

# Texas Medical Center Health Policy Institute Healthy Eating Initiatives

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## **Mudita Upadhyaya**

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# Background

- In 2001, Rice MBA students proposed a 5% “fast food tax” - then modified to a “fat tax” to pay for the uninsured
- 2003-2004 UVA and Government of Virginia labeled vending machines red-yellow-green and had a 5-cent (8%) “fat tax” on red
  - After one year, red item sales decreased 5.3 percent, yellow increased 30.7 percent, and green rose 16.5 percent. Overall sales increased 8 percent. \$8,000 in nickels went to Childhood Obesity
- 2009 Urban Institute “Reducing obesity: Policy strategies from the tobacco wars” recommending labeling





# Background

- 2014 TMC Health Policy Institute founded
- Strategic goals: to increase collaboration across the TMC institutions and to be a source of unbiased information to support health policy
- Originally called the O2 (“Obesity and Overweight”) Initiative, the Healthy Eating program had 3 parts:
  1. Labeling vending machines across TMC
  2. Labeling cafeteria food
  3. Having a number of TMC employers offer a structured weight reduction program after School of Public Health found (only) 5 that had data supporting long-term weight loss
- In 2017 as part of the TMC Collaborative Grant Program, a project to label food in corner stores was chosen



# This Evening

- Moderator: Stephen H. Linder, PhD Associate Director TMC Health Policy Institute and Professor UT Health School of Public Health
- Presentations:
  - Mudita Upadhyaya, DrPH, MPH & Shreela Sharma, PhD, RD, LD -- UTHealth
  - Jasmine J. Opusunju, DrPH, MEd, CHES, CPH -- CAN DO Houston and Baylor University & E. Lisako J. McKyer, PhD, MPH, FAAHB -- Texas A&M University
- Panel Discussion

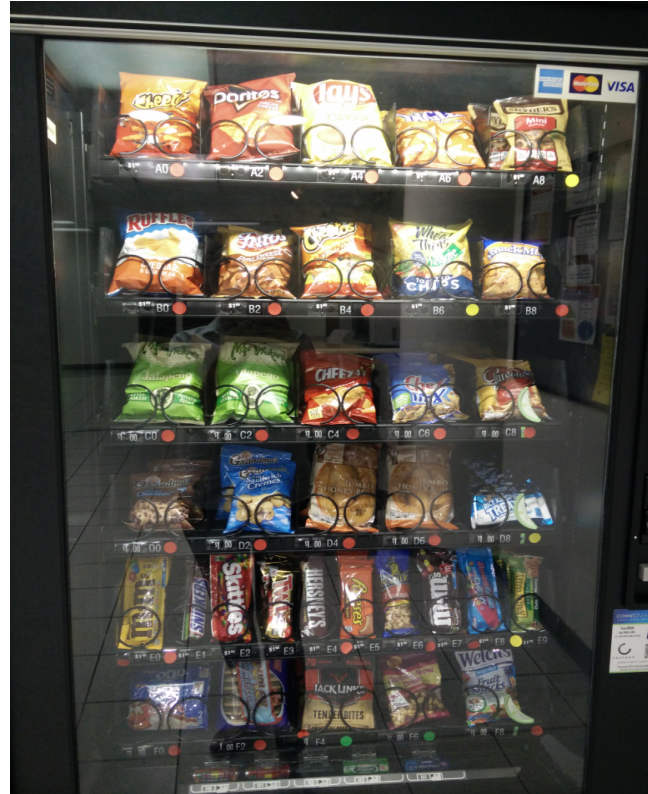


# Mudita Upadhyaya, DrPH, MPH Shreela Sharma, PhD, RD, LD

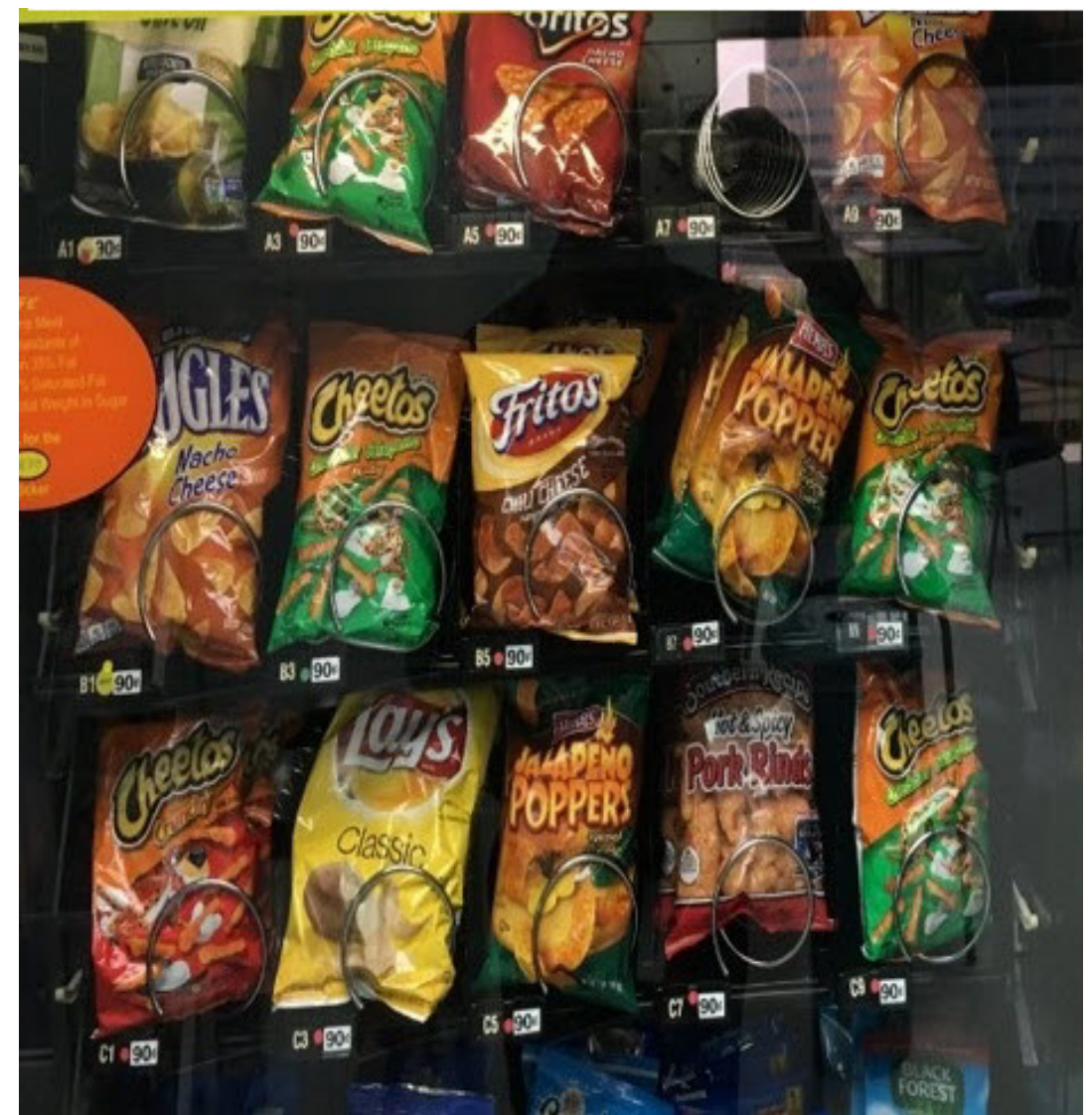
UTHealth

# Vending Labeling

- 20 TMC member institutions labeled a total of 149 snacks and beverage vending machines
- 90% used Red-Yellow-Green labeling
- 8 vendors serviced the vending machines across all institutions

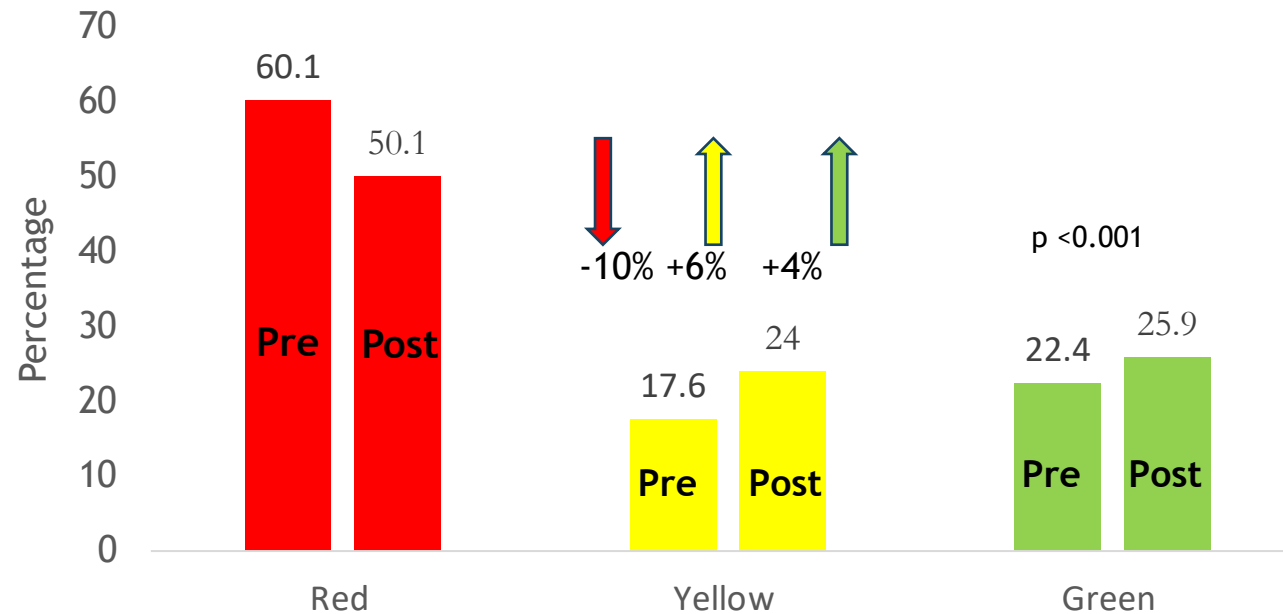






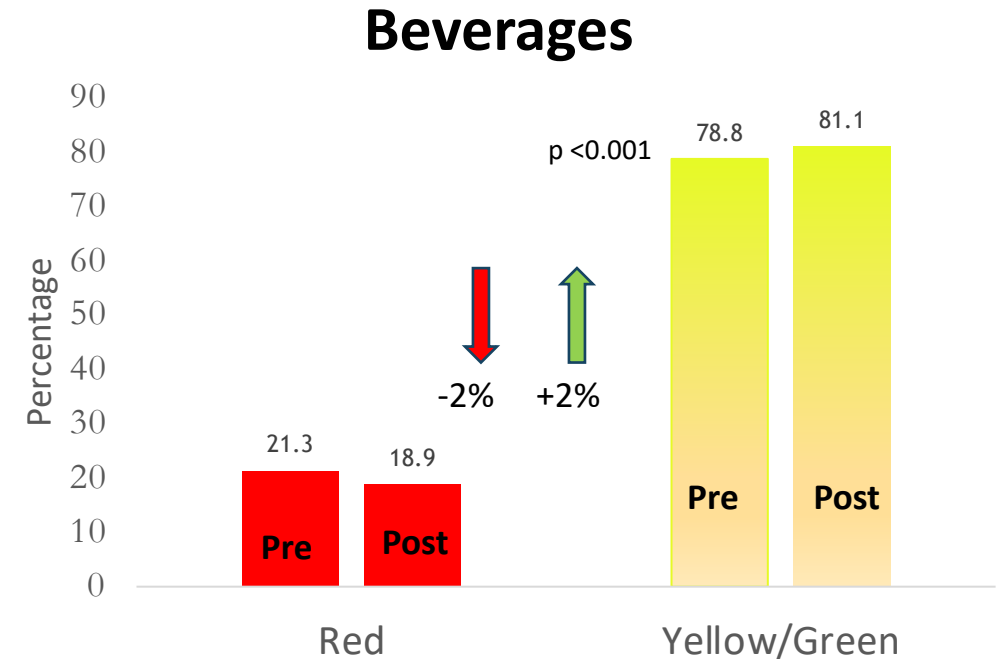
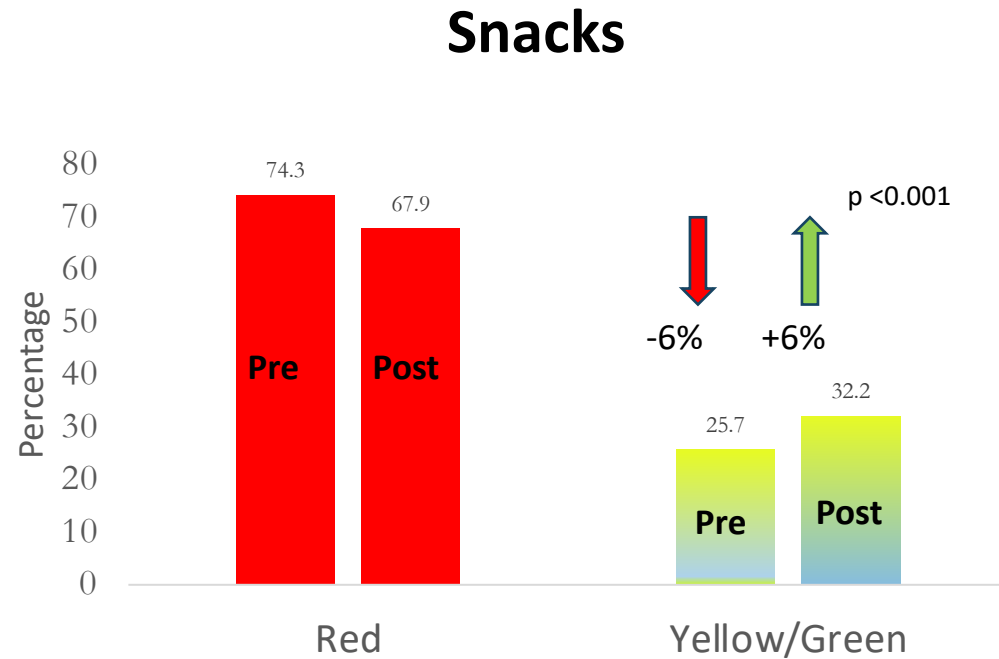
# Change In The Percentage Of Items Sold Per RYG Category (80 Machines)

Pre-labeling vs.  
Post -labeling



Institutions had significant improvement in proportion of yellow/green items sold and a concurrent decrease in proportion of red items sold

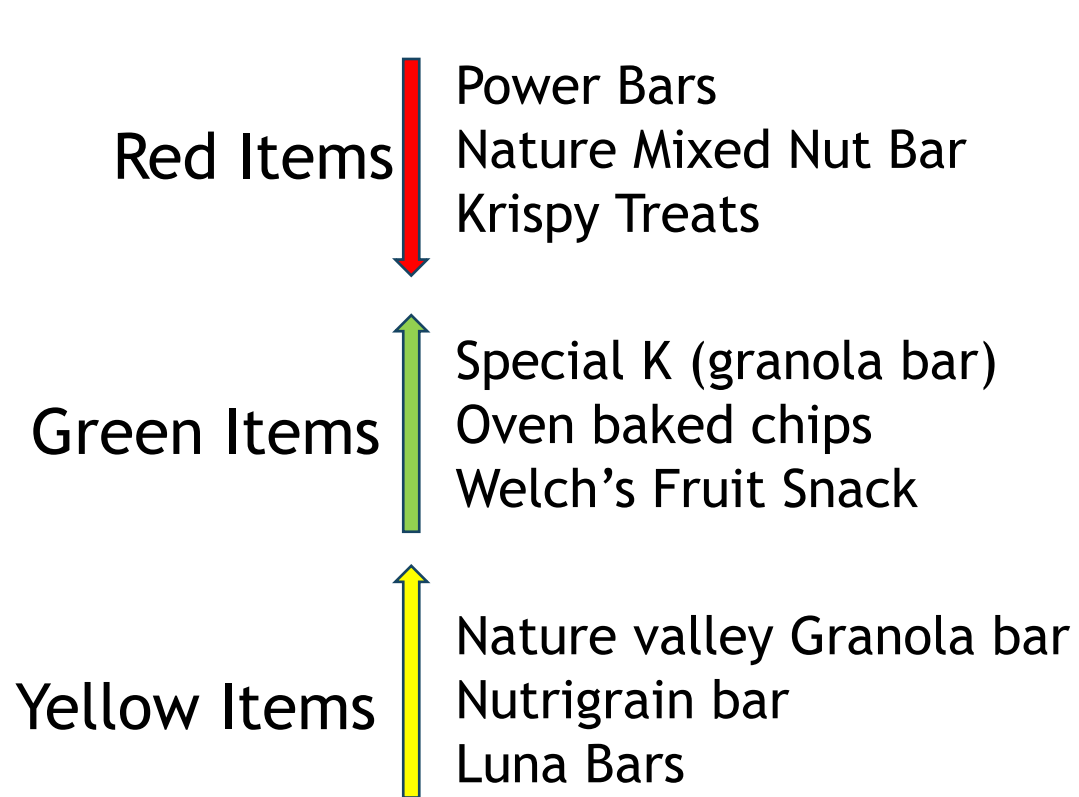
# Change In The Percentage Of Snacks And Beverages Sold Per RYG Category (80 Machines)



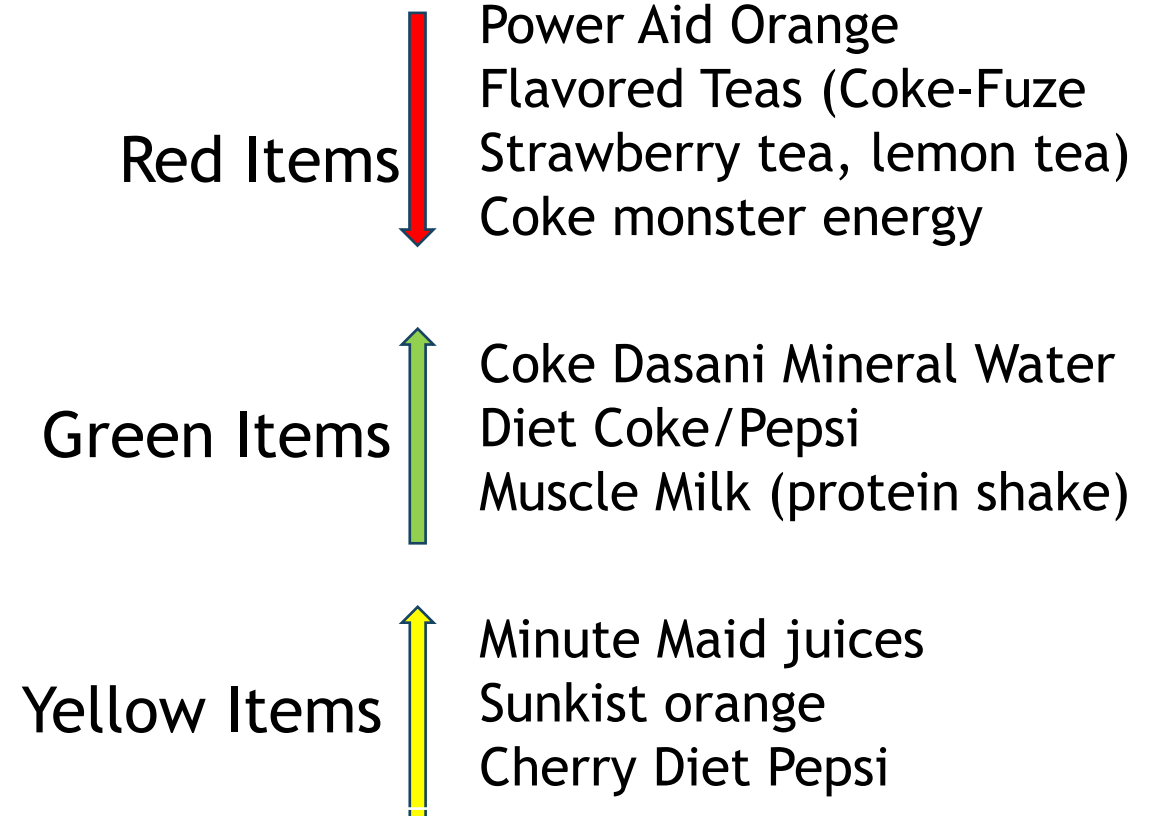
Institutions had a significant improvement in proportion of Y/G snacks and beverages, and decrease in Red items sold.



## SNACKS



## BEVERAGES



- We received only aggregate sales data for 63 machines.
- No significant difference was found in sales (\$) from pre labeling to post labeling period for institutions using RYG and Green-only strategies.

# Result Summary

- For 70% institutions (80 machines) that provided us sales data, RYG labeling resulted in a significant improvement in proportion of yellow/green items sold and a concurrent decrease in proportion of red items sold
- There was no change in sales (\$) for institutions that use either ‘green only’ labeling or RYG
- Data trend suggests that labeling items RYG does not adversely impact sales (\$) and may, in fact, improve sales of green and yellow items.

# Cafeteria Labeling

- 3 cafeterias were labeled using adapted Red-Yellow Green labeling



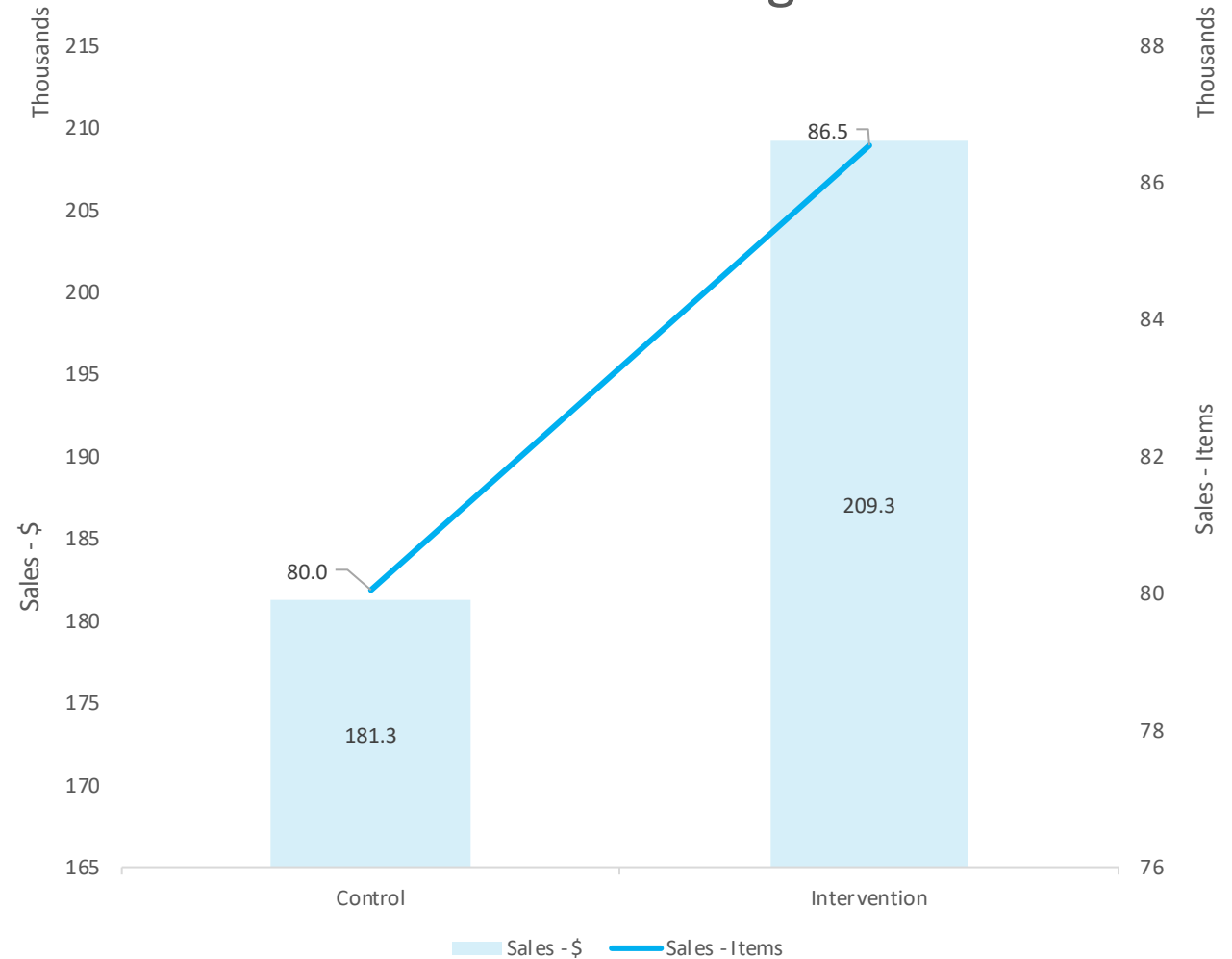
A Starbucks menu board is shown, featuring the Starbucks logo at the top center. The menu is organized into several sections: Espresso Drinks, Cold/Hot Drinks, Brewed Coffee, Customizable options, Frappé's, and Shaken Tea Lemonade. Each item is accompanied by a small icon of the drink. The menu is color-coded using a Red-Yellow-Green labeling system, with items grouped by color. The menu is displayed on a hanging board with a chain on the left and a metal ring on the right. The background shows a blurred view of a Starbucks store interior.

| ESPRESSO DRINKS   |             |               |              | COLD/HOT DRINKS           |             |               |              |
|---|-------------|---------------|--------------|---------------------------|-------------|---------------|--------------|
|   | TALL (12oz) | GRANDE (16oz) | VENTI (20oz) |                           | TALL (12oz) | GRANDE (16oz) | VENTI (20oz) |
| ● CAFFÈ LATTE   | \$2.75      | \$3.55        | \$3.85       | ● ICED CAFFÈ LATTE        | \$2.75      | \$3.55        | \$3.85       |
| ● CAPPUCCINO  | \$2.75      | \$3.55        | \$3.85       | ● ICED CARAMEL MACCHIATO  | \$3.55      | \$4.25        | \$4.55       |
| ● CARAMEL MACCHIATO   | \$3.55      | \$4.25        | \$4.55       | ● ICED CAFFÈ MOCHA        | \$3.55      | \$4.25        | \$4.55       |
| ● CAFFÈ MOCHA   | \$3.25      | \$4.25        | \$4.55       | ● ICED WHITE CHOC. MOCHA  | \$3.25      | \$4.25        | \$4.55       |
| ● WHITE CHOC. MOCHA   | \$3.25      | \$4.25        | \$4.55       | ● ICED CAFFÈ AMERICANO    | \$3.25      | \$4.25        | \$4.55       |
| ● CAFFÈ AMERICANO   | \$1.95      | \$2.55        | \$2.95       | ● ICED TAZO CHAI LATTE    | \$2.95      | \$3.65        | \$3.95       |
| ● CAFFÈ MISTO   | \$1.75      | \$2.25        | \$2.75       | ● ICED BREWED COFFEE      | \$1.75      | \$2.25        | \$2.75       |
| ● TOFFEE NUT MOCHA  | \$3.55      | \$4.25        | \$4.55       | ● ICED TAZO TEA           | \$3.55      | \$4.25        | \$4.55       |
| ● ESPRESSO  | SOLO        | DOPIO         |              | ● TAZO HOT TEA            | \$1.75      | \$2.15        | \$2.45       |
|   | \$1.75      | \$1.95        |              | ● TAZO CHAI LATTE         | \$2.95      | \$3.65        | \$3.95       |
| BREWED COFFEE   |             |               |              | ● HOT CHOCOLATE           | \$2.65      | \$3.15        | \$4.55       |
| ● COFFEE OF THE DAY   | \$1.59      | \$1.65        | \$1.85       |                           |             |               |              |
| CUSTOMIZE   |             |               |              |                           |             |               |              |
| VANILLA, CARAMEL, HAZELNUT, TOFFEE NUT, SF VANILLA, SF CARAMEL, SF HAZELNUT |             |               |              |                           |             |               |              |
|   |             |               |              | ● SHAKEN TEA LEMONADE     | TALL (12oz) | GRANDE (16oz) | VENTI (20oz) |
|   |             |               |              | PASSION, GREEN, BLACK TEA | \$2.45      | \$2.95        | \$3.45       |
| FRAPPÉ'S  |             |               |              | FRAPPÉ'S                  |             |               |              |
| ● TURTLE MOCHA  | \$3.75      | \$4.55        | \$4.95       | ● JAVA CHIP MOCHA         | \$3.75      | \$4.55        | \$4.95       |
| ● REESE'S MOCHA   | \$3.75      | \$4.55        | \$4.95       | ● VANILLA BEAN            | \$3.75      | \$4.55        | \$4.95       |

# Cafeteria Labeling (N=3 Cafes)

Overall, significant increase in the proportion of healthier items sold from the pre to post labeling period ( $p < 0.001$ ). Also, sales (\$) increased from pre to post labeling period

Overall Sales (\$) And Items Sold For The  
Pre And Post Labeling Period

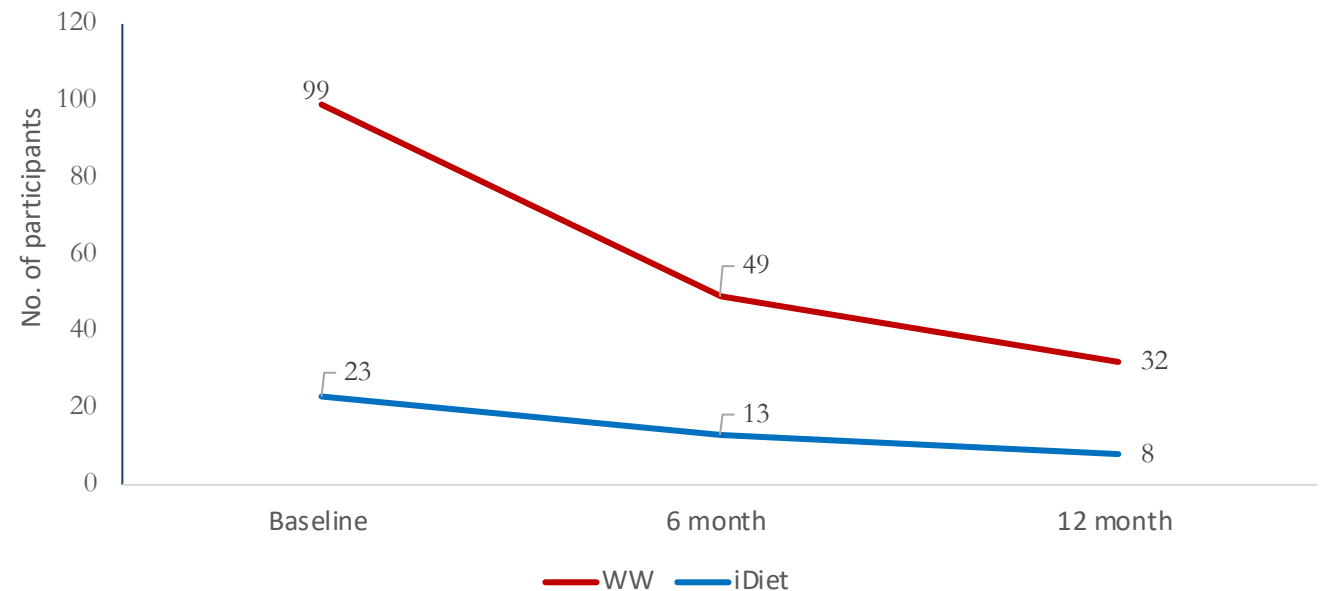


# WEIGHT LOSS PROGRAMS: Weight Watchers and iDiet

- On an average, participants lost 25.2 pounds for iDiet (n=13), and 5.8 pounds for WW (n=49) over 6 months.
- Overall 6 month retention rate was  $\approx 50\%$  ;12-month retention rate was  $\approx 32\%$ .

Participants who were lost-to-follow up weighed more and had higher BMI at baseline as compared to those who completed the 6-month measures.

Weight Loss Program Retention



# Summary And Implications



- RYG labeling of vending machines resulted in significant improvement in health choices for snacks and drinks
- RYG labeling in cafeteria showed increase in dollar sales.
- TMC Weight-loss programs showed similar results to other studies with poor retention and good weight loss
- Employers, states and local agencies can support labeling and enhance its effectiveness.

# Go, Slow, Whoa!

## The Impact of a Food Labeling System on Awareness and Purchasing Behavior in Corner Stores



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Texas Medical Center Funding Program Collaborative





# Background

- Less access to supermarkets and convenience stores with fresh foods at affordable prices in minority and low-income neighborhoods.
- Corner stores and bodegas can increase people buying and eating healthy foods plus present health messages.



# Approach

- Consumer-friendly food labeling system (traffic light)
  - **GO**: lowest in fat and sugar; nutrient dense; whole foods
  - **SLOW**: higher in fat, added sugar, and calories
  - **WHOA**: highest in fat and added sugar; calorie dense but often low in nutrients; more processed foods
- Based on the Dietary Guidelines for All Americans
  - Items identified and categorized by food group
- Designed to increase awareness and knowledge of nutritional value in foods



## IMPLEMENTATION

Applied in existing “healthy” corner stores in low income communities in Houston/Harris County (10 stores)

# Intervention Components



*Red, Yellow, Green!* nutrition education signage



Training local youth on *Red, Yellow, Green!*





Monthly food demonstrations/sampling and nutrition education

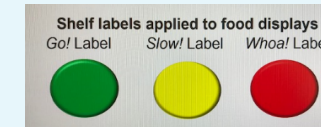


Data collection - customers, store owners/personnel, and sales

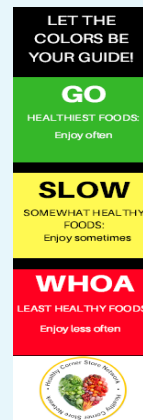
# Red, Yellow, Green! Signage

## Criteria And Item Labels

|   |  |  |   |
|---|--|--|---|
|  | Whole grain breads, pastas, crackers; Oatmeal, Brown Rice, Low-sugar cereals, Air popped popcorn | White (refined/ enriched) grain breads, pastas, crackers, Baked Chips, Low-fat popcorn | Biscuits, doughnuts, muffins, fried rice, sugary cereals, Popcorn with butter, Kettle popcorn, Potato chips |
|  | Fresh, Frozen, Canned or Dried vegetables without added sugar or salt; 4 oz 100% juice           | Frozen & Canned vegetables with added fat or cheese sauce                              | Fried vegetables and potato chips   |



## Shelf Information







# Training Youth on *Red*, *Yellow*, *Green*!





# Monthly Food “Demos” Sampling & Nutrition Education

# Data Collection



Customers

Awareness  
Purchases



Store  
Owners/Personnel

Effects of **Red**, **Yellow**, **Green**!  
on sales

Policies to support selling  
healthier options



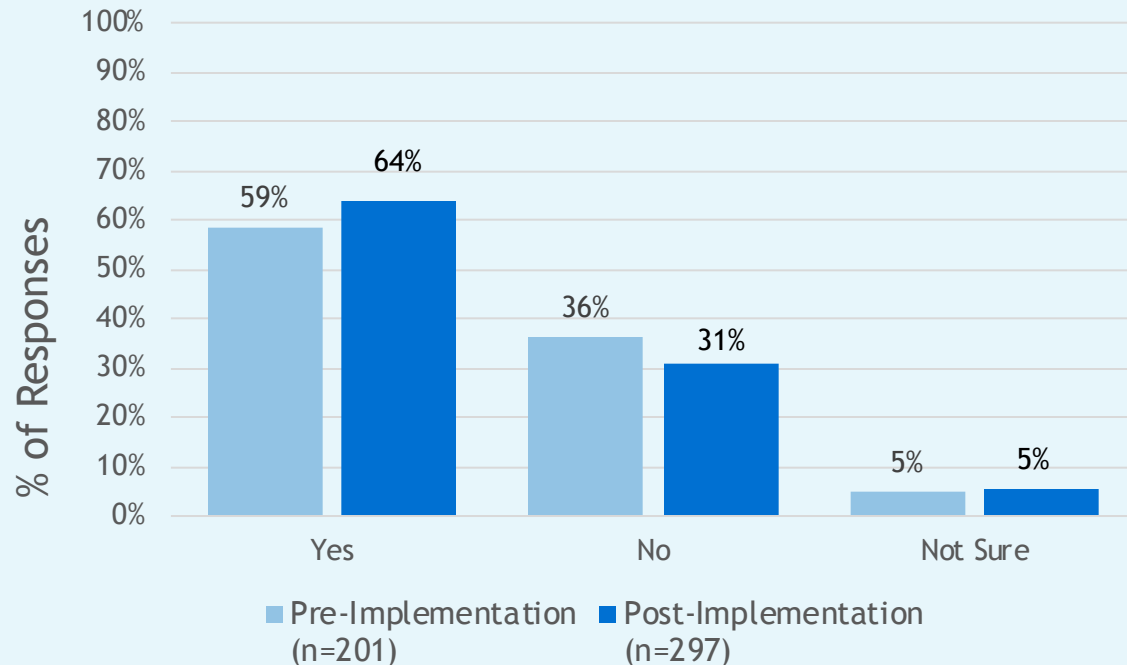
Sales

Weekly inventory  
of healthier  
options

# Findings: Customers (Pre-label Vs Post-label)

## Awareness of Healthier Options

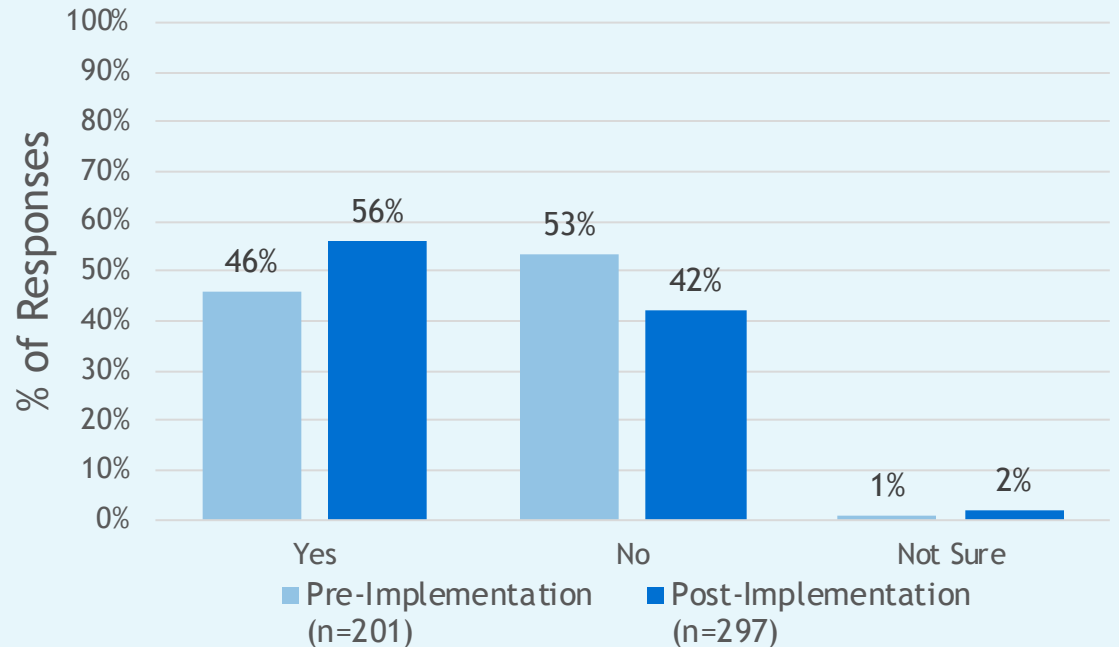
"Did You Notice Any Healthier Items?"



No change,  $p>0.05$

## Purchase of Healthier Options

"Did You Buy Healthier Items In The Store?"



Change,  $p<0.05$



# Findings: Customers (Post-Label Only)



## Awareness and Perceptions of *Red, Yellow, Green!*

- 67.9% - the labels were easy to see
- 88.8% - the labels are useful
- 93.9% - the labels should be in every corner store
- 91.2% - the labels make it easier to buy healthier options

# Findings: Store Owners And Personnel



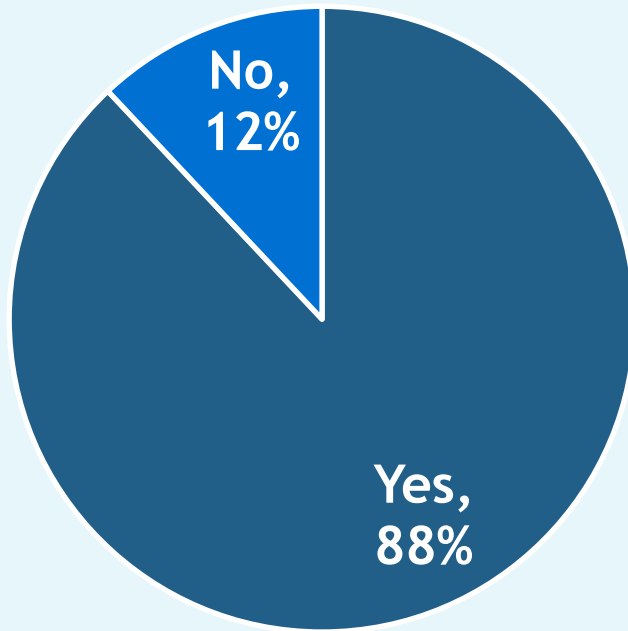
## Perceived Effect On Sales

“How have Red, Yellow, Green labels impacted the sales of healthier items at this corner store?”

- 43.8% - ‘increased sales of healthier items’
- 43.8% - ‘no change in sales of healthier items’  
Feedback: Need more signage
- 12.4% - ‘other’ (ex. selection)

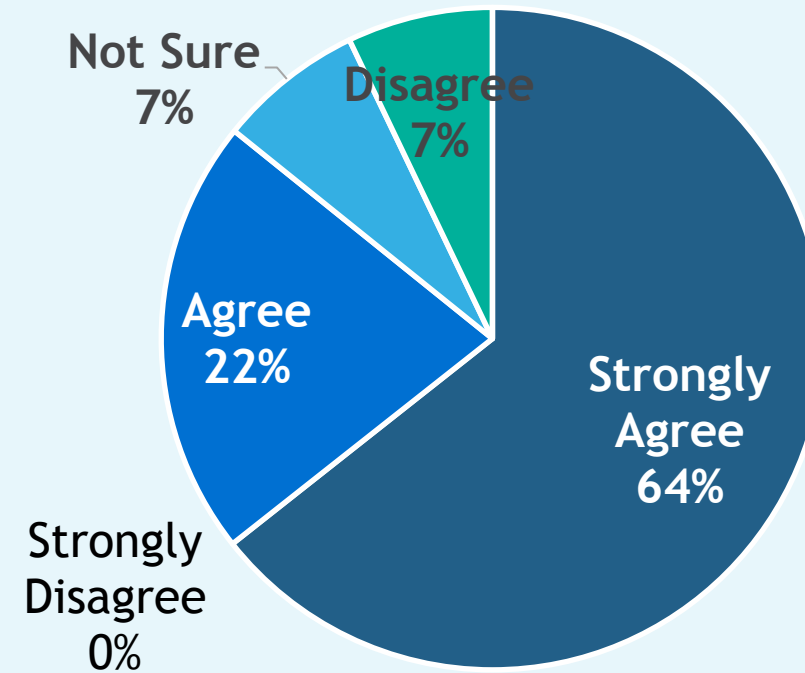
# Findings: Store Owners and Personnel

“Is Red-Yellow-Green Labeling Helpful to Your Store?”



*If yes, select your response to this statement:*

“Red-Yellow-Green Promotes New Healthier Items”



# Findings: Store Owners and Personnel

## “What Policies Would Make It Easier to Sell Healthier Items at This Store?”

- Mandatory weekly orders of healthier options
- Increase in food demonstrations/sampling
- Greater variety of healthier options
- Increase in visibility
- More guidelines every store, such as *Go*, *Slow*, *Whoa!*, to educate customers
- Support to keep foods fresh for longer time periods
- Decrease in sales of cigarettes at corner stores
- Cheaper healthier options for them to be more affordable for customers





# Findings: Sales Pre-Label vs Post-Label

- Individual Stores
  - No change in sales for most stores
  - Increase in fruit (2 stores)
    - Increase in availability
  - Decrease in vegetables and herbs (1 store)
    - Change in sourcing for certain items
      - Unable to fully track inventory
- All Stores (Combined)
  - No change in sales (fruit, snacks, whole grains)
  - Decrease in vegetables and herbs
    - Change in sourcing and inventory tracking



# Summary of Findings

- Increase in customer-reported purchases of healthier options
- Customer support for *Red*, *Yellow*, *Green!* Labeling
- Store owner/personnel support for *Red*, *Yellow*, *Green!* Labeling
- No change in sales (collectively) but some changes at the store level

# Lessons Learned

- Intervention spanned into summer = sales/traffic decline
- Difficult to change behavior across 19 weeks
- Measurement not fully capturing changes
- Preliminary study
  - Need larger sample (people and stores)
  - Need longer data collection time frame (examine sustained changes)
  - Need to incorporate POS system data
  - Need increase in food “demos”
  - Need increase in signage and marketing

# Policy Recommendations



- Local- and state- supported healthy corner store program
- Healthy Food Financing Initiatives
- Encourage corner store participation and use of *Red*, *Yellow*, *Green*!
- Special recognition (e.g. Houston Health Department, Better Business Bureau, Retailers Associations, etc.)
- *Red*, *Yellow*, *Green*! marketing materials for storewide use
- Support weekly food “demos” and nutrition education
- Help stores to receive quality healthier options at lower costs



# The TMC Healthy Eating Initiatives

1. TMC Members worked together on a number of projects
2. Healthy vending should be pursued, but collecting outcomes demonstrating change in weight requires continued cooperation on vendors and institutions
3. Healthy cafeterias are worthwhile but extremely difficult operationally
4. Individual weight loss programs difficult and TMC had no formula to improve results from nationally.
5. Food labeling in corner stores is an exciting challenge that could provide important ways of changing behavior.