

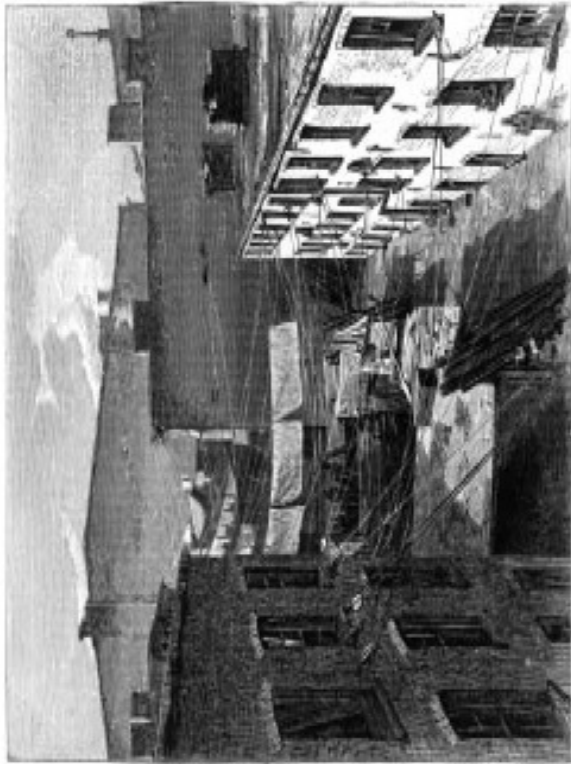
# Multisectoral Approaches to Preventing Chronic Disease:

▪

Cathy Nonas, MS, RD, CDE  
Director, Physical Activity & Nutrition  
NYC Dept of Health & Mental Hygiene



# URBAN CONDITIONS WERE A BREEDING GROUND FOR 19<sup>TH</sup> CENTURY EPIDEMICS



A PERSISTENT TENEMENT  
[Reproduced from a photograph by Anderson.]

## **Over-crowding:**

By 1910, the average density in lower Manhattan was 114,000 people/ sq. mi; two wards reached densities > 400,000. (Today's density: 67,000/ sq. mi.)

+

**Inadequate systems** for garbage, water, and sewer, leading to pervasive filth and polluted water supplies.

## **Major epidemics:**

Air-borne diseases:

**TB**

Water-borne diseases:

**Cholera**

Vector-borne diseases:

**Yellow-fever**

# NYC'S 19<sup>TH</sup> & EARLY 20<sup>TH</sup> CENTURY URBAN DESIGN AS A RESPONSE TO THE ENVIRONMENTAL ASPECTS OF EPIDEMICS



1842 New York's **water system** established – an aqueduct brings fresh water from Westchester.

1857 NYC creates **Central Park**, hailed as “ventilation for the working man’s lungs”, continuing construction through the height of the Civil War

1881 Dept. of Street-sweeping created, which eventually becomes the **Department of Sanitation**

1901 **New York State Tenement House Act** banned the construction of dark, airless tenement buildings

1904 First section of **Subway** opens, allowing population to expand into Northern Manhattan and the Bronx

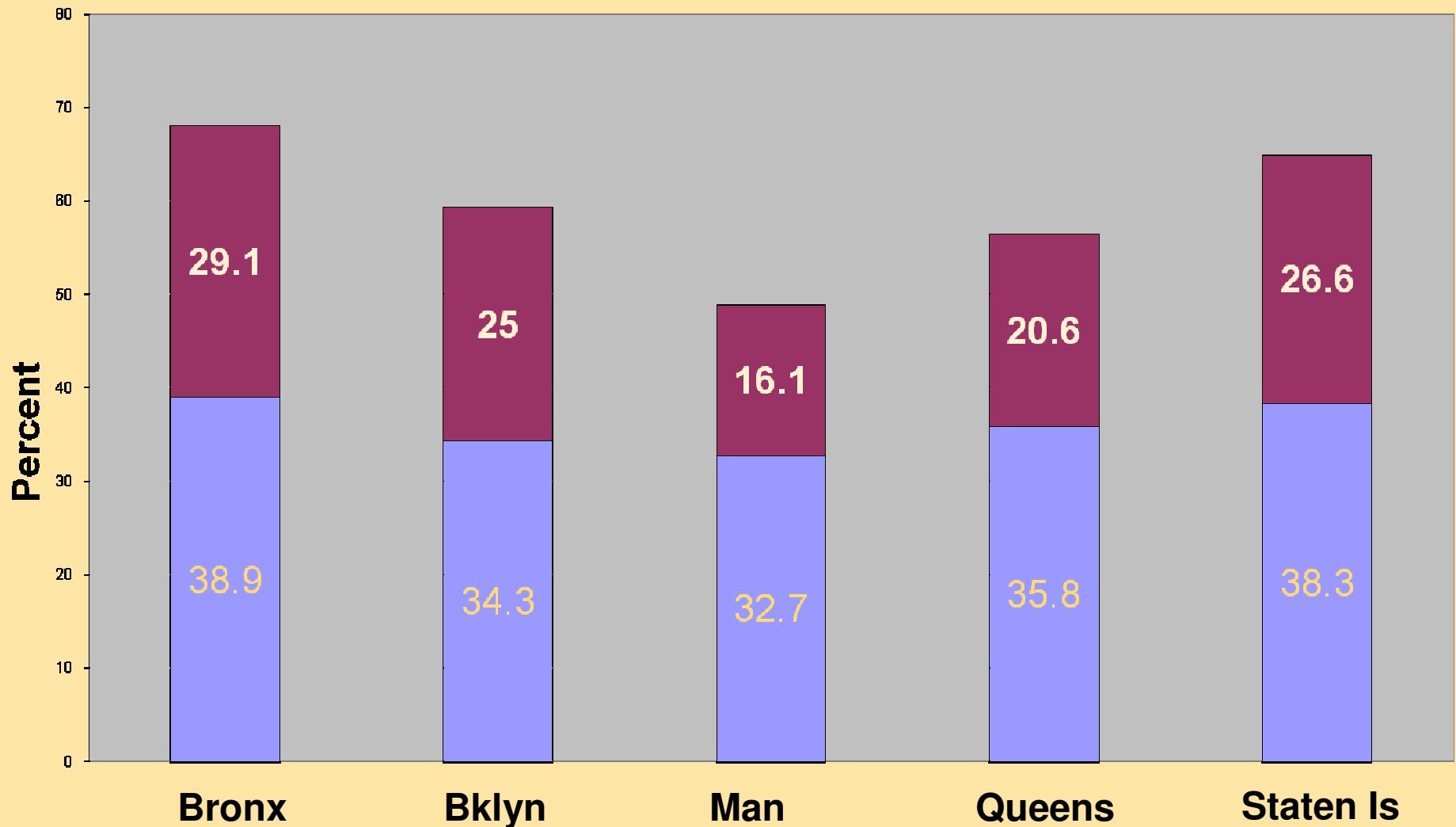
1916 **Zoning Ordinance** requires stepped building setbacks to allow light and air into the streets



# Bureau of Chronic Disease

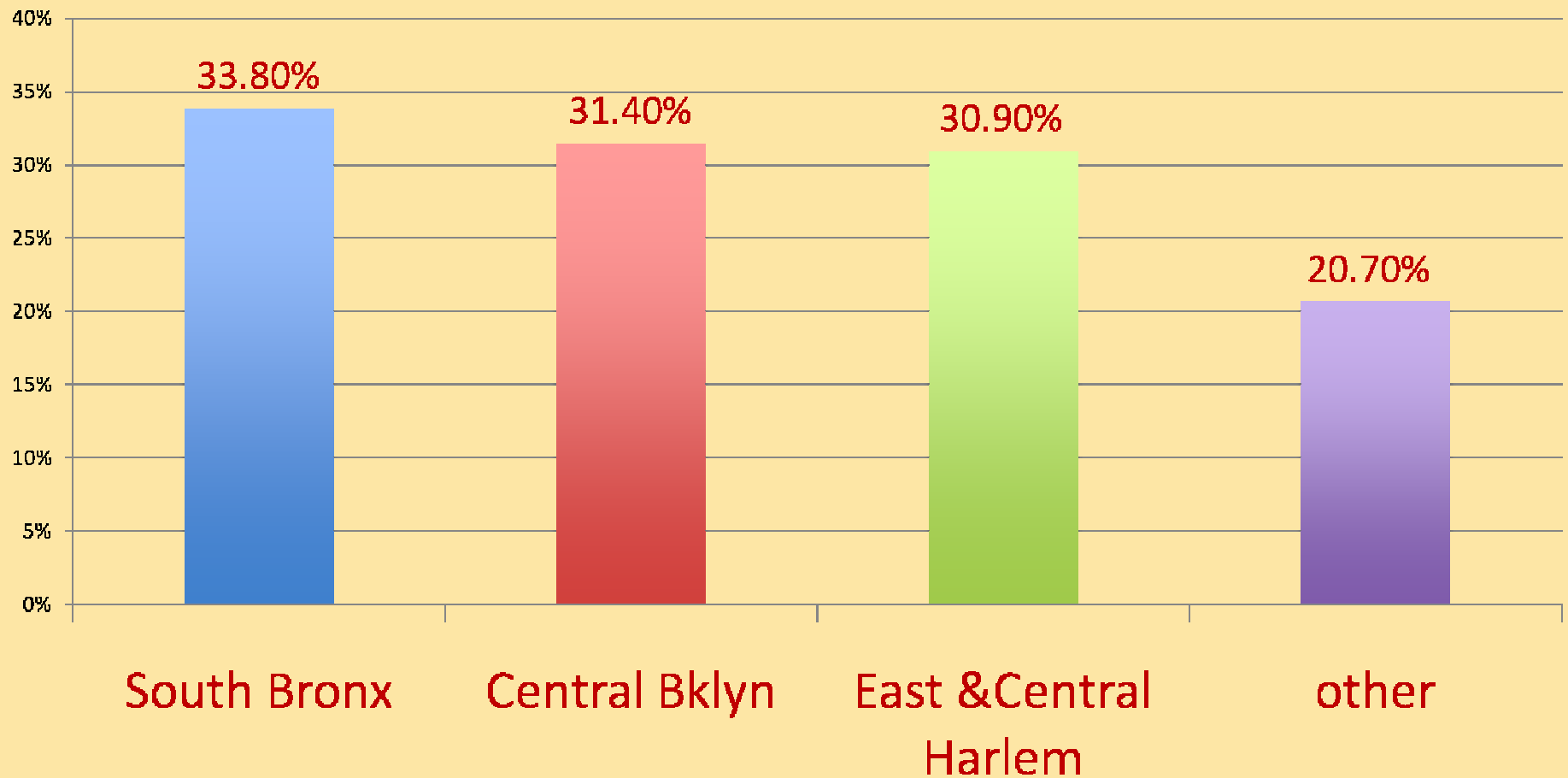
CVD	CANCER	DIABETES	ASTHMA	PHD	Built Envir	PAN
Trans fat Salt Nutrition guidelines	Colorectal Screenings Patient advocate	Registry	Daycare/ schl	Physician detailing	Stair prompts Active design guidelines	

# Prevalence of Overweight and Obesity Among Adults By NYC Borough

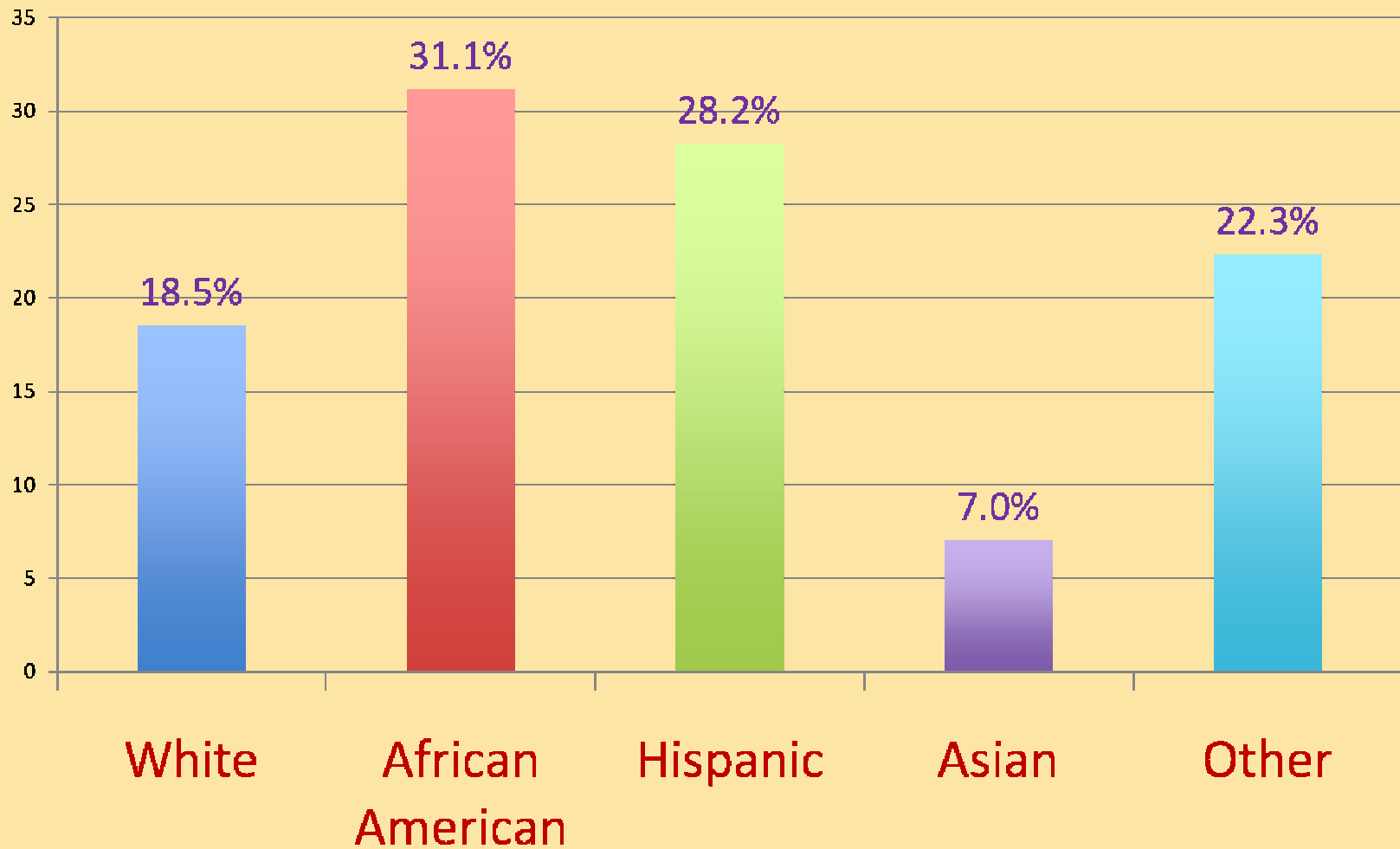


Source: NYC Community Health Survey 2008

# Obesity by DPHO Neighborhood



# Obesity by Race/Ethnicity



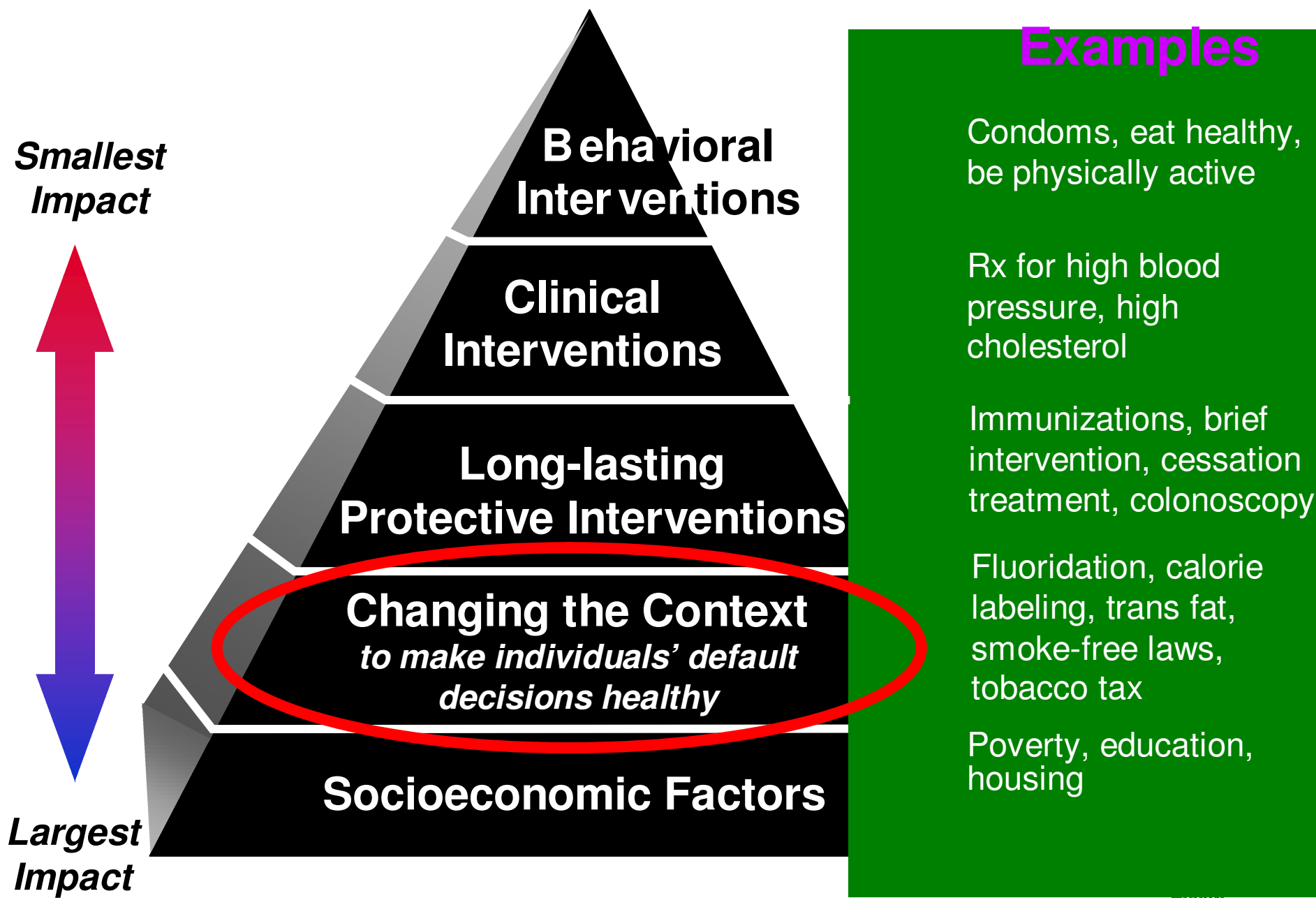
“Genetics loads the gun.  
The Environment pulls the trigger”

George Bray, MD





# Interventions to Affect Health



# What Works?

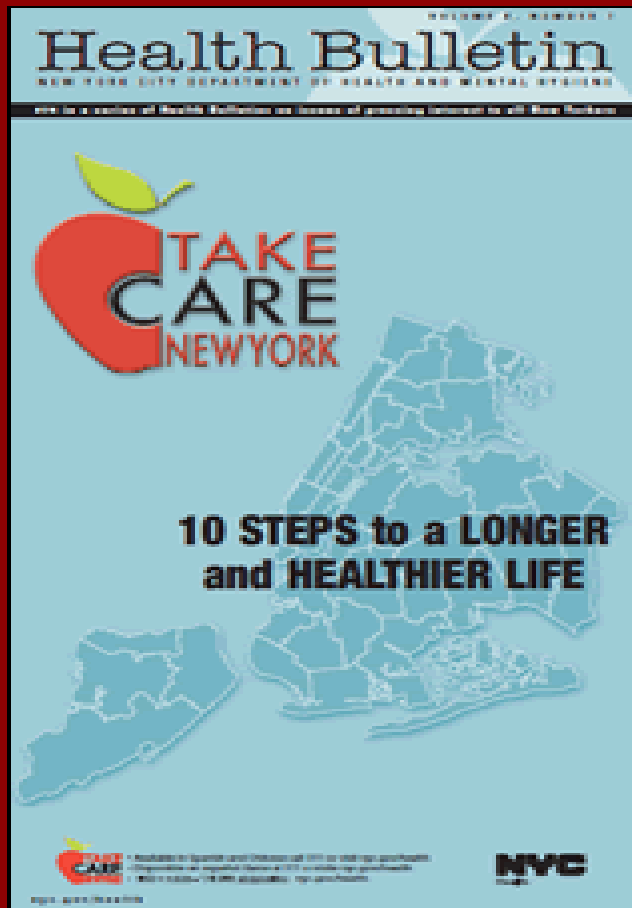
- While we have relatively good evidence of the problem, the evidence for the best courses of public action is precarious.
- In New York's response to obesity, as in much social policy, we are acting based on best available evidence, and trying to evaluate the impact of innovative interventions.

# NYC Approach to Best Practices

- Use it when it's there
- Generate it when it's not



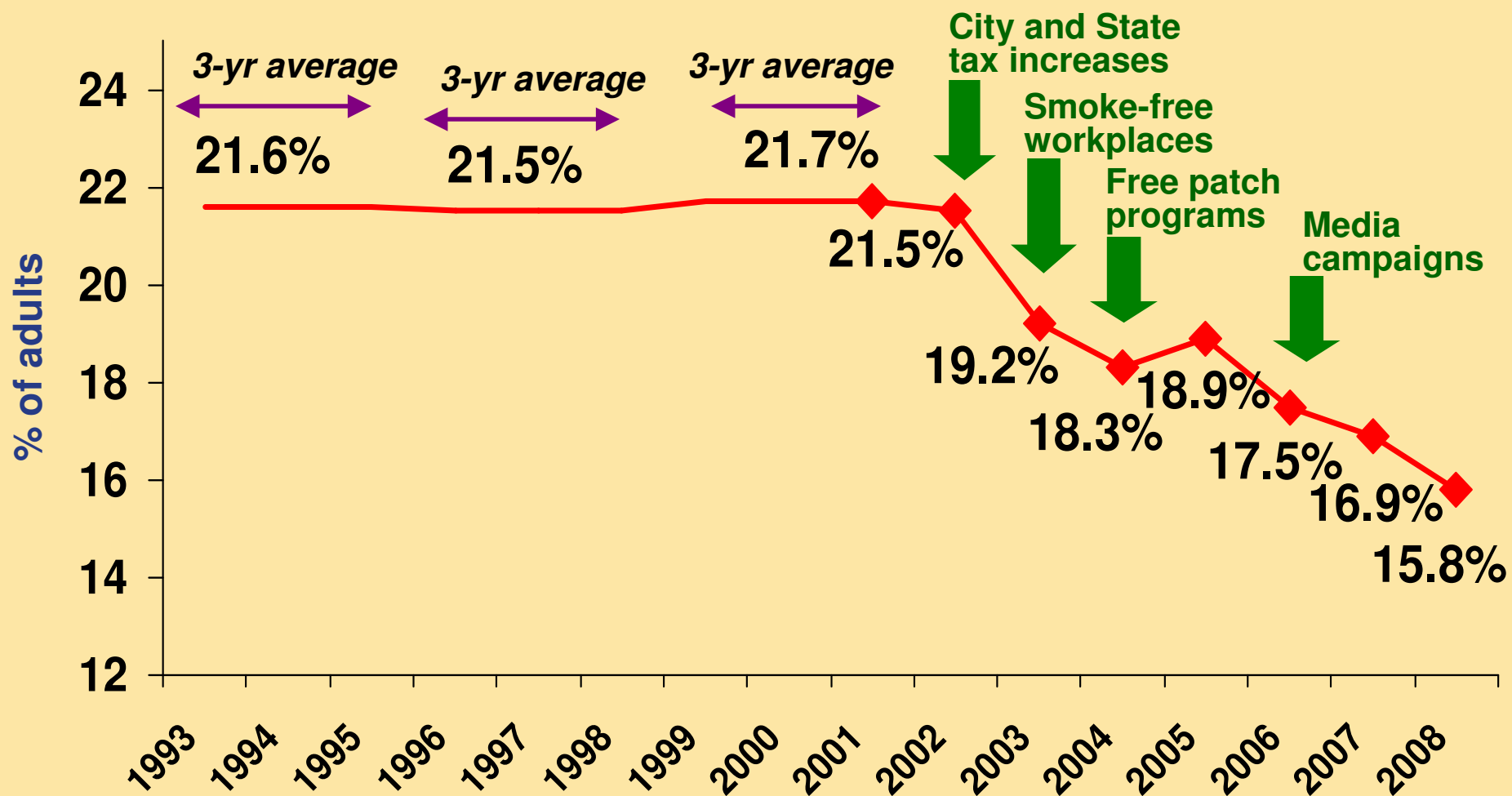
# Take Care New York 2012



1. Promote Quality Health Care for All
2. Be Tobacco Free
3. Promote Physical Activity and Healthy Eating ( ↓ ssb, ↑ fresh produce )
4. Be Heart Healthy
5. Stop the Spread of HIV and Other Sexually Transmitted Infections
6. Recognize and Treat Depression
7. Reduce Risky Alcohol Use and Drug Dependence
8. Prevent and Detect Cancer
9. Raise Healthy Children
10. Make All Neighborhoods Healthy Places

# Adult Smoking in NYC

## Decreased 27% Since 2002





**Pouring On The Pounds**

# Changing Obesity: a Public Health Perspective



Access

- Reduces Disparity
- May set the stage to change behavior
- Probably doesn't reduce obesity



Less Access

May reduce obesity



Physical Activity

May prevent obesity

ALL IMPROVE HEALTH NO MATTER WHAT THE BODY WEIGHT

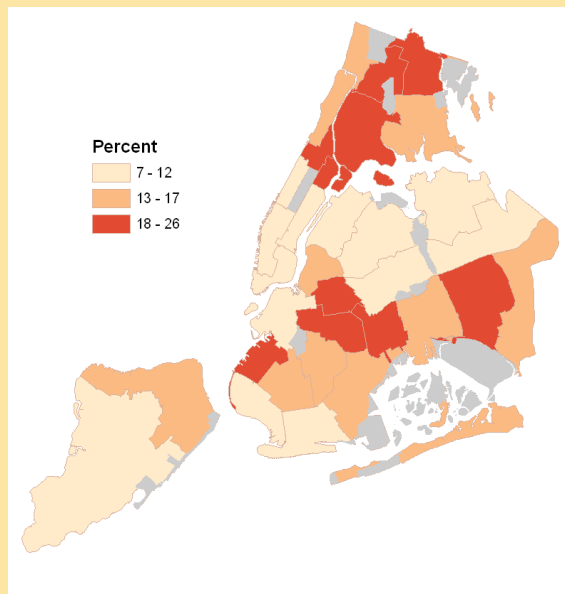
# INCREASE ACCESS TO HEALTHY FOODS

**Green Carts**  
**Healthy Bodega Initiative**  
**Supermarkets**  
**Health Bucks**

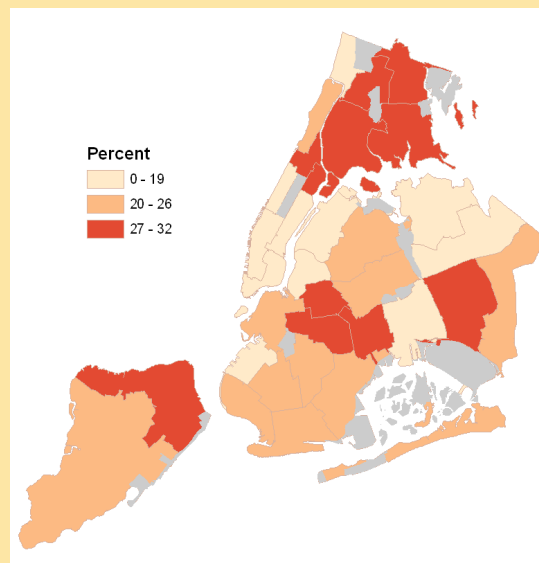


# Neighborhoods Where Fruit and Vegetable Consumption is Low Have High Rates of Obesity and Diabetes

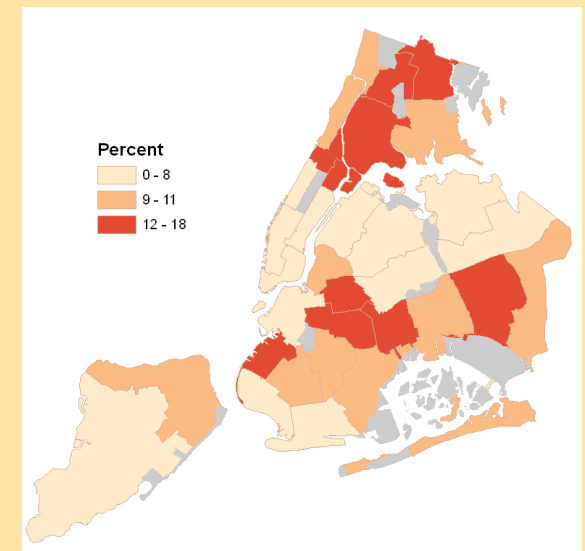
Percent of New Yorkers Who Did **Not** Eat Fruits or Vegetables on the Previous Day



Percent Obese



Percent with Diabetes

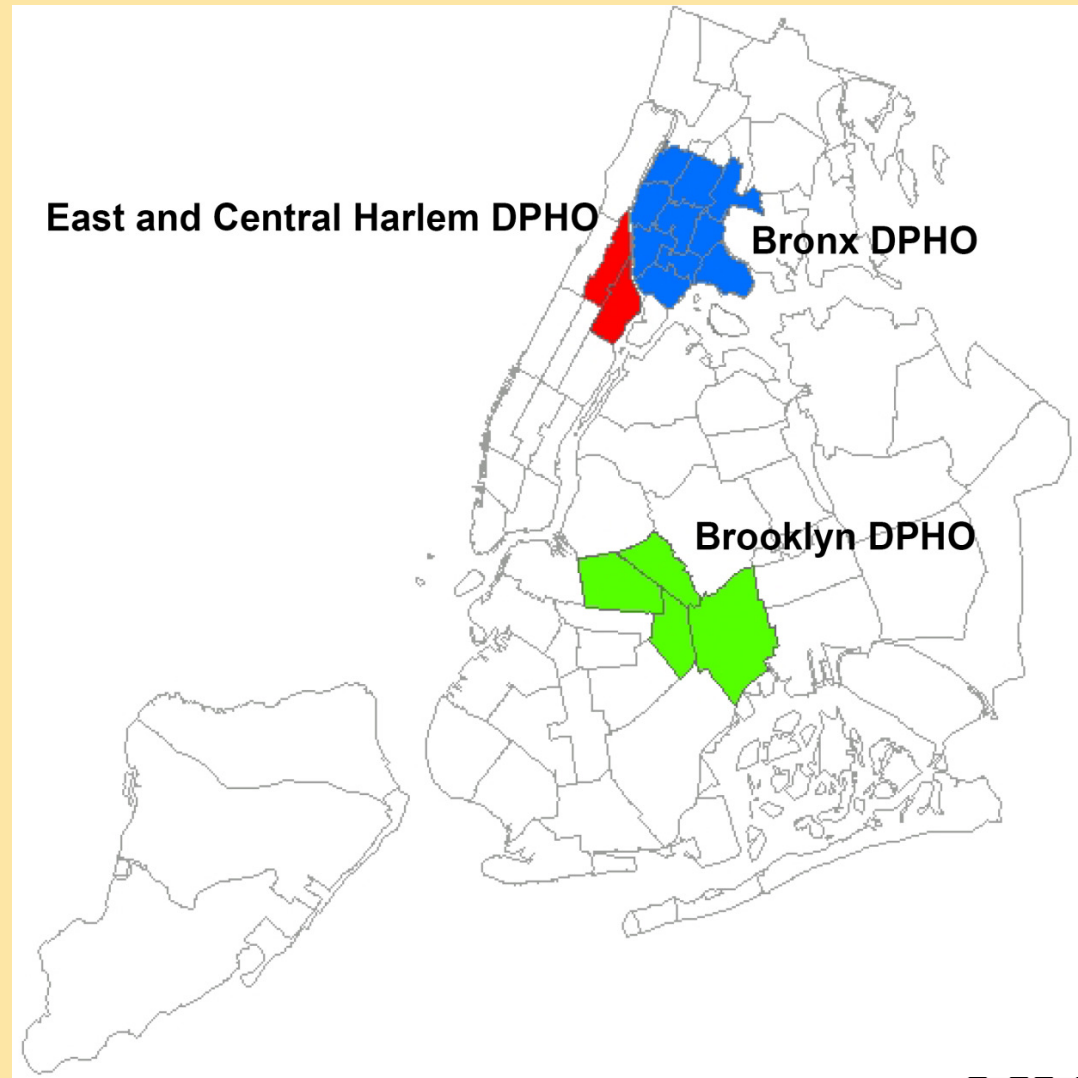


Source: 2004 Community Health Survey

# We Start our programs in District Public Health Offices

## Target Neighborhoods

- Targeting NYC communities most in need



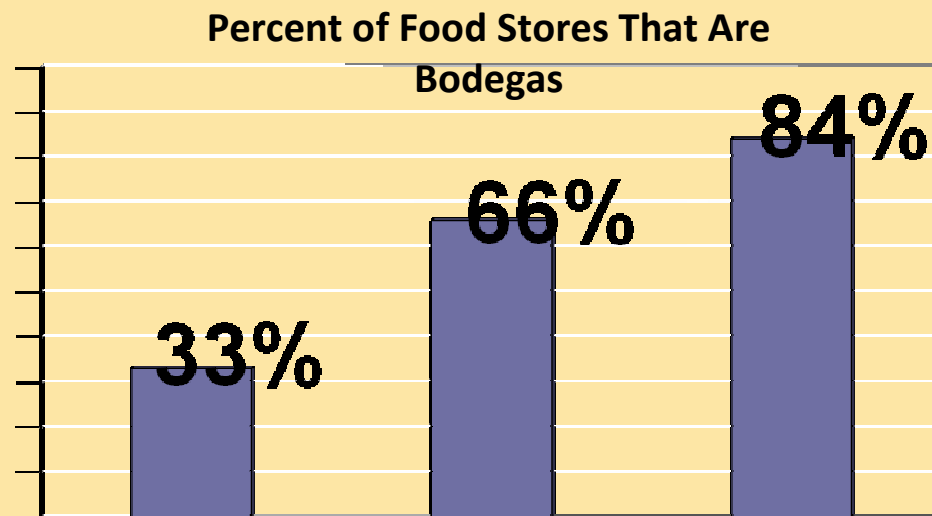


## Increasing Food Access in underserved neighborhoods

- **Small** business: improving choice in corner stores/bodegas
- **Seasonal** (local) business: increase number of farmers markets & wireless ebt machines
- **Large** business: increase number of supermarkets and stop closings
- **New** business: fruit & vegetable vendors

# Availability of Healthy Foods Varies by Neighborhood

- Bodegas represent a much higher proportion of food stores in low-income neighborhoods
- In East Harlem:
  - **Only 25%** of bodegas sell apples, oranges and bananas
  - **Only 4%** of bodegas sell leafy green vegetables



Upper East Side

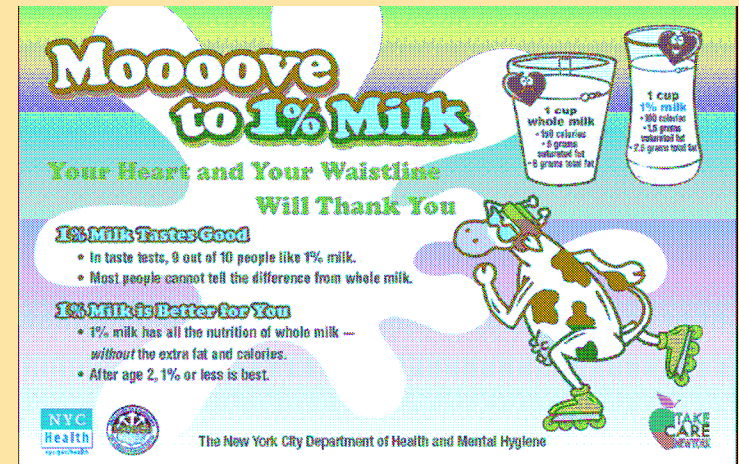
East Harlem

Central Brooklyn

Source: NYC DOHMH DPHO surveys, 2005 and 2007

# Healthy Bodegas

- Move to 1% Milk: Partnership with bodegas to stock 1% milk, also work with community to increase demand, over 1000 bodegas recruited (Sept 07-March 08)
- Fruits & vegetables campaign
  - Rollout started late April, 2008
  - Working with over 450 bodegas to address issues of quantity, quality, display, and distribution
  - Small pilot of Farm2Bodega



## STAR BODEGAS –

not every bodega needs to be a healthy one

- working with 60 stores over a longer period of time
- Minimum of 2 visits per month
- 2 stores within a quarter mile radius of walking distance, target areas, needed community connections
- Incentive based stars (combining other food access efforts like Green Cart incentives) –
- Adopt a Bodega through wellness policy schools
- Working well – average bodega makes 4-7 changes

# HEALTH BUCKS

- \$2 coupons for purchase of fresh fruits & vegetables at participating farmers markets.
- CBOs distributed Health Bucks to residents to introduce them to neighborhood farmers markets.
- A Health Buck is offered for every \$5 food stamps spent at farmers markets.
- Thanks to financial investment by HRA, distribution of Health Bucks grew from \$40,000 in 2007 to *over \$100,000 in 2009*



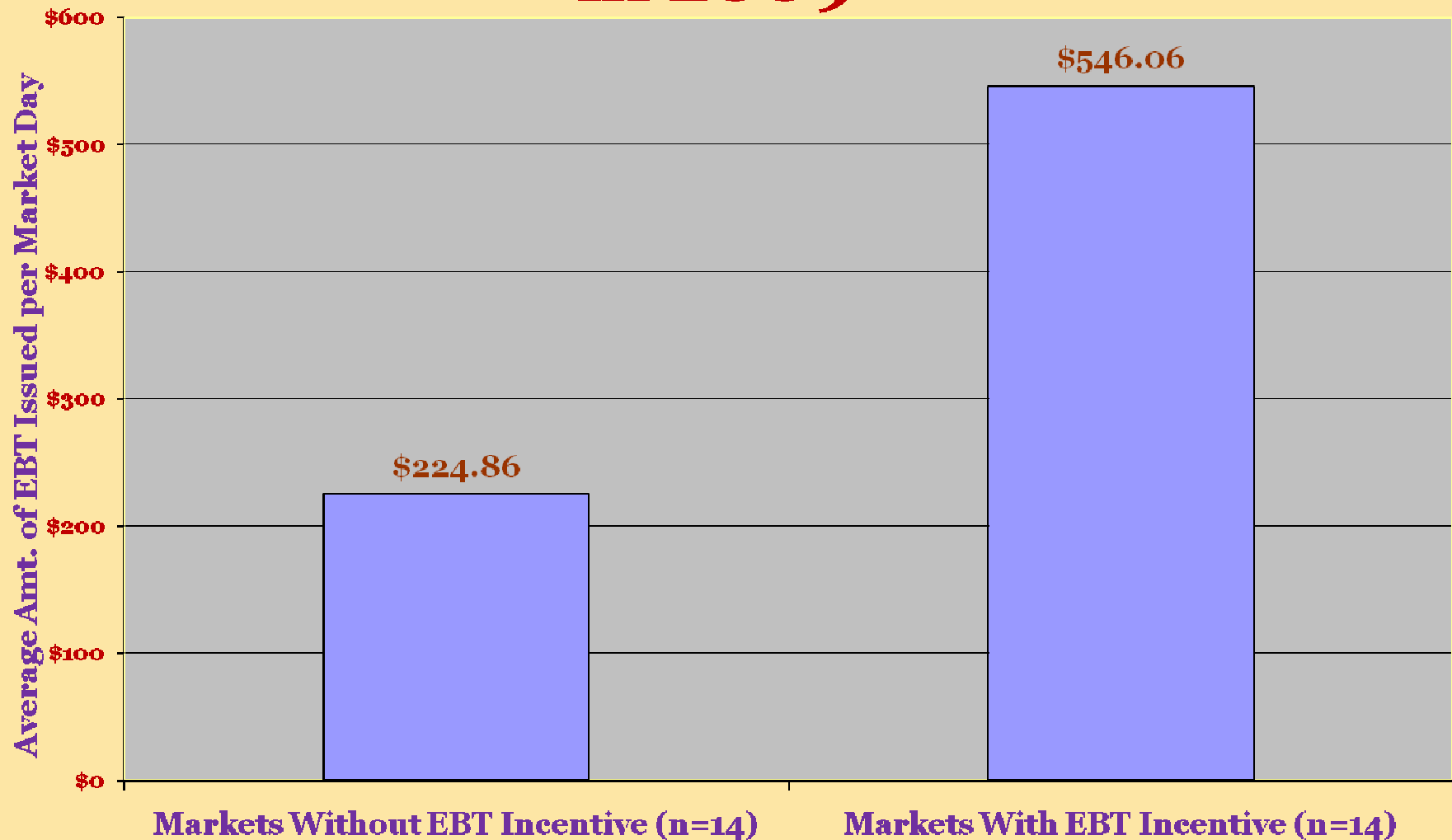
## HEALTH BUCKS - what has to be done

- Who pays for EBT machines?  
(wireless may be different from State issuance).
- If there is one EBT machine per market, then a market manager is necessary.
- Need to contract a coordinator to reimburse the farmers
- This is only for farmers market season. Something else has to be done for all seasons.





# EBT Use at NYC Greenmarkets in 2009



# NYC Green Cart

- 4,300 food vendors in NYC
- 10% are fresh produce vendors.
- Almost none of them are in low-income areas.



# **NYC** Green Cart

## **Why a New Vending Program?**

- Few vendors sell fresh produce, particularly in poor neighborhoods.
- Vendor carts are relatively less expensive than other new businesses and are flexible
- There is already a system in NYC for vending
- Goal = 75,000 more New Yorkers increase consumption of fresh fruits and vegetables from new carts
- Grant from the Laurie Tisch Illumination Fund to help support vendors

# NYC Green Cart

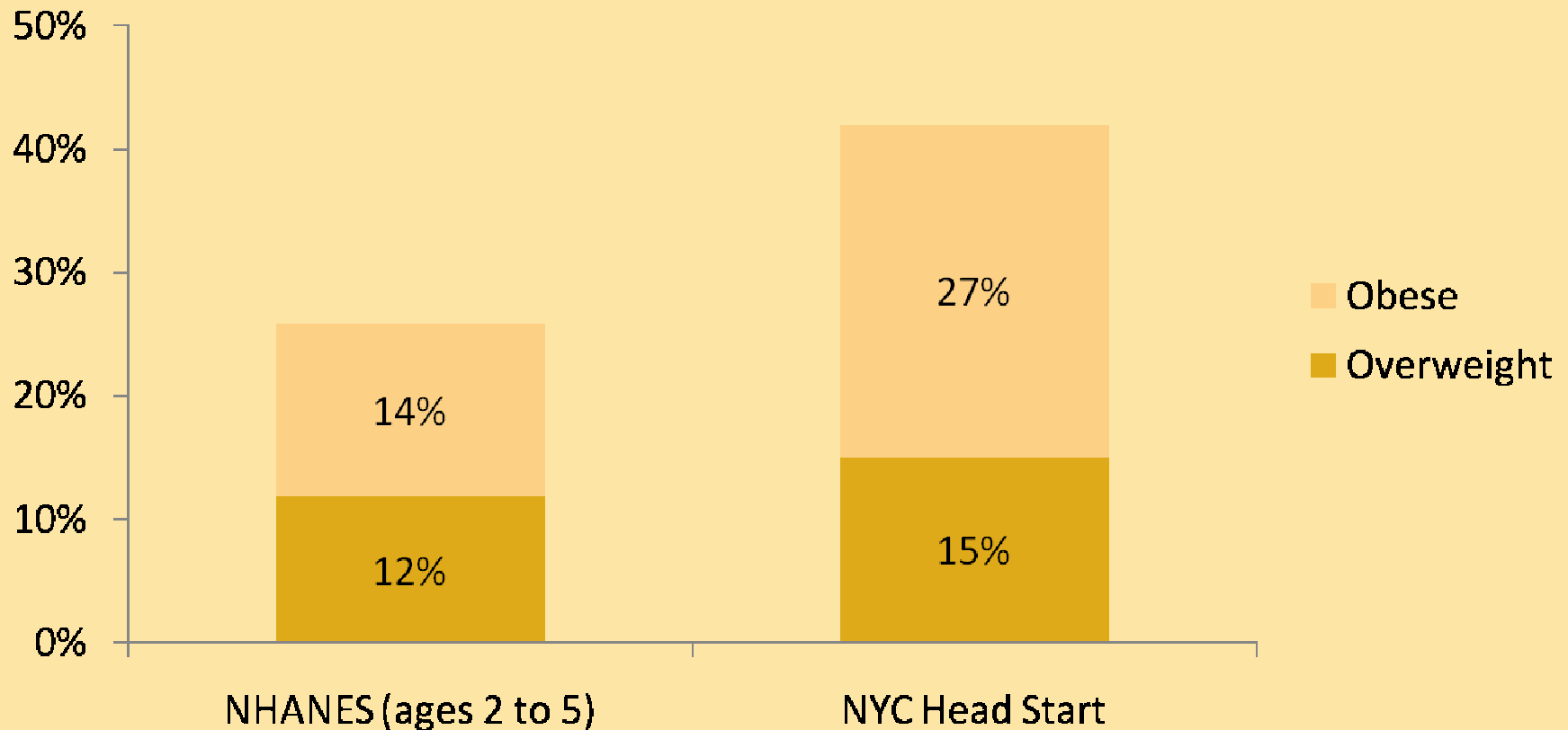
- Approved by City Council
- Same permitting process as other vendors except for neighborhood restriction, selling only fresh produce and NYC Green Cart umbrella.
- Worked with CBOs to support vendors.
- Problem: difficult business to market



**Increase Availability → Increase Consumption →  
Increase Health**

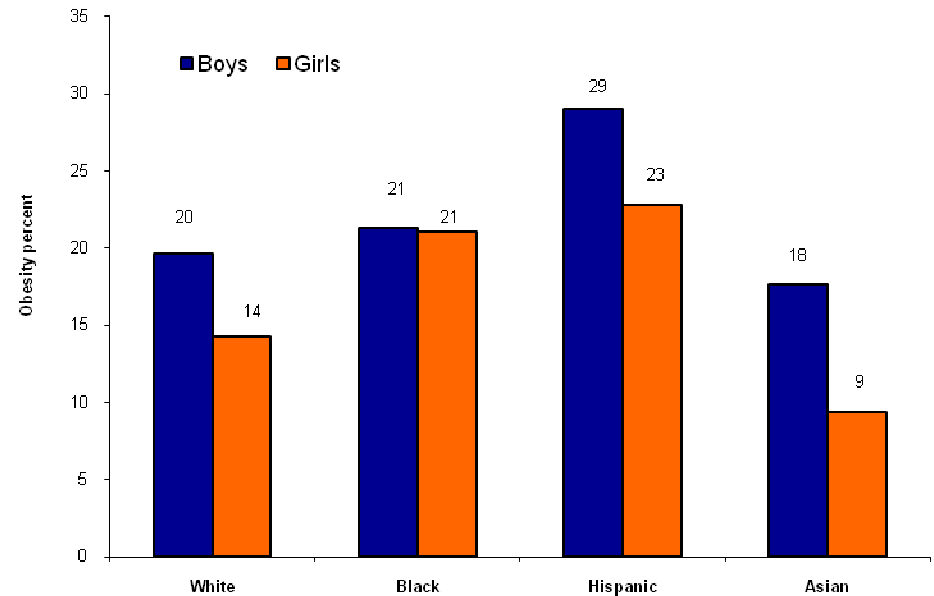
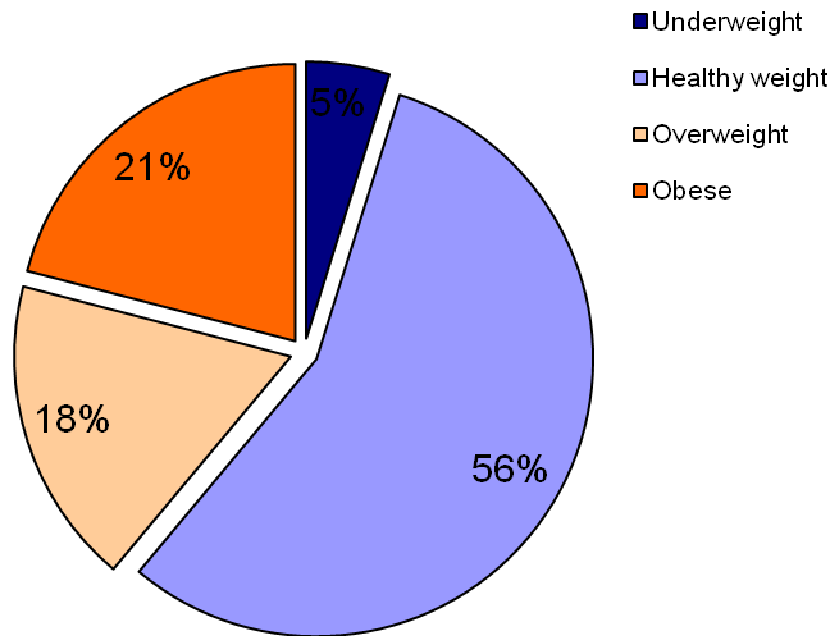
Children

# Prevalence of Childhood Overweight & Obesity in NYC Head Start



SOURCES: NHANES; Ogden, et al. JAMA 2006; 295:1549-1555; DOHMH Vital Signs 2006; 5(2): 1-2.

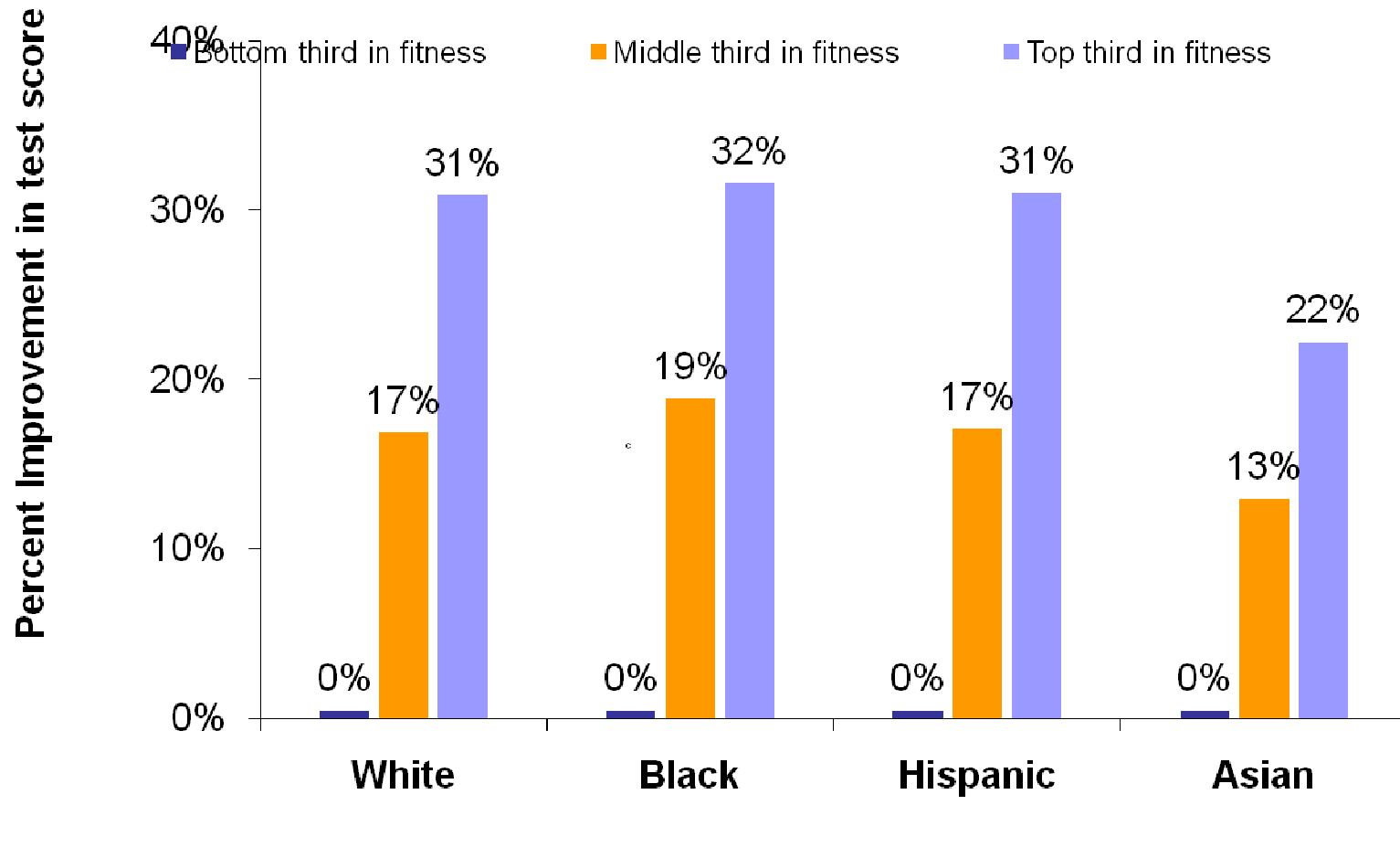
# Weight Status in NYC Public Schools: Kindergarten – Eighth grade



Vital Signs, 2009 [www.nyc.gov/html/doh/](http://www.nyc.gov/html/doh/)



# Fitness and Achievement in NYC Public Schools: Kindergarten – Eighth grade



# NYC modification of the Health Code for Day Care Centers



- Daily Physical Activity
  - Establishes a required number of structured physical activity per day for 1 yr. olds and up
- Limits on TV
  - No TV for children <2 yrs. old
  - No more than 60 min./day
- Nutrition Standards
  - No sugar sweetened drinks
  - 1% milk
  - Water must be available and easily accessible

# MILK IN SCHOOL



Moving from whole milk to low-fat white milk and skim chocolate milk saved 4.5 billion calories in 2008.

# Water jets in School Cafeterias

- Uses tap water
- Keeps water cold
- Set up is easy – need electrical outlet and one-time cost of ~ \$900.00
- Problem – some old schools do not have electrical capabilities in cafeteria



# Competitive Foods and Vending in Schools

- 10 calories per 8 oz in elementary school
- 25 calories per 8 oz in high school
- No artificial sweetener
- Low-fat milk is the exception
- Foods adhere to IOM guidelines
- Can be sold during the school day but not in cafeteria
- Fundraisers using non-approved foods are limited to once per month

# Coming to Your School Soon:

- *Move To Improve!*



# Move To Improve!

- **Professional Development Stipend (K-3 teachers only)** – \$19/hour
- **MANUALS** – one for every staff
- **EQUIPMENT**
  - K-3 – Every classroom teacher receives an equipment kit for 30 children
- **Outcomes for 2010**
  - Kindergarten – Third Grade
    - 60 workshops
    - 2,300 Teachers Trained
    - 300 Schools Trained (mostly DPHO)
    - Average of 38 teachers/workshop



# shapeup NYC

IT'S NOT FITNESS. **IT'S LIFE.**



**Free aerobic classes in underserved neighborhoods  
in parks and community centers and schools**







Provides architects and urban designers with a manual of strategies for creating healthier buildings, streets, and urban spaces.

# DECREASE ACCESS TO UNHEALTHY FOODS



# Food Procurement

- NYC serves over 225million meals and snacks per year
- NYC healthier procurement rules to reduce obesity and prevent chronic disease effect  
School Food, Daycares, Prisons, Senior Centers
- Restriction on trans fat; sodium; sugar; increase in fruits and vegetables and water

# City Agency Food Standards

- Require  $\leq 25$  calories per 8 oz other than 1% or skim milk (children  $\geq 2$  yrs) or  $\leq 8$  oz 100% juice ( $\leq 6$  oz for children)
- Require no purchase of food products prepared by deep frying
- Require all individual items  $\leq 480$  mg sodium
- Meal standards: require minimum of 2 servings produce per meal for lunch and dinner
- Require water at all meals

# Calorie Posting

**2000 CALORIES A DAY**  
**IS ALL MOST ADULTS SHOULD EAT**



**If this is lunch, is there room for dinner?**

**NYC**  
Department of Health  
and Mental Hygiene  
150 East 25th Street  
New York, NY 10010  
311-634-6346  
www.nyc.gov

## *Study Objectives*

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- 1) To assess the impact of the calorie labeling regulation on average calories per purchase
- 2) To assess prevalence of customers who report seeing and using calorie information and its impact on average calories per purchase

# Study Design

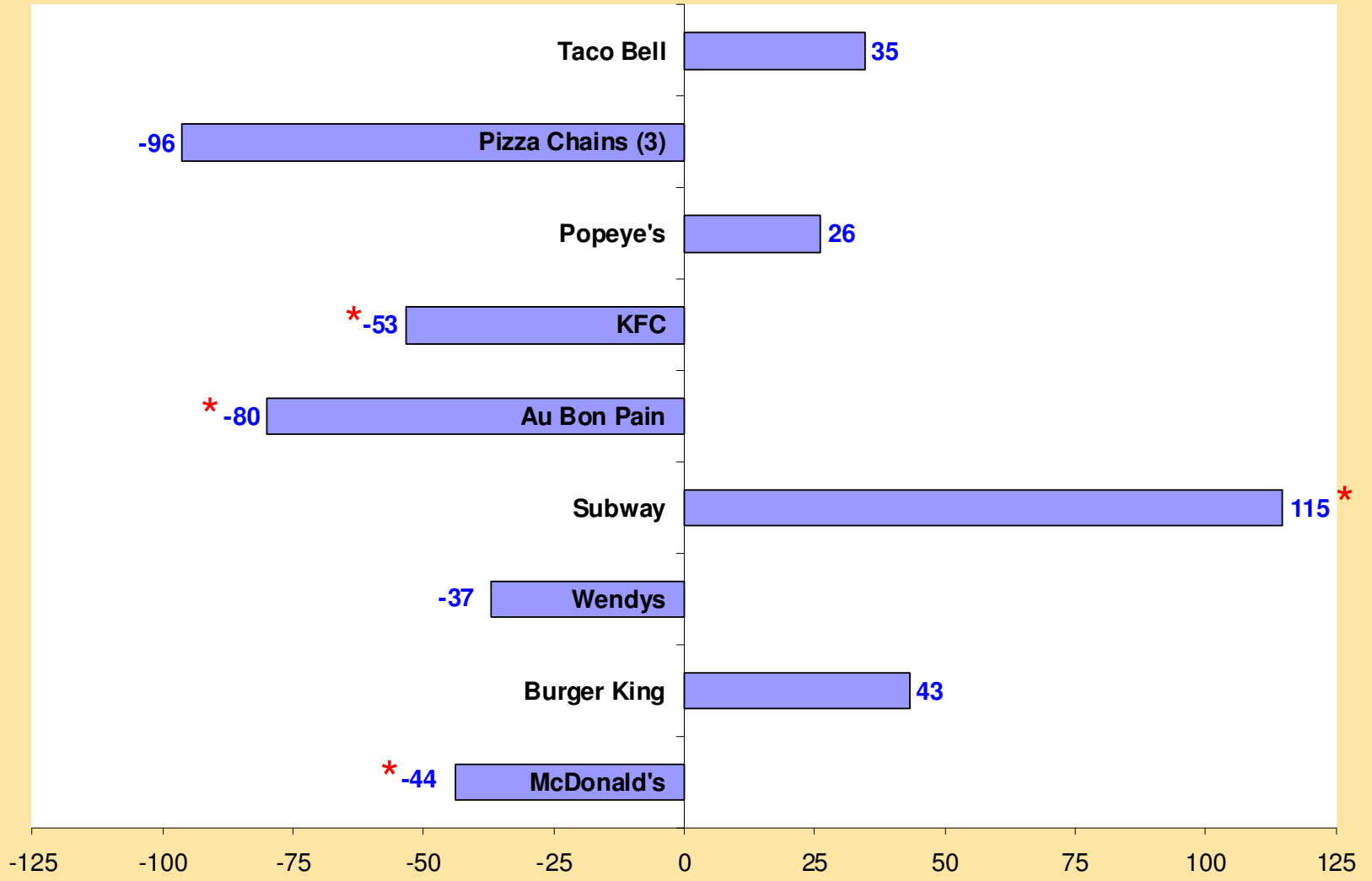
- Serial, cross-sectional surveys of customers exiting regulated fast-food chains
  - Spring 2007 Baseline
  - Spring 2009 Follow-up
- Target data collection – 55 receipts per location or 2 hours
  - 12-2pm M-F for 11 “lunch” chains
  - 2-4pm M-F for 2 “coffee” chains
- Customers received a \$2 Metrocard in exchange for their register receipt and completion of a brief survey
- Data from register receipts were matched with nutrition data for each of the 13 chains for each receipt item; data were aggregated to calculate total calories per customer

## Question 1:

Change in average calorie value per purchase



# Difference in Mean Calories for All Customers by Fast Food Chain from Spring 07 to Spring 09

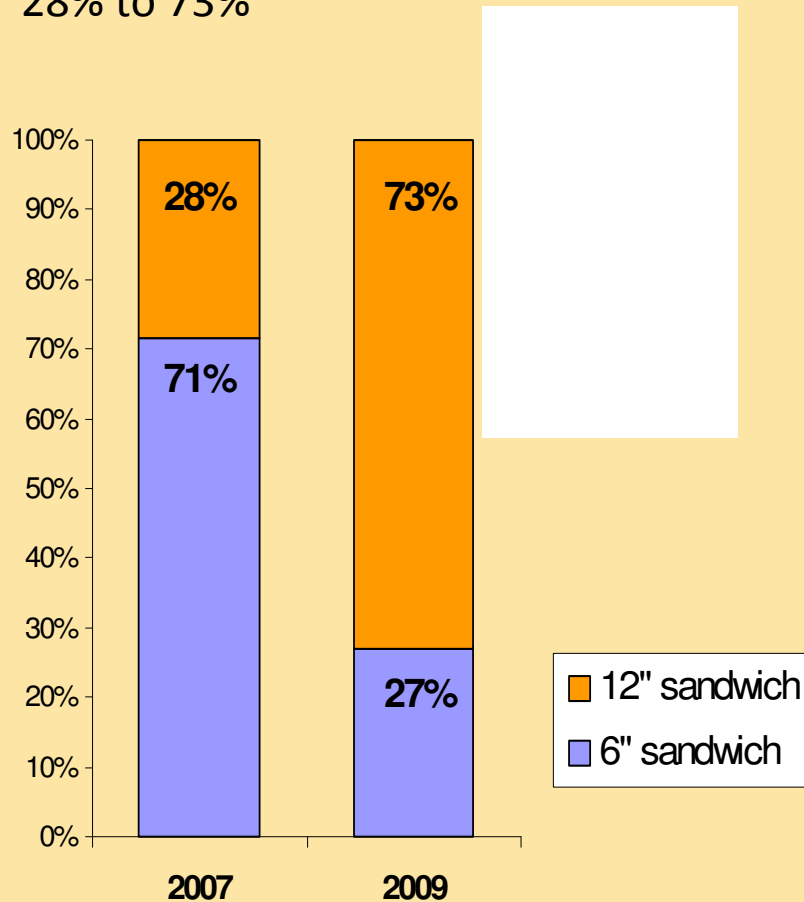


\* t-test; p<0.05

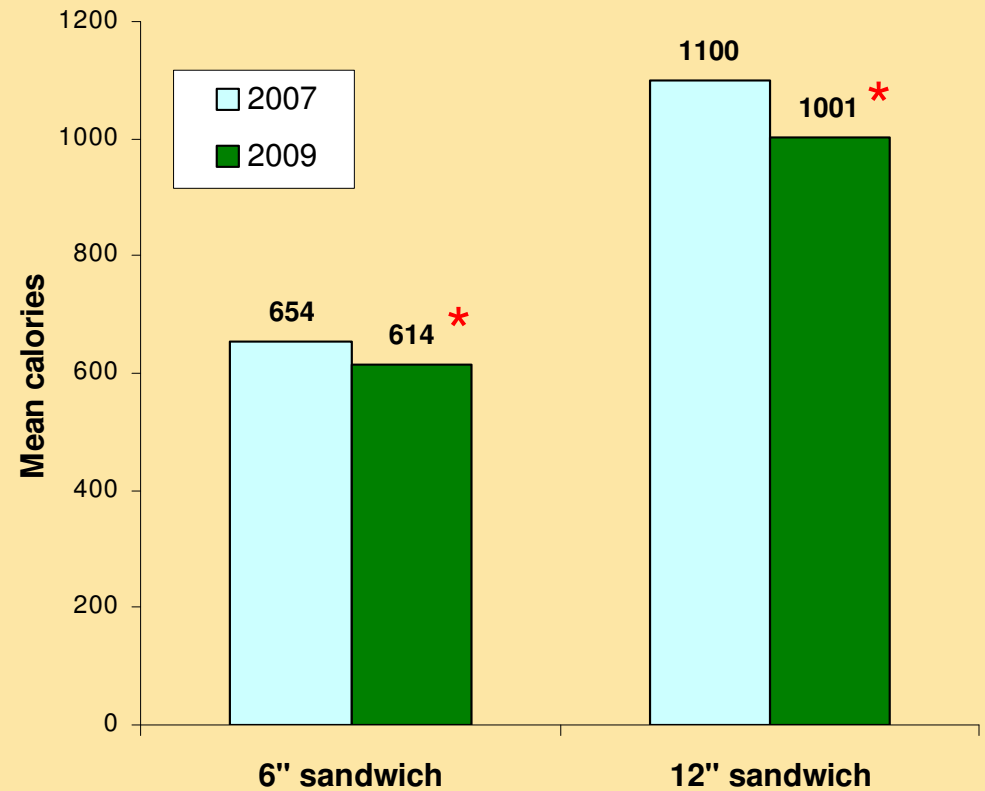
Different kinds of explanations for observed changes . . .

# Change in Purchasing Patterns at Subway, Spring 07 to Spring 09

The percentage of customers ordering 12" sandwiches almost tripled from 28% to 73%



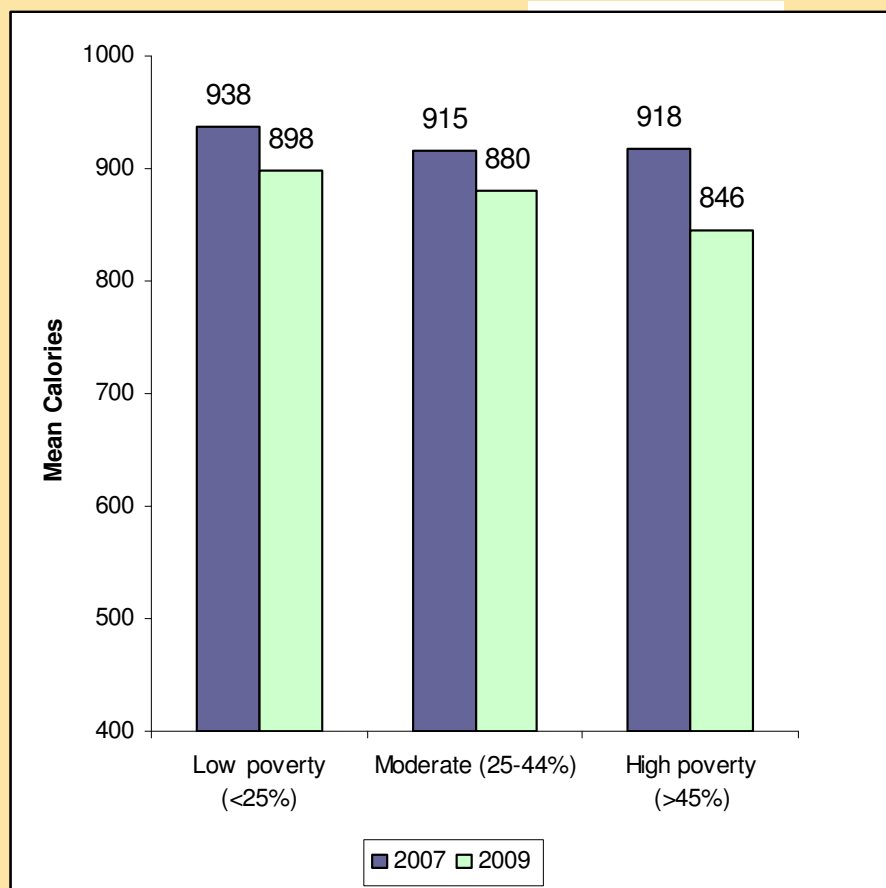
Although purchasing patterns changed, mean calories declined for both 6" and 12" sandwiches



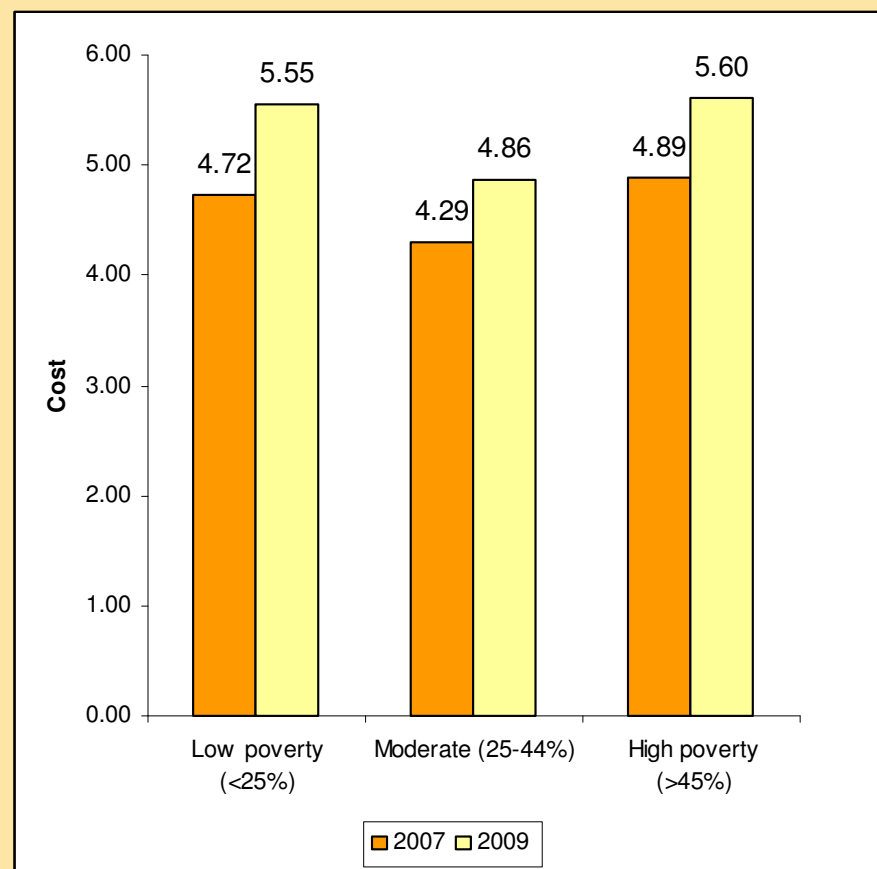
\* t-test p value <0.05

## KFC – Neighborhood SES, Calories and Cost

Unadjusted mean calories declined across all neighborhoods; with a sharper decline in high poverty neighborhoods



Mean cost per purchase increased across all neighborhoods

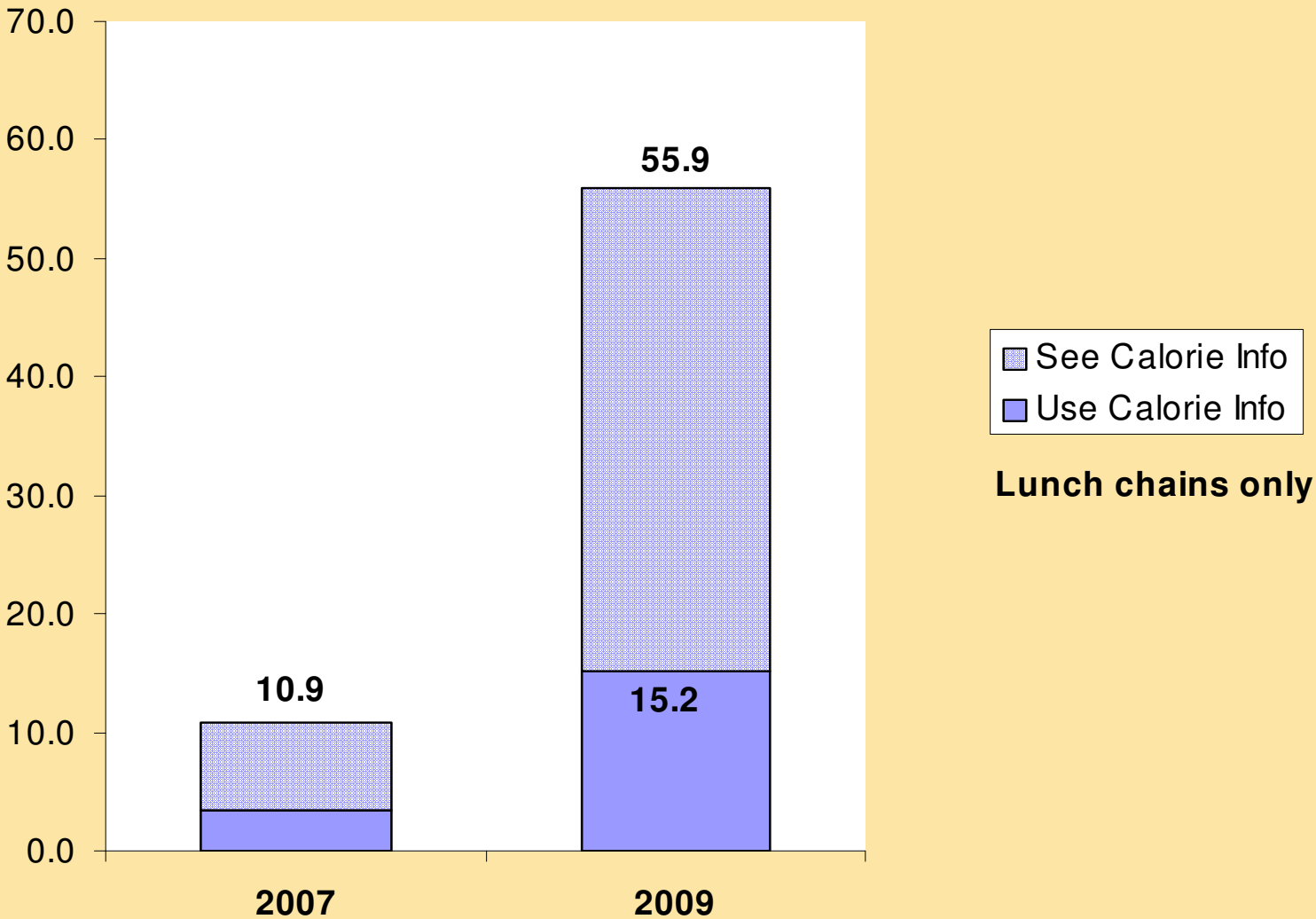


## Question 2:

Change in the percentage of customers who report seeing and using posted calorie information

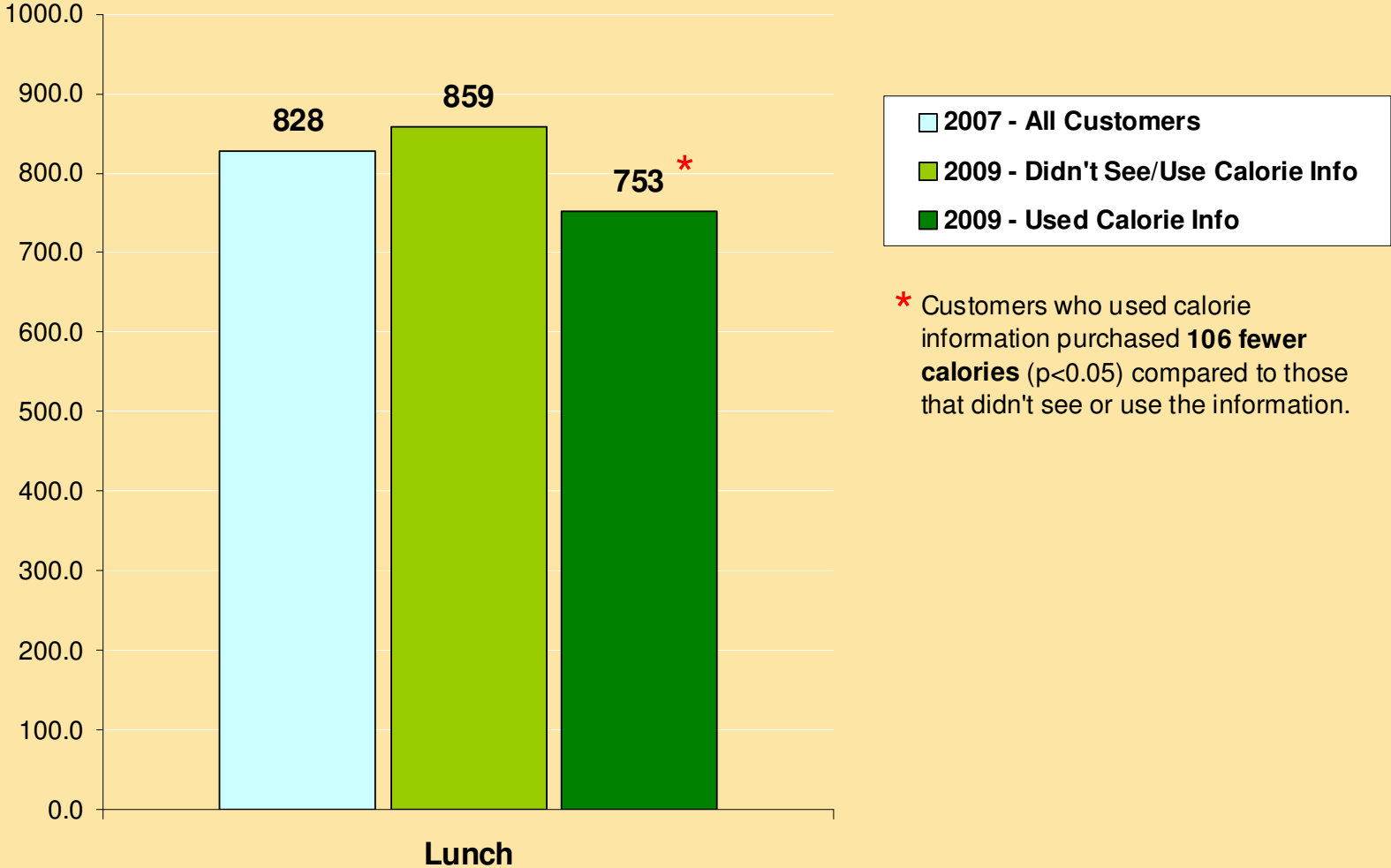
# More Customers are Seeing and Using Calorie Information

% of Customers, Spring 07 and Spring 09



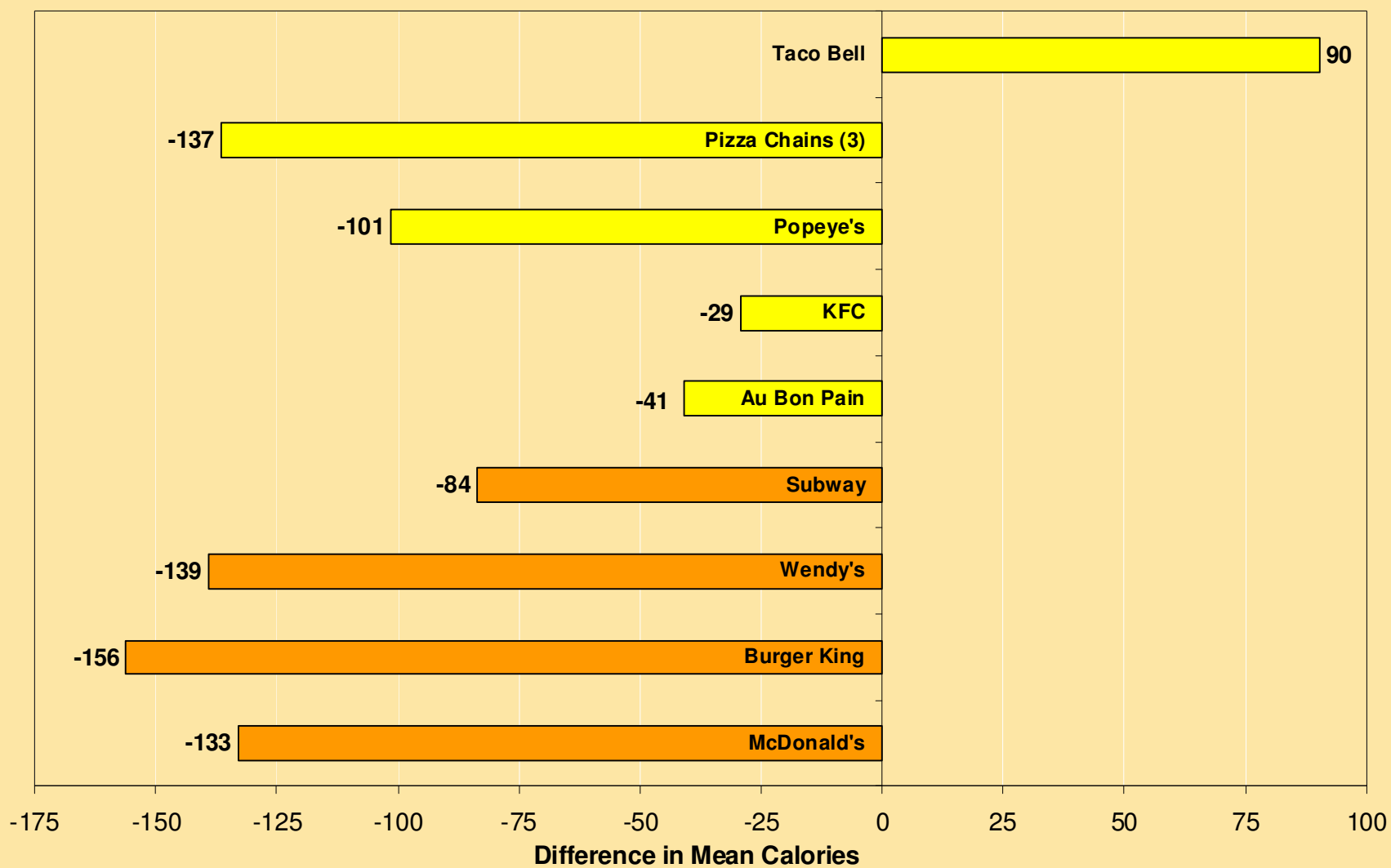
# Mean Calories Purchased

## Spring 07 and Spring 09



# Differences in Mean Calories

Customers who Used Calorie Information v. All Others - Spring 09



Statistically significant difference



# NYC Calorie Labeling Evaluation Project Team

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Tamara Dumanovsky

Christina Huang

Cathy Nonas

Lynn Silver

Special thanks to Mary Bassett, Tom Matte, Tom Frieden, Tom Farley, Chevonne Cato, Leah Tedrick-Moutz, Jessica Rao, Rosalyne Tu and all of the data collectors.

This study was supported by the Robert Wood Johnson Foundation Healthy Eating Research program and by the City of New York.

FOODS AND BEVERAGES WITH THE  
**DDSMART**™ LOGO ARE:

- ▶ Reduced in calories, fat, saturated fat, sugar or sodium by at least 25% compared to a base product or other appropriate reference product

And/or

- ▶ Contain ingredients that are nutritionally beneficial



Dunkin Donuts' DDSMART menu

<https://www.dunkindonuts.com/aboutus/BreakfastChoices/Default.aspx?section=corporate>

KFC introduced its new **Kentucky Grilled Chicken** in April of 2009.

The grilled chicken was promoted as a healthier, lower-calorie option. From the KFC Newsroom:

*“With **between 70 to 180 calories and four to nine grams of fat** depending on the piece, Kentucky Grilled Chicken provides a non-fried option from a brand America knows and loves.”*

<http://www.kfc.com/about/newsroom/041409.asp>

Original Recipe range for comparable items: 110-370 calories, 7-21 grams of fat



Photo Source: <http://www.yumsugar.com/3131387>

# 2000 CALORIES A DAY IS ALL MOST ADULTS SHOULD EAT



VS.



**Choose less. Weigh less.**

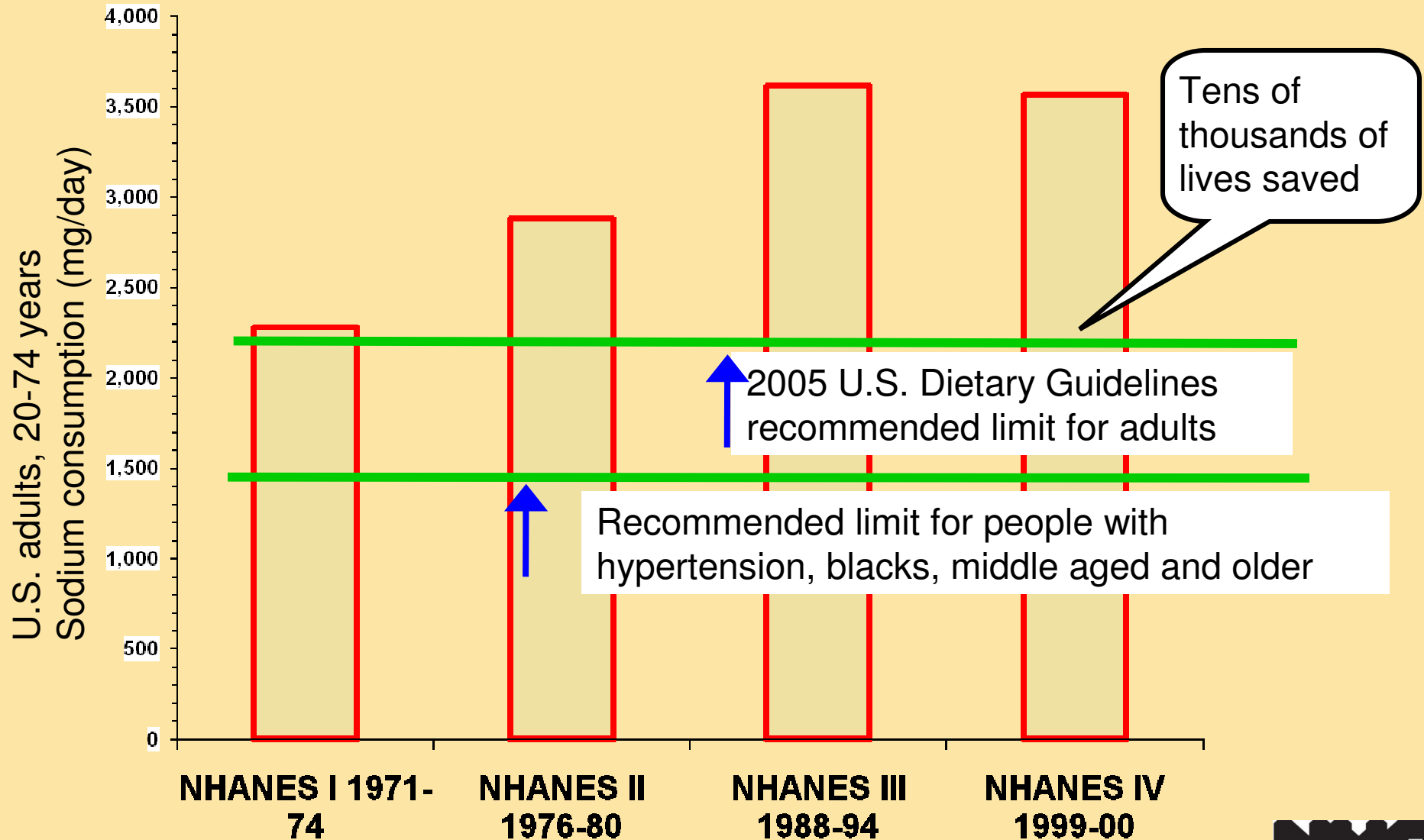


**NYC**  
Department of Health  
and Mental Hygiene

Division of Field Operations  
150 East 25th Street  
New York, NY 10010  
311-625-3333

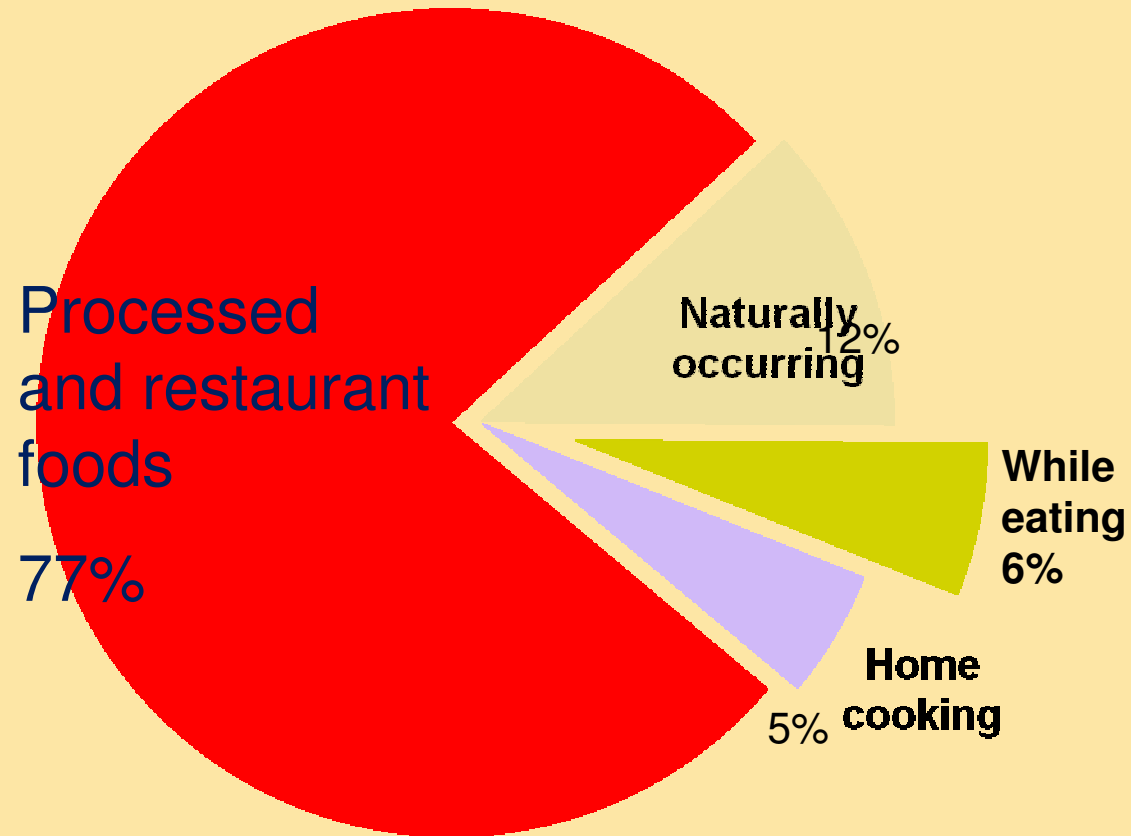


# Blood Pressure Reduction Through Reduced Salt Intake Would Save Lives



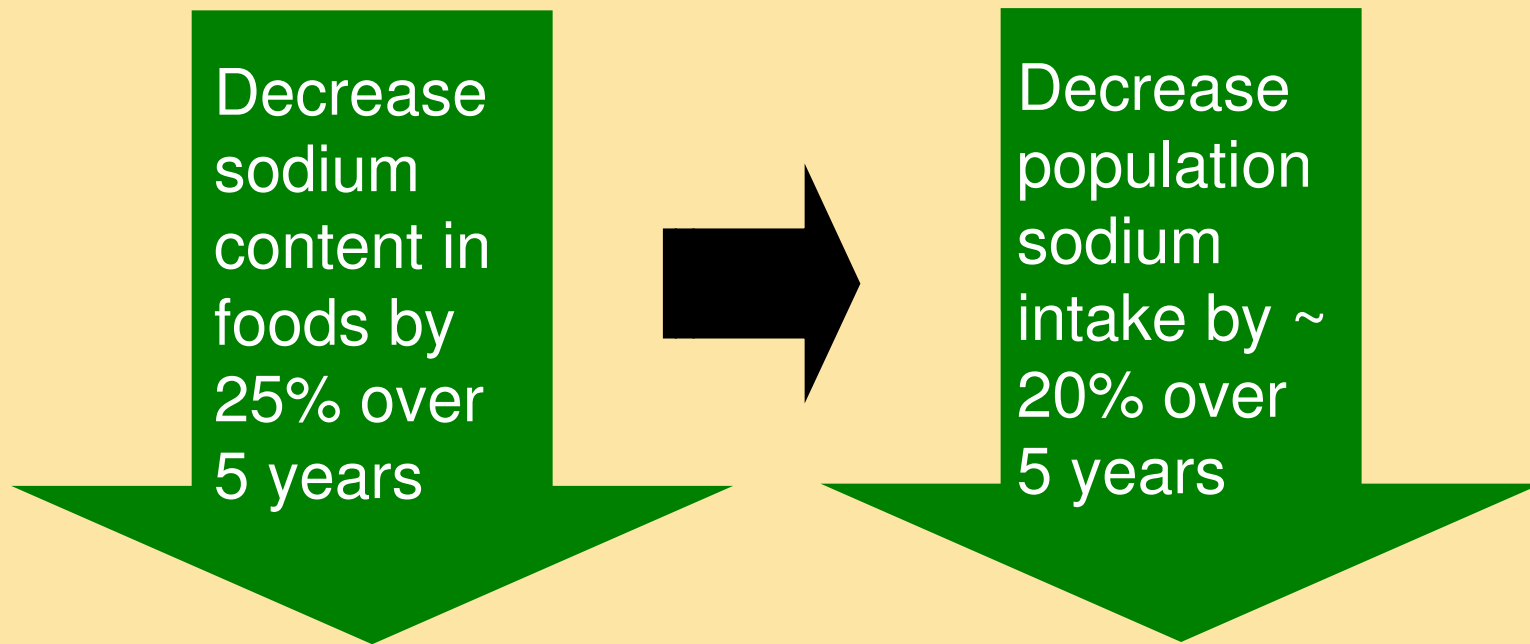
Data from Briefel RR, Johnson CL. Secular trends in dietary intake in the United States. Annu Rev Nutr. 2004;24:401-431

# Most Salt Comes from Processed and Restaurant Foods



Source: Mattes, RD. *Journal of American College Nutrition*, 1991, 10:383-393.

# Goal: 20% Reduction in Sodium Intake in 5 Years



*Reductions will vary among food categories*



# April 26<sup>th</sup> NSRI Announces First Company Commitments

## Packaged Food

- Boar's Head
- Fresh Direct
- Goya
- Hain Celestial
- Heinz
- Kraft
- LiDestri
- Mars Food
- McCain Foods
- Red Gold
- Unilever
- White Rose

## Restaurants

- Au Bon Pain
- Starbucks
- Subway
- Uno Chicago Grill



# Examples of Product Sodium Reductions



**Heinz**  
ketchup

**15%**

**BY 2012**



**McCain**  
Ellio's cheese pizza

**15%**

**BY 2014**



**Boar's Head**  
liverwurst

**15%**

**Since NSRI  
launch**

**20%**

**TOTAL  
BY 2014**



**Au Bon Pain**  
Baja Turkey Sandwich

**10%**

**Since NSRI  
launch**

**15%**

**TOTAL  
BY 2014**

# Category Sodium Reductions



**Goya**  
canned beans



**By 2014**

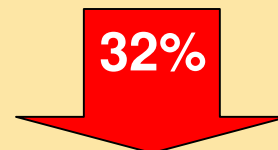
**LiDestri**  
Francesco Rinaldi  
spaghetti sauces



**By 2014**



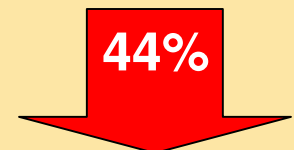
**White Rose**  
Canned Tomatoes



**By 2014**



**White Rose**  
Pretzels



**By 2014**

# PUBLIC EDUCATION

## Media Campaigns

-Tobacco (very successful!)

-Junk Food

## Written Information

-CHI's

-Health Bulletin's

# PUBLIC HEALTH DETAILING



## obesity

Taking small steps can make a big difference.

### Tips for Healthy Weight Loss Eating—It's All in the Timing

- 1 Start your day with a healthy breakfast. Good choices include oatmeal, low-fat or fat-free yogurt, fruit and whole grain toast.
- 2 Eat slowly. It takes about 20 minutes to start feeling full.
- 3 Stop eating two hours before you go to bed.

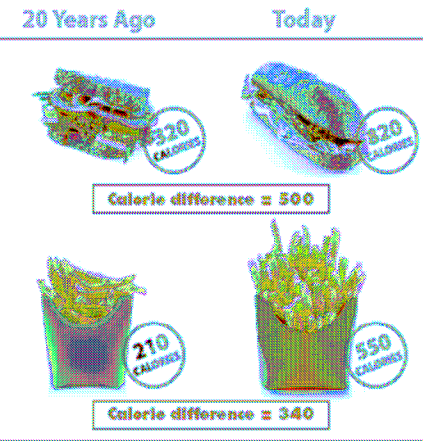
Turn over to find out why "It's All in the Timing."

**NYC** DEPARTMENT OF HEALTH & MENTAL HYGIENE

**NYC** DEPARTMENT OF HEALTH & MENTAL HYGIENE

1 of 5

### Don't be Fooled by Portion Sizes




Food servings are bigger today than ever. You may think you are eating well, but you are probably eating far more calories than you realize.

Don't be fooled by portion sizes. Cut your meal in half, or get the smaller size.

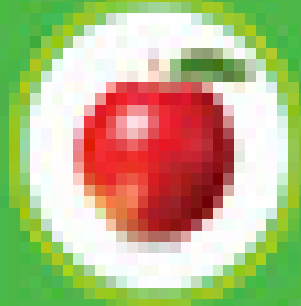
### My Self-Management Goal for a Healthy Weight

 Walk briskly every day	 Get off the subway or bus one stop early	 Eat smaller portions	 Take the stairs instead of the elevator/escalator
 Choose water	 Eat fruit as your snack	 Order the smaller size	 Other

**NYC** DEPARTMENT OF HEALTH & MENTAL HYGIENE For more information, talk to your health care provider or call 311. 

# Obesity in Children

Action Kit





# Green Carts



## EAT STREET SMART

Bring home some healthy fruits and vegetables from your new neighborhood **GREEN CART**.



## Ways to Eat More Fruits and Vegetables

Use these fun, easy tips to eat a variety of fruits and vegetables every day!

### Breakfast

- Blend fruit, ice and low-fat milk or yogurt for a breakfast smoothie.
- Add sliced fruit to your cereal.
- Include berries in your pancakes.
- Add vegetables like peppers, broccoli or spinach to your egg or egg white omelet.



### Lunch & Dinner

- Order extra vegetables on pizza.
- Add berries, cut-up apples or orange slices to a salad.
- Use vegetables in pasta dishes and sauces.
- Add vegetables to your sauté, roast or stew.



### Snacks

- Try baked apples or pears for a sweet but healthy treat.
- Snack on sliced vegetables with fat-free dip.
- Freeze grapes for a refreshing snack.





## Storing Fresh Fruits and Vegetables

Fruits and vegetables stay fresher, taste better, have more health benefits and last longer if they're properly stored.


### Store on Counter, Out of Direct Sunlight

- Bananas
- Coconut
- Garlic
- Jicama
- Mangoes
- Melons
- Onions
- Potatoes
- Shallots
- Sweet potatoes
- Tomatoes
- Winter squash
- Yuca



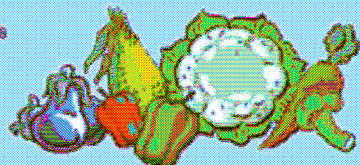
### Ripen on Counter, Then Store in Refrigerator

- Apricots
- Avocados
- Apples
- Grapefruit
- Guava
- Kiwi
- Lemons
- Limes
- Oranges
- Papaya
- Peaches
- Pears
- Pineapple
- Plums



### Store in Refrigerator, in Bottom Drawer, in Unsealed Plastic Bag

- Asparagus (wrap ends in wet paper)
- Beets
- Blueberries
- Broccoli
- Brussels sprouts
- Cabbage
- Carrots
- Cauliflower
- Celery
- Chard
- Cherries
- Collard greens
- Corn
- Cucumbers
- Eggplant
- Figs
- Ginger
- Grapes
- Green beans
- Herbs (place ends in glass of water)
- Kale
- Leeks
- Lettuce
- Mushrooms (paper bag)
- Okra (paper bag)
- Peas
- Peppers
- Radishes
- Raspberries
- Scallions
- Spinach
- Strawberries
- Summer squash
- Rutabagas
- Turnips
- Zucchini



# 2000 CALORIES A DAY IS ALL MOST ADULTS SHOULD EAT



VS.



**Choose less. Weigh less.**







**ARE YOU POURING  
ON THE POUNDS?**

Don't Drink Yourself Fat



We are still building the evidence base for what interventions work best, but we should not be afraid to act based on best guess and experience, with a commitment to evaluation and change.