

OPTIMAL BEHAVIORAL ECONOMIC STRATEGIES TO INCREASE WIC REDEMPTIONS

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Topics for Discussion

1. Background & Specific Aims
2. Study Design
3. Behavioral Economic Strategies
Implementation
4. Data Analysis & Results
5. Summary
6. Limitations & Next Steps



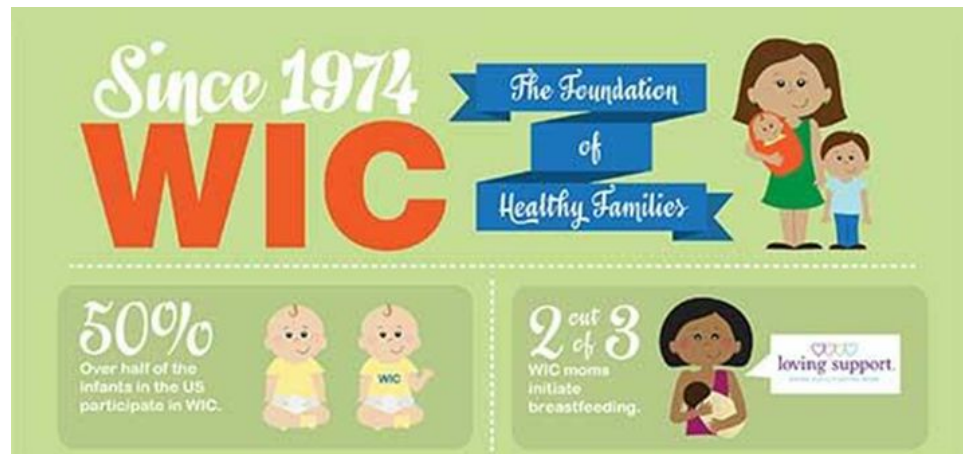


What Is WIC?

- The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) is funded by the United States Department of Agriculture (USDA) Provides
 - Healthy Supplemental Foods
 - Nutrition assessment and education
 - Breastfeeding Promotion and Support
 - Referrals to health and other social services to participants
- WIC serves low-income pregnant, postpartum, and breastfeeding women—and infants and children up to age 5
- The prototype for the National WIC Program was designed and piloted at JHU and adopted nationally by Congress in 1974

WIC Eligibility Requirements

- To participate in the WIC Program, applicants must meet the following requirements:
 - Categorical
 - Nutritional risk
 - Income
 - Residency



- Source: retrieved from <http://www.fns.usda.gov/wic>

Categorical Requirement

- The following individuals are considered categorically eligible for WIC:
 - Women
 - Pregnant: during pregnancy and up to six weeks after the birth of an infant or the end of the pregnancy
 - Postpartum: up to six months after the birth of the infant or the end of the pregnancy
 - Breastfeeding: up to the infant's first birthday
 - Infants
 - Up to the infant's first birthday
 - Children
 - Up to the child's fifth birthday

• Source: retrieved from <http://www.fns.usda.gov/wic>

Baltimore City

- **25%** of Baltimore residents live in a food desert where corner stores are a primary food source.^{1,2}
- **33%** of corner stores participate in the WIC program.³
- **30%** of low-income AAs reported using WIC vouchers in small food stores.³
- Change in WIC enrollment in past 5 years: **-27.9%**
- Store owners mention numerous barriers to selling WIC foods.⁵
 - Lack of demand for WIC foods
 - Challenges promoting WIC foods
 - Excessive paperwork
- How can we increase WIC redemptions in Baltimore?



Research Gap

- **No studies have evaluated the use of different behavioral economic strategies in WIC accepting corner stores**

Definition of Behavioral Economics

- The study of psychology as it relates to the economic decision-making processes of individuals and institutions.

Behavioral Economics: Core Strategies

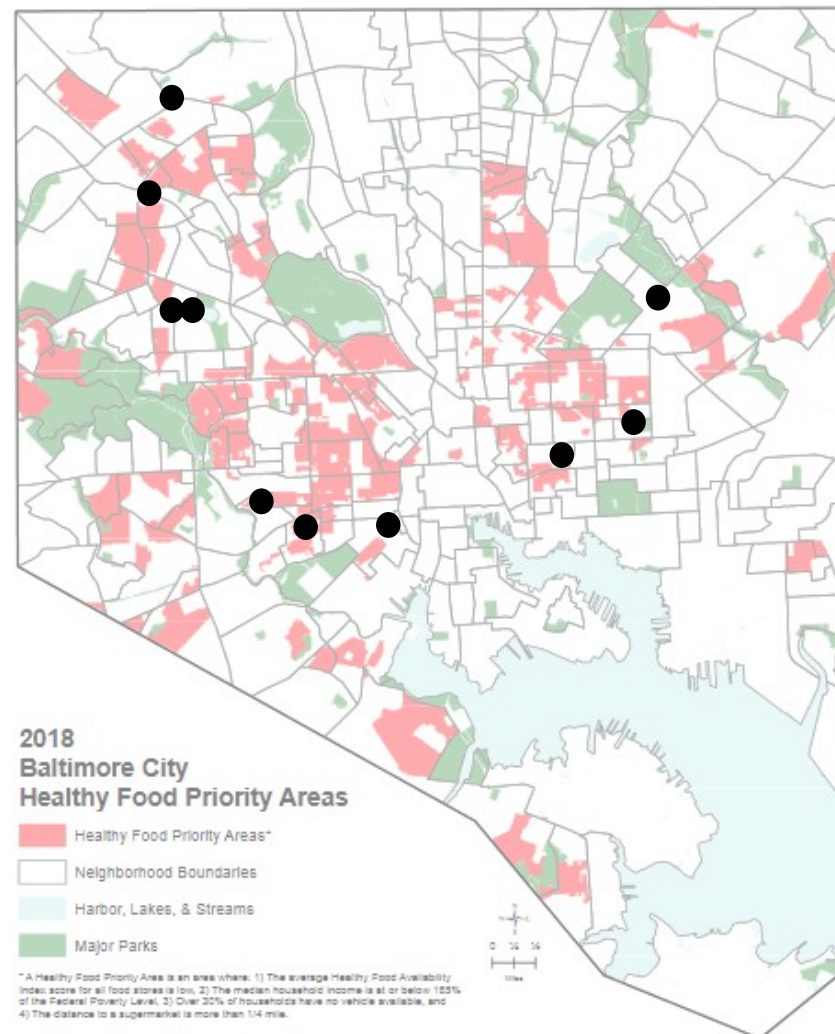
- Thinking automatically (versus deliberative)
 - The “easy choice”
- Nudging
 - Using positive reinforcement and indirect suggestions to influence behavior
- Framing
 - where people decide on options based on whether the options are presented with positive or negative connotations; e.g. as a loss or as a gain
- Mental accounting (using preconceived models to guide behavior)
 - Heuristics, the use of rules of thumb or mental shortcuts to make a quick decision.

Specific Aims

1. To determine the impact of four different behavioral economic strategies **separately** on stocking and sales of WIC foods in small urban corner stores.
2. To determine the impact of **combined** behavioral economics strategies on stocking and sales of WIC foods.

Participating Corner Stores (N=10)

Map 6



BE Strategies

A) Storeowner Training

- Training videos
- Nudge guides
- Knowledge questions

B) Point of Purchase (POP) Promotion

- Posters
- Shelf labels

C) Product Placement

- Eye level
- Front of store
- Near the register

D) Grouping of Products

- Display

Study Design & Timeline

Time	Stores 1-2	Stores 3-4	Stores 5-6	Stores 7-8	Stores 9-10 (Control)
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A) Store Owner Training

- **Week 1**, storeowners viewed two videos

- Available in Korean, Mandarin and English

1. *“How can WIC benefit you?”*

- Stocking WIC eligible products
- Challenges that store owners face

2. *“How to increase your sales of WIC products”*

- Verbal encouragement (nudging)
- Strategies to improve sales
- Provides visual examples



To keep WIC in your store make sure:



Foods are in date and fresh



Store is clean



Check redemption procedures are being followed



Prices are posted



Required minimum stock is met



WIC sign is posted

A) Store Owner Training

- Weeks 2-4, interventionists reviewed a nudge guide with each storeowner
- Four quick reminders for store owners on how to help their WIC customers

1. Tell your customers what WIC eligible products you stock

"Look for the foods with WIC labels."

2. Walk your customers through your store to show them where WIC products are

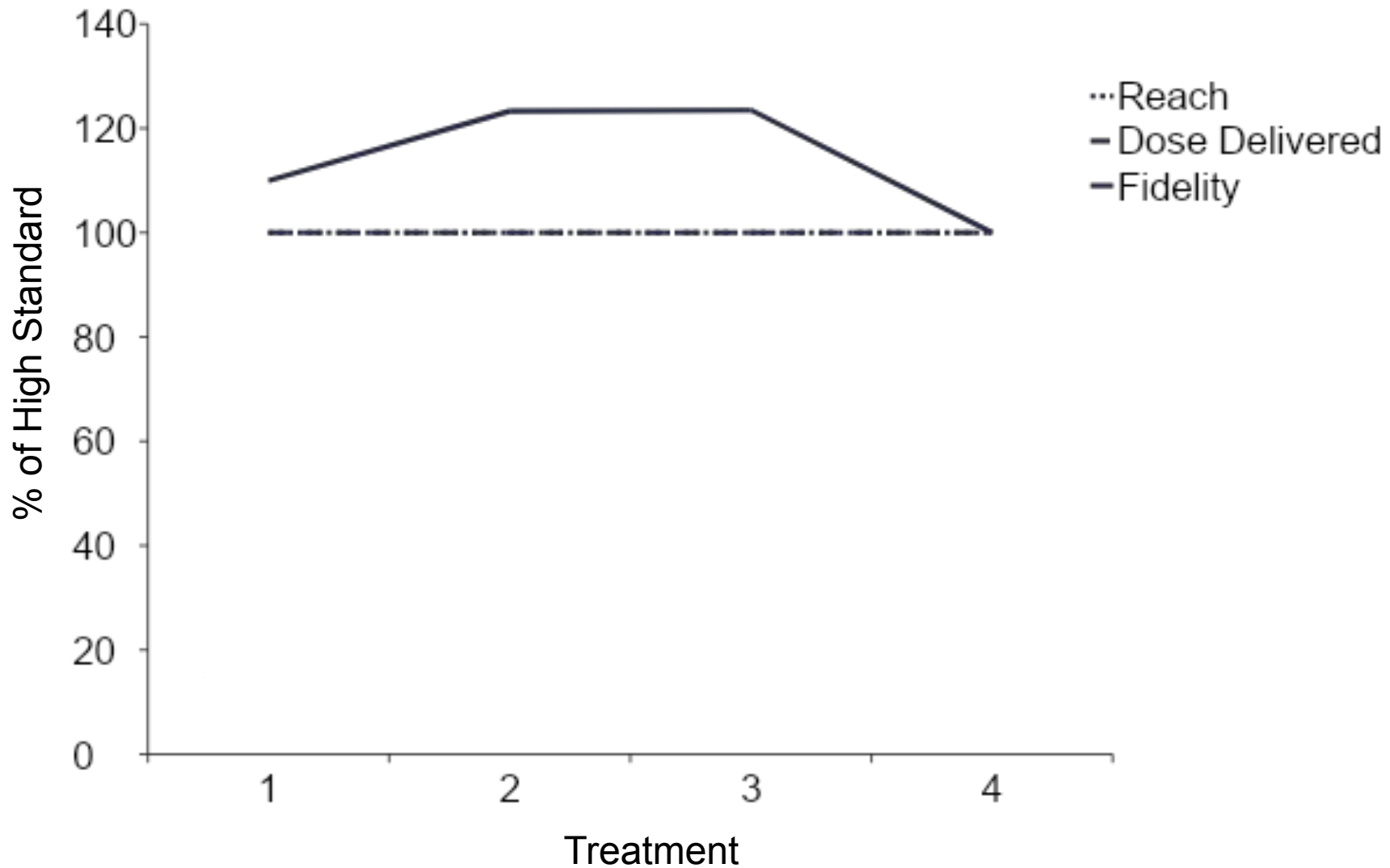
"Have you seen the new WIC product display?"

"Let's walk through the aisles to see where WIC products are in my store."

- Quiz after each training



A) Store Owner Training Process Results



B) POP Promotion

- Four **posters** were developed and promoted foods based on WIC age group
- **Shelf labels** were store specific and color coded to match posters

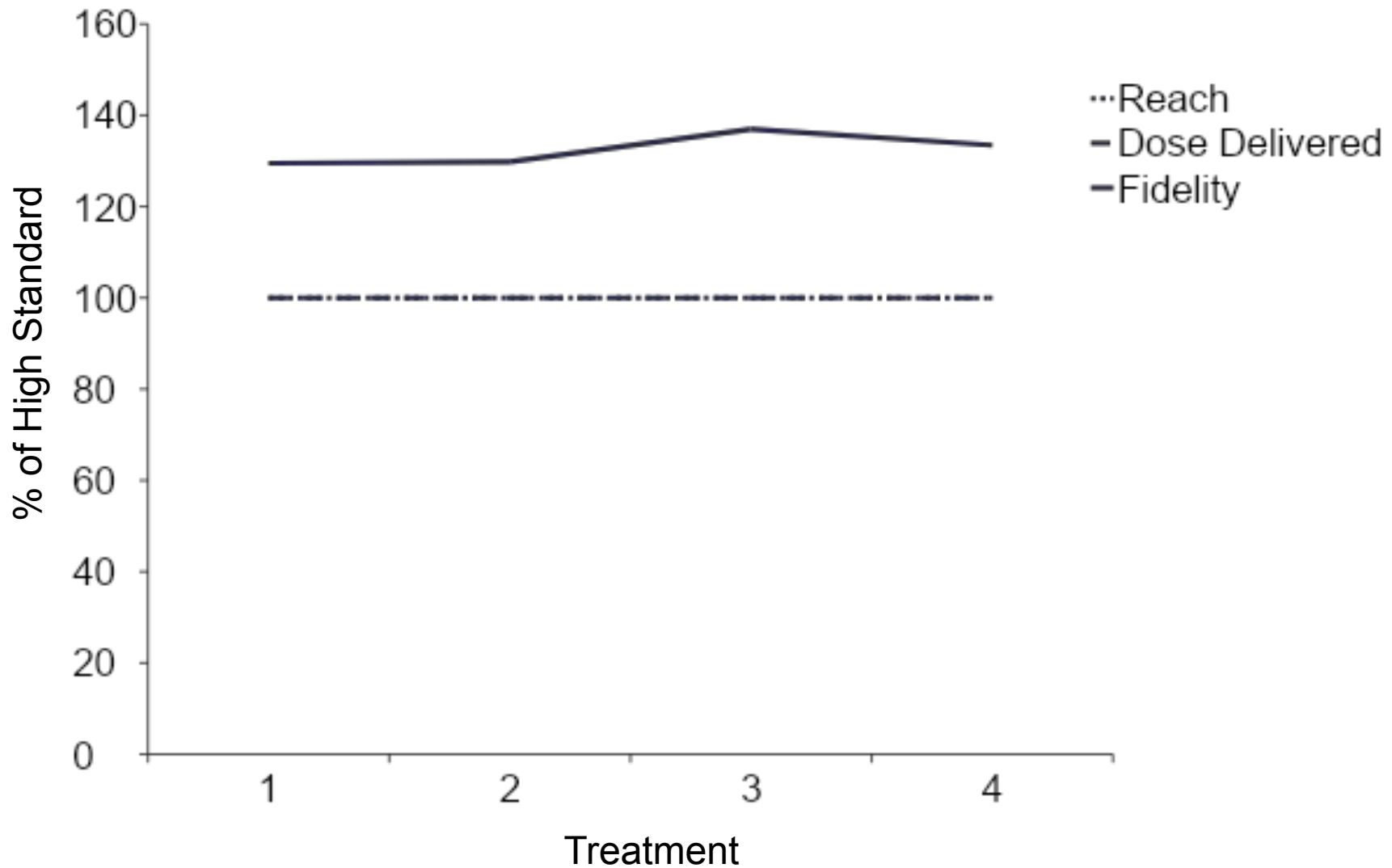


B) POP Promotion

- Posters & Shelf labels



B) POP Promotion Process Results

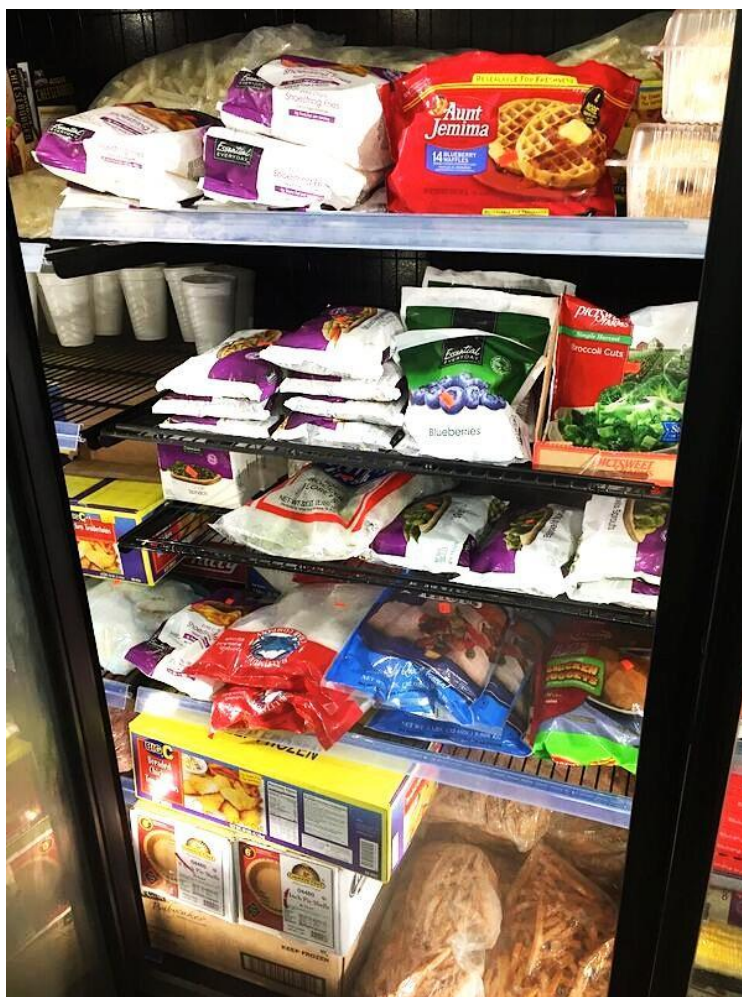


C) Product Placement

- Interventionists worked with store owners to move WIC products to **eye-level, front of store, and/or near the register**



C) Product Placement

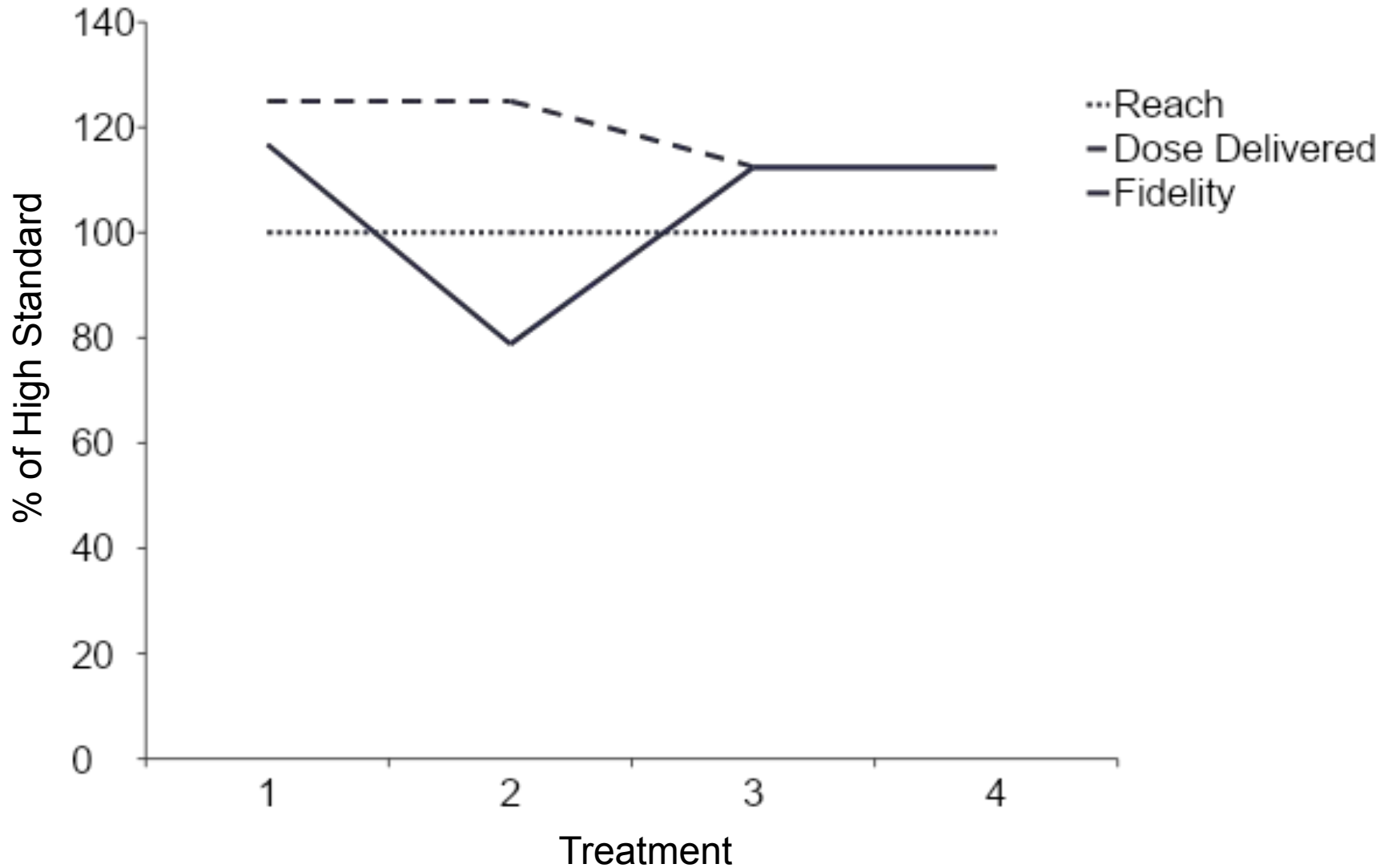


BEFORE



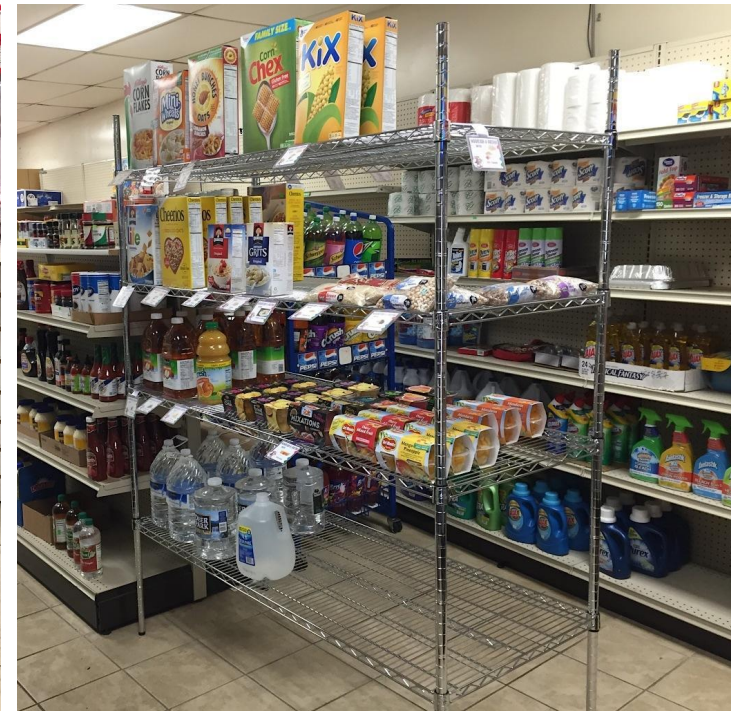
AFTER

C) Product Placement Process Results

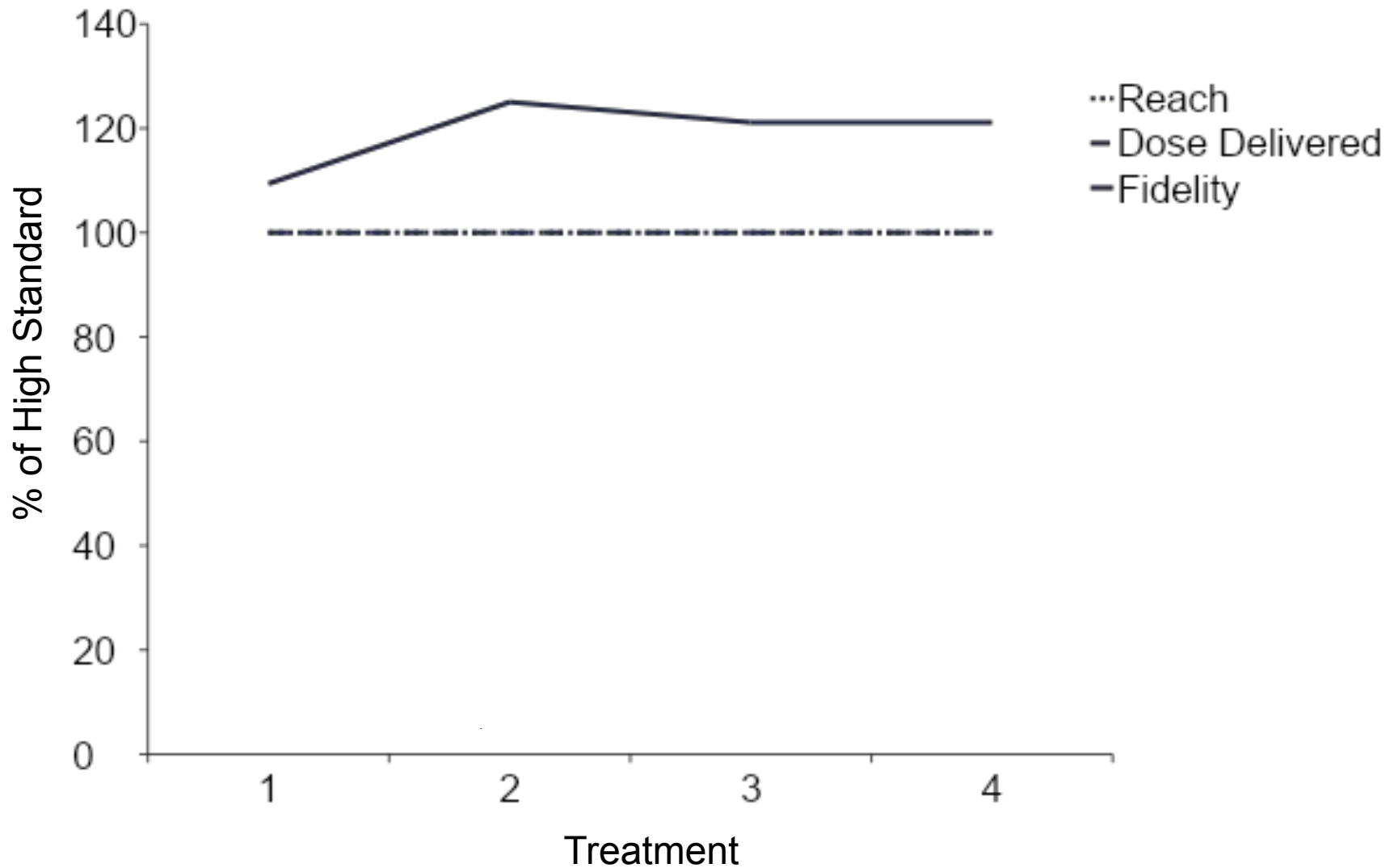


D) Grouping of Products/ Display

- Interventionists worked with store owners to group WIC food items using one of six **display** options
- Space in stores and store owner preference dictated the type of display and number of products grouped



D) Grouping of Products/ Display Process Results



Text Messaging Reinforcement

- All eight intervention store owners were enrolled in a text messaging service (i.e. Mobile ViP, EZ texting) and at the beginning of the intervention
 - Text messages reinforced the BE strategy or combination of BE strategies employed in each store at that time
 - Text messages were available in Korean, Chinese/ Mandarin or English
 - Store owners received 2-3 text messages a week
- **100%** of text messages were marked as delivered
- **100%** intervention store owners remained in the text messaging service for the duration of the intervention

Summary of Implementation Findings

- Possible to implement all four BE strategies with high reach, dose delivered and fidelity
- Text messaging was acceptable form of reinforcement of each BE strategy
- Note: this was a multi-level BE trial

Data Analysis

Main Outcomes:

Primary: total WIC food sales and total WIC food sales to WIC clients

Secondary: total stocking of WIC foods

1. Descriptive analysis of single BE strategies
 - a. Positive and negative changes after implementing 1 BE strategy
2. Exploratory analysis of the change in outcomes over time by combining BE strategies
 - a. Linear regression on combinations of BE strategies (ordinal variable)
 - b. Statistical significance set at $p < 0.05$

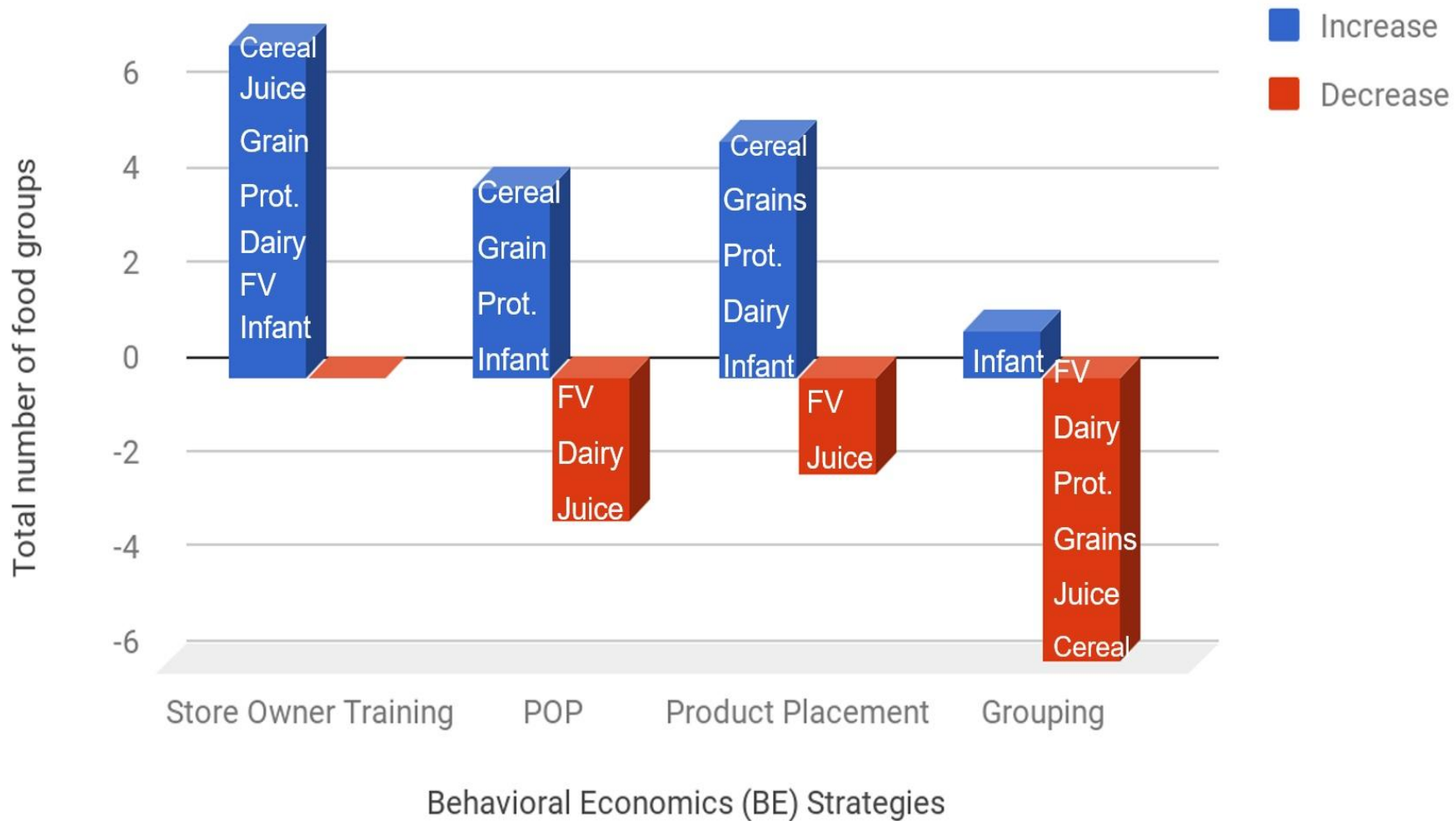
Change in **All WIC Food Groups** After One BE Strategy, units

	Control (n=2)	Store owner training (n=2)	POP (n=2)	Product Placement (n=2)	Grouping (n=2)
	Reference	Mean change	Mean change	Mean change	Mean change
Stock		251.0	40.0	168.0	-358.5
Sales		394.5	-149.0	-35.5	111.0
WIC sales		60.0	-139.5	-76.5	-36.0

7 WIC Food Groupings

Group	Items
Infant	Formula, infant cereal, infant vegetables, infant fruit, infant mixed fruit and vegetables, infant meat
Fruit & Vegetables	Fresh, frozen and canned fruit varieties Fresh, frozen and canned vegetable varieties
Dairy	Milk, cheese, yogurt, tofu, soy base beverages
Protein	Eggs, canned fish, dry beans, canned beans, dry peas, canned peas, dry lentils, canned lentils, peanut butter
Grain	Whole wheat bread, whole wheat rolls, soft whole wheat tortillas, soft corn tortillas, dry brown rice
Juice	100% juice frozen concentrate, 100% juice 64oz
Cereal	Cold breakfast cereals, oatmeal, cream of wheat, grits

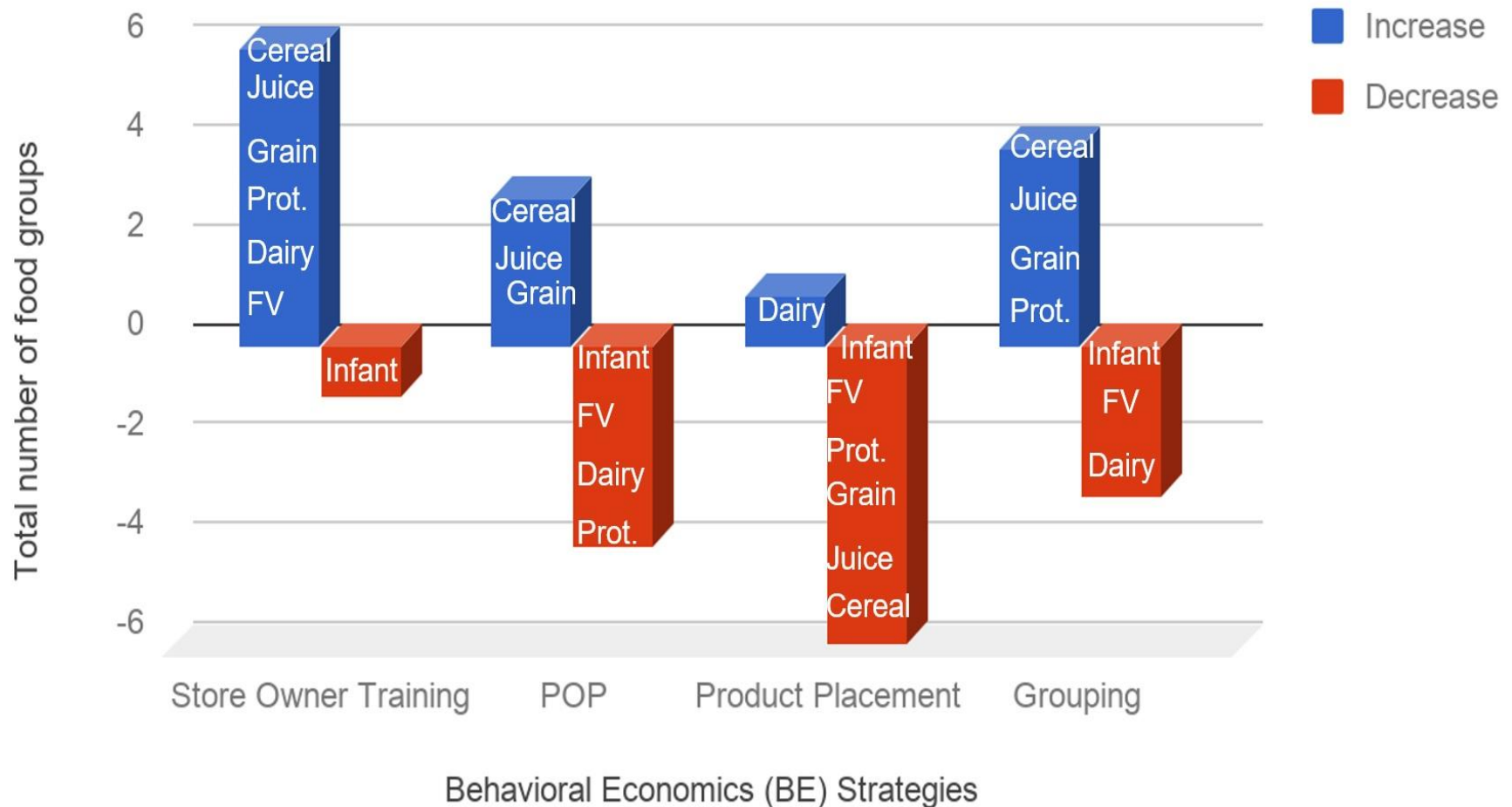
Number of Food Groups that Changed Stocking by BE Strategy



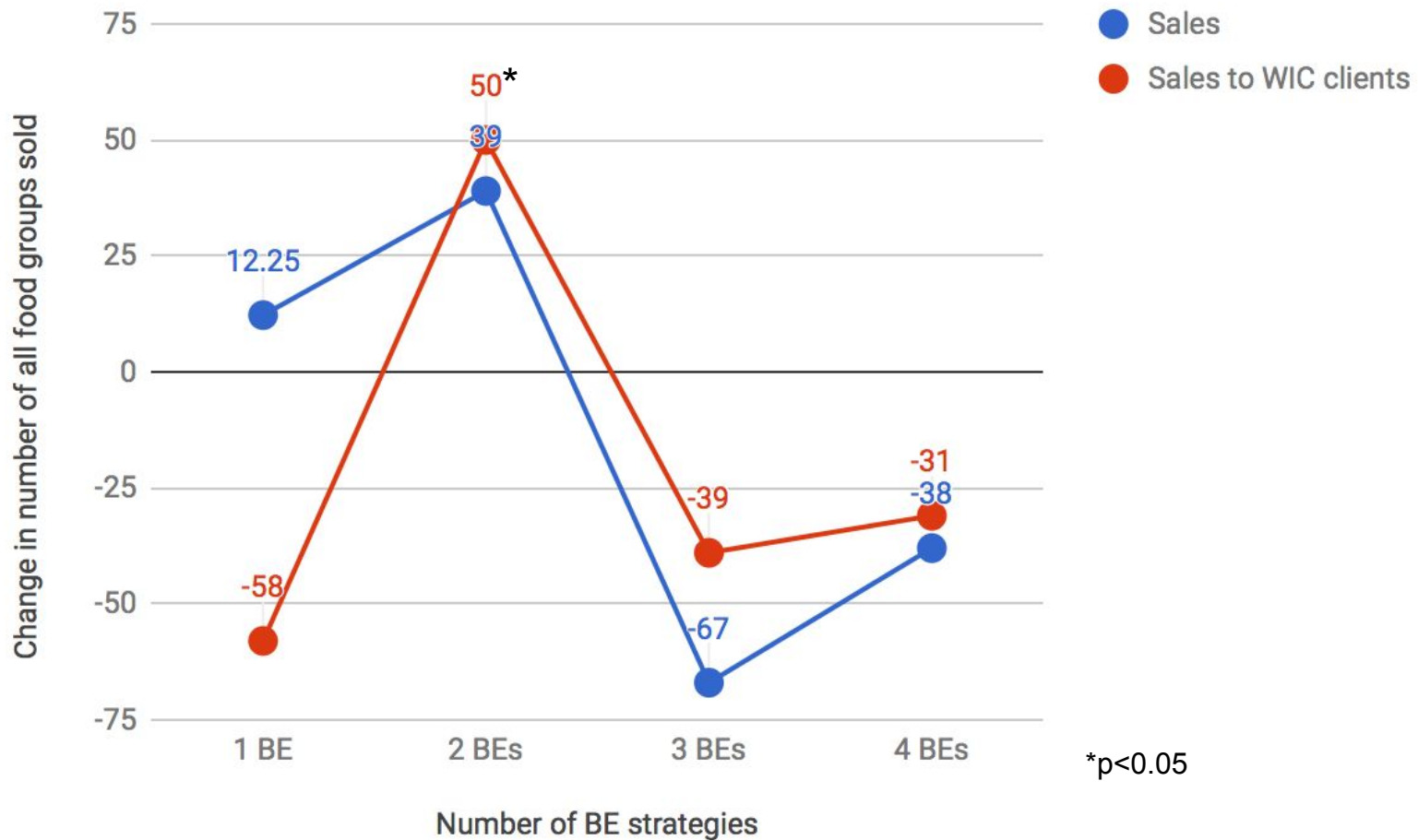
Number of Food Groups that Changed Sales by BE Strategy



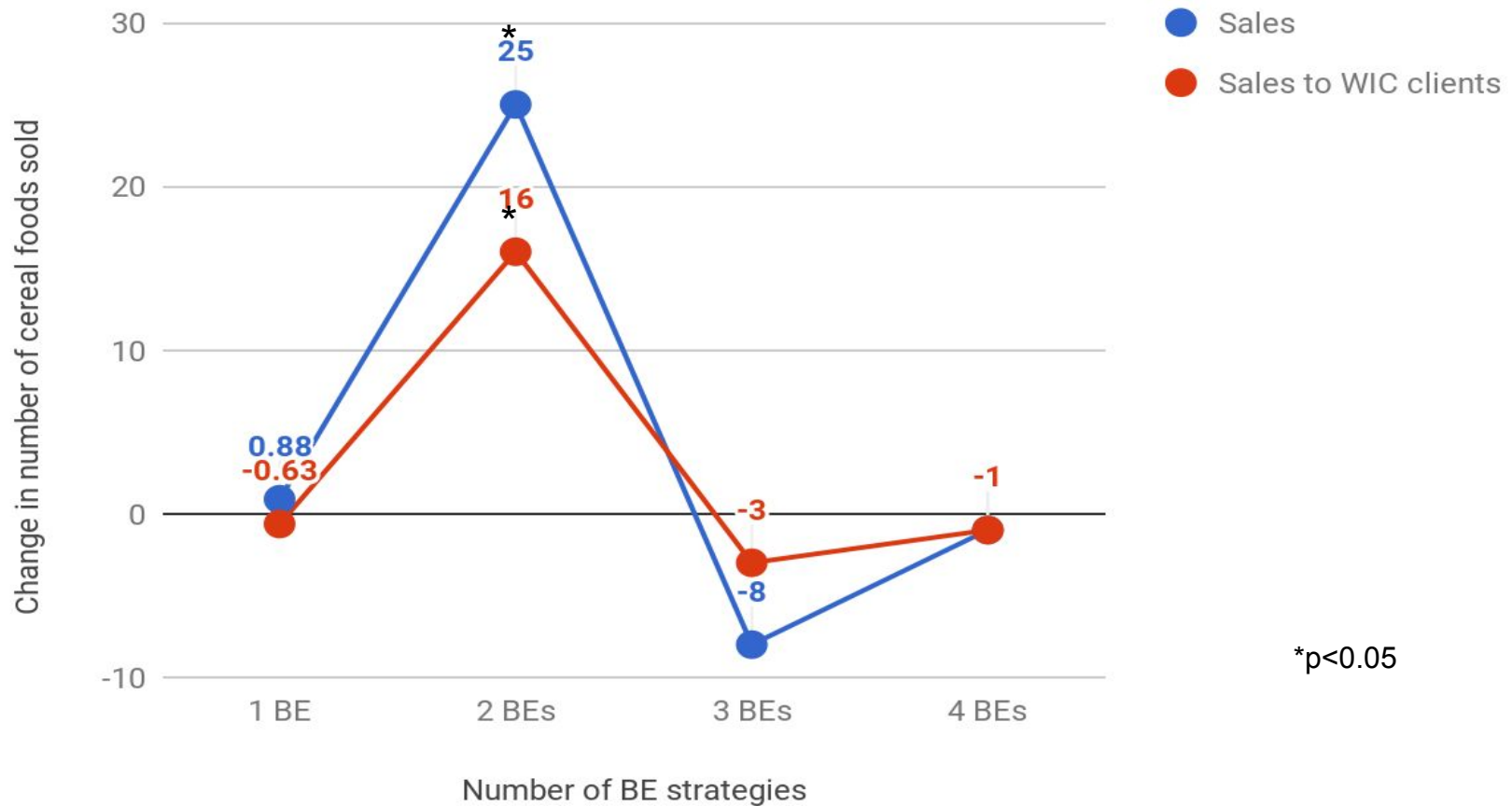
Number of Food Groups that Changed WIC sales by BE Strategy



Change in Total Sales and Sales to WIC Clients Over Time by # BE Strategies for **All**

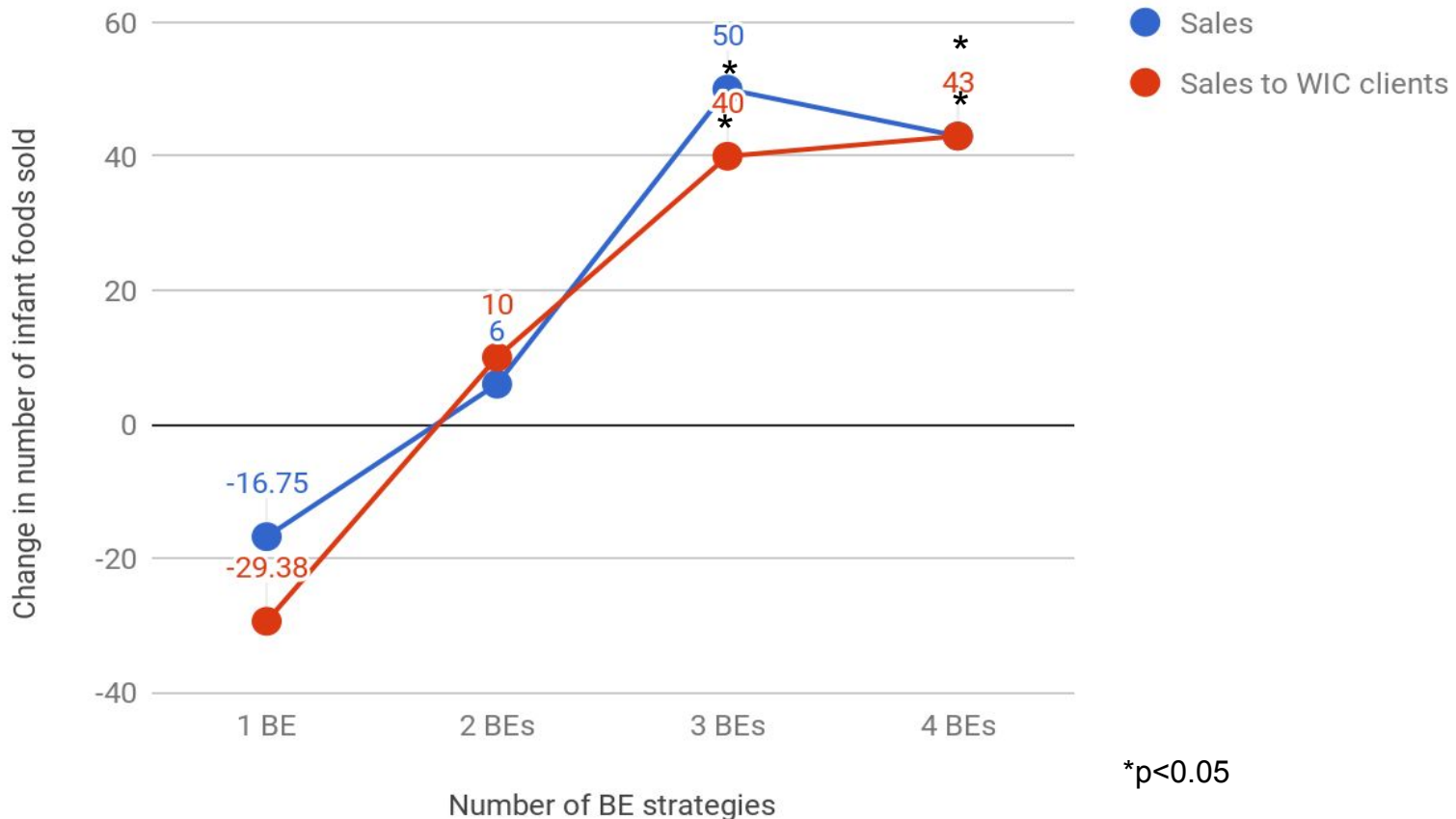


Change in Total Sales and Sales to WIC Clients Over Time by # BE Strategies for Cereals

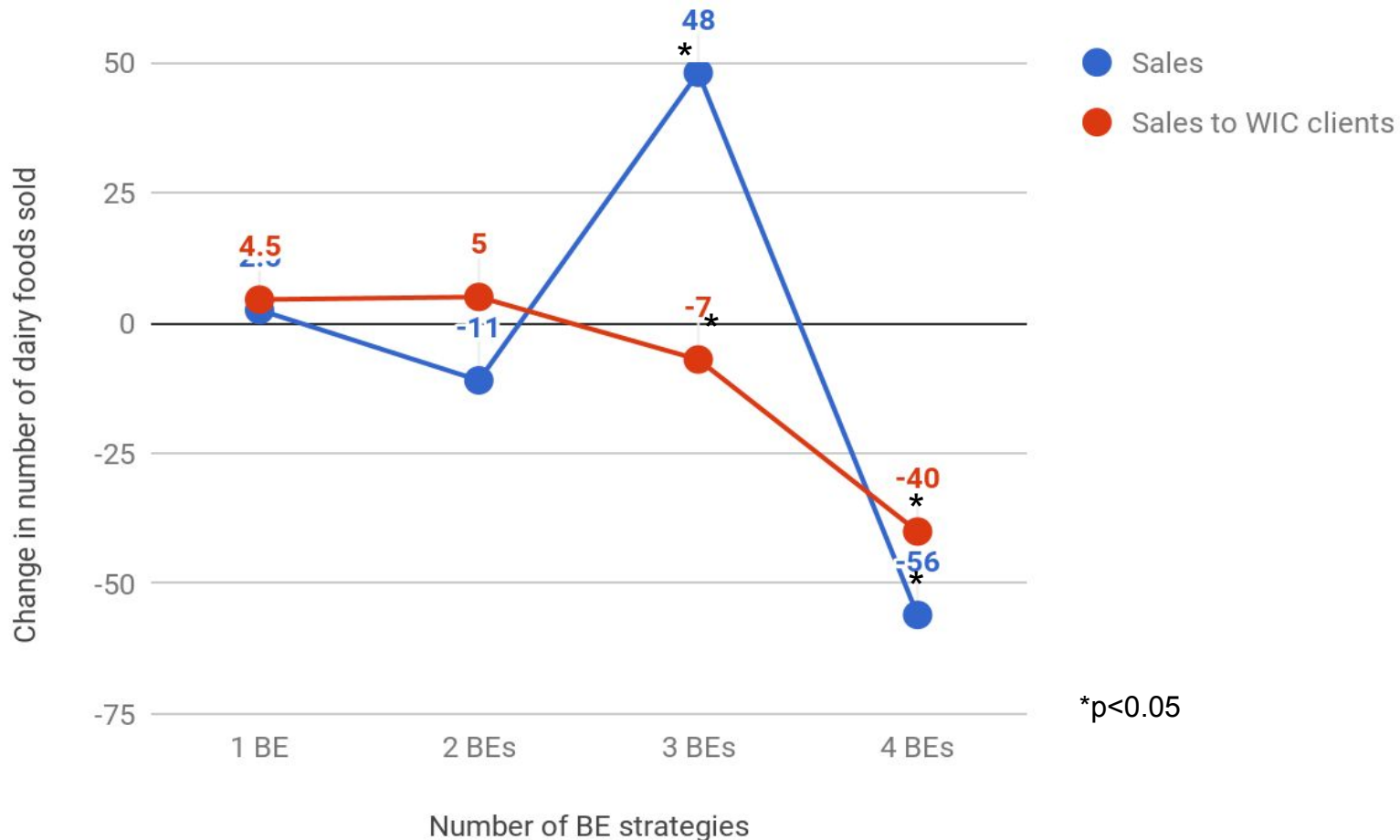


*p<0.05

Change in Total Sales and Sales to WIC Clients Over Time by # BE Strategies for



Change in Total Sales and Sales to WIC Clients Over Time by # BE Strategies for Dairy Foods



Summary of Findings

- Store owner training appeared to be the most consistently influential form of BE intervention
- Store owner training combined with one additional strategy seemed to have the most influence
- More treatments do not necessarily mean higher WIC sales
- Appear to be differences in sales of WIC foods by food group
- General declines in WIC sales associated with eWIC introduction may have impacted findings (at 3rd treatment)

Limitations

- Small number of corner stores
- Sales were self-reported
- eWIC rollout complicated study

Future Studies

- Increase duration of study to account for seasonality and baseline variability
- Larger sample size of stores
- Refine and test optimal store owner training and nudging strategies
- Combine access improvement strategies with BE strategies

Acknowledgements

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2. Freishtat H, Buczynski A. Baltimore Food Policy Initiative: 2015 Food Environment Map: Baltimore City. 2016.
3. Gittelsohn J, Laska MN, Andreyeva T, et al. Small retailer perspectives of the 2009 Women, Infants and Children Program food package changes. *Am J Health Behav.* 2012;36(5):655-665. doi:10.5993/AJHB.36.5.8.
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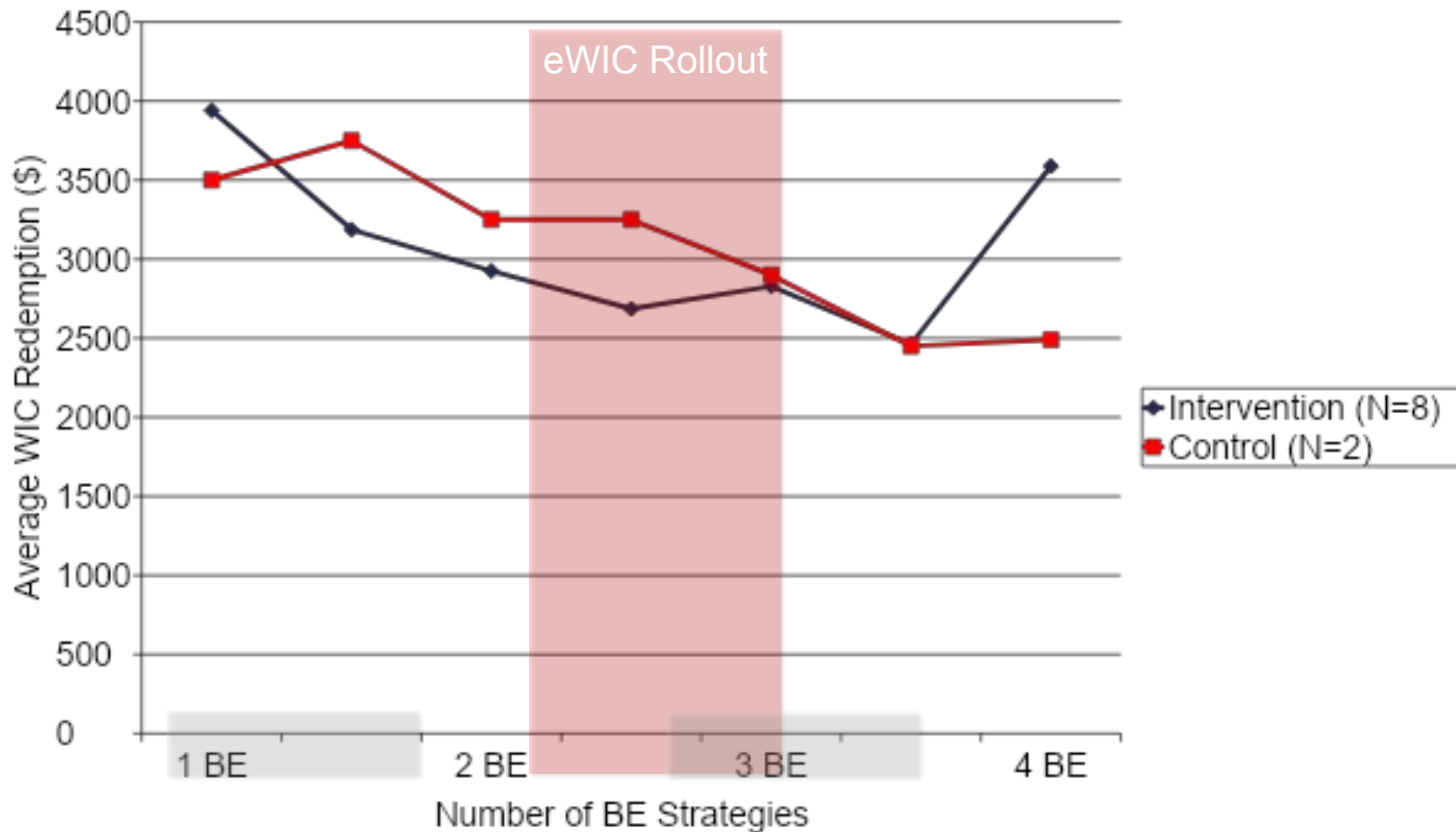
Thank you!

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www.healthystores.org



Average Dollars of WIC Redemption by Number of BE Strategies



Changes in stocking, total sales and total WIC sales over tie by combined strategies for ALL food groups

	Stock	Sale	WIC sale
ALL food groups			
1 BEs (reference)	24.63	12.25	-58
2 BEs	-68	39	50*
3 BEs	-130	-67	-39
4 BEs	75	-38	-31

Nutritional Risk Requirements

- Nutrition risk is determined through a nutrition assessment by a health professional— such as a physician, nutritionist, or nurse—and is based on federal guidelines
- Nutritional risk includes:
 - Medically-based risks: anemia, underweight, overweight, pregnancy complications, or poor pregnancy outcomes
 - Dietary risks: inappropriate nutrition/feeding practices or failure to meet the current Dietary Guidelines for Americans
- WIC's nutrition assessment is free to program applicants

• Source: retrieved from <http://www.fns.usda.gov/wic>

Income Requirements

- To be eligible for WIC, applicants must have income at or below a standard set by the state agency
 - Income standard: the applicant's gross income must fall at state agency's income standard—must fall at or below 185% of the federal poverty income guidelines
- Automatic income eligibility
 - Applicants can be income-eligible for WIC if they participate in:
 - Medicaid
 - SNAP
 - Temporary Assistance for Needy Families (TANF)

Source: retrieved from <http://www.fns.usda.gov/wic/howtoapply/incomeguidelines13-14.htm>