-47.3;  $F=8.36$ ,  $p=.01$ ).

Table 1- Participating stores, and study group assignments.

Study Group	Store, location	Intervention
Group A	Price Chopper, Shelburne Rd.	Baseline control
	Price Chopper, Williston Rd.	
Group B	Hannaford, Dorset St.	Poster placed at the entrance to the store encouraging donation with tear-off lists of the 20 selected healthy items
	Hannaford, Shelburne Rd.	
Group C	City Market, Winooski Ave.	Poster placed at the entrance to the store encouraging donation and stickers placed in the aisles on the shelves under the 20 selected healthy items
	Healthy Living, Dorset St.	
	Shaws, Shelburne Rd.	

Figure 1-Healthy food items promoted during the study.

- Kidney Beans (low sodium), canned
- Sweet Kernel Corn (low sodium), canned
- Tomato Puree, canned
- Sliced Carrots (low sodium), canned
- Cut Yams, canned
- Pear Halves in Juice, canned
- Peach Slices in Juice, canned
- Chunk Pineapple in Juice, canned
- Unsweetened Applesauce, jar
- Peanut Butter, Creamy, unsalted
- Old Fashioned Oats
- Long Grain Brown Rice
- Pasta (whole wheat)
- California Seedless Raisins
- Dry Roasted mixed nuts, (unsalted)
- Canned Tuna (in water)
- Canned Chicken (in water)
- Low sodium non tomato soup
- Cereal (sugar content < 10g)
- Spaghetti sauce (low sodium)



## Discussion and Conclusions

This study demonstrated that by educating potential donors and increasing consumer awareness, it is possible to improve the quality and quantity of donations; both intervention groups showed significant increases in the proportion of healthy donations.

Hannaford Supermarket's "Fund a Feast" program, in which consumers could purchase and donate a box of selected non-perishable items coincided with the study. In conjunction with intervention B, these stores showed a significantly greater increase in healthy donations than intervention C.

Limitations to our study included the inability to randomize stores to groups due to corporate regulations; low statistical power; unforeseen variables: such as overlapping food drives, and movement of intervention items

A promising direction for future studies could be to implement a program similar to Hannaford's "Fund a Feast" in order to independently test its effectiveness in improving the nutritional profile of food donations.

## Lessons Learned

There is a growing need in our community for the services of the CEFS. We will see food shelf clients among our future patients, and it will be important for us as doctors to understand the problem of food insecurity.

Consumers want to help ameliorate hunger in our community. Creating interventions that make participation easy and require little upkeep will be most effective and effect the greatest, most sustainable change.

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