



The New York  
Academy of Medicine

*At the heart of urban health since 1847*

# Prevention for a Healthier America

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# Leading Causes of Death in U.S.

(percent of total deaths, 2004 data)

- ✓ Heart disease: 27.2%
- ✓ Cancer: 23.1%
- ✓ Stroke (cerebrovascular diseases): 6.3%
- ✓ Chronic lower respiratory diseases: 5.1%
- ✓ Accidents (unintentional injuries): 4.7%
- ✓ Diabetes: 3.1%
- ✓ Alzheimer's disease: 2.8%
- ✓ Influenza/Pneumonia: 2.5%
- ✓ Nephritis, nephrotic syndrome, and nephrosis: 1.8%
- ✓ Septicemia: 1.4%
- ✓ All other causes: 22.2%

Source: National Center for Health Statistics, 2005



# Health Influences in NYC Neighborhoods

## Drank two or more sugar-sweetened sodas per day

1.4% - 5.2%

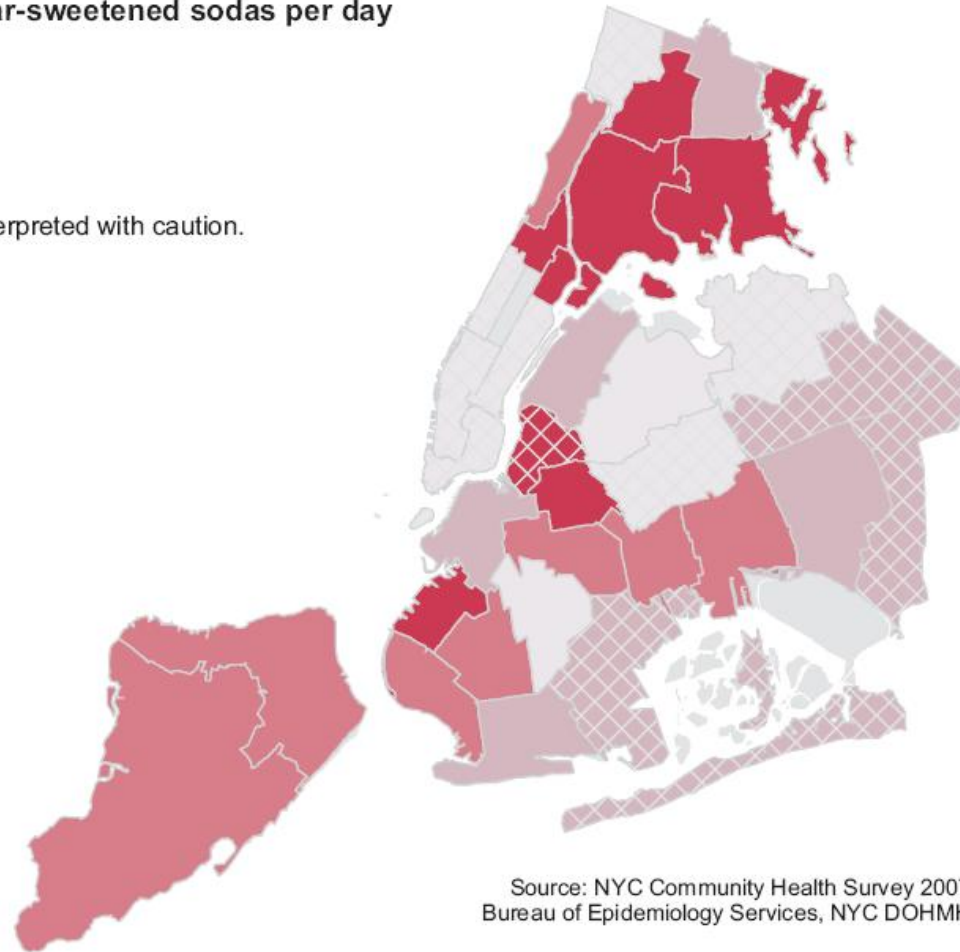
5.3% - 8.1%

8.2% - 10.9%

11% - 17.4%

Estimate should be interpreted with caution.

\*Percentages are age adjusted.



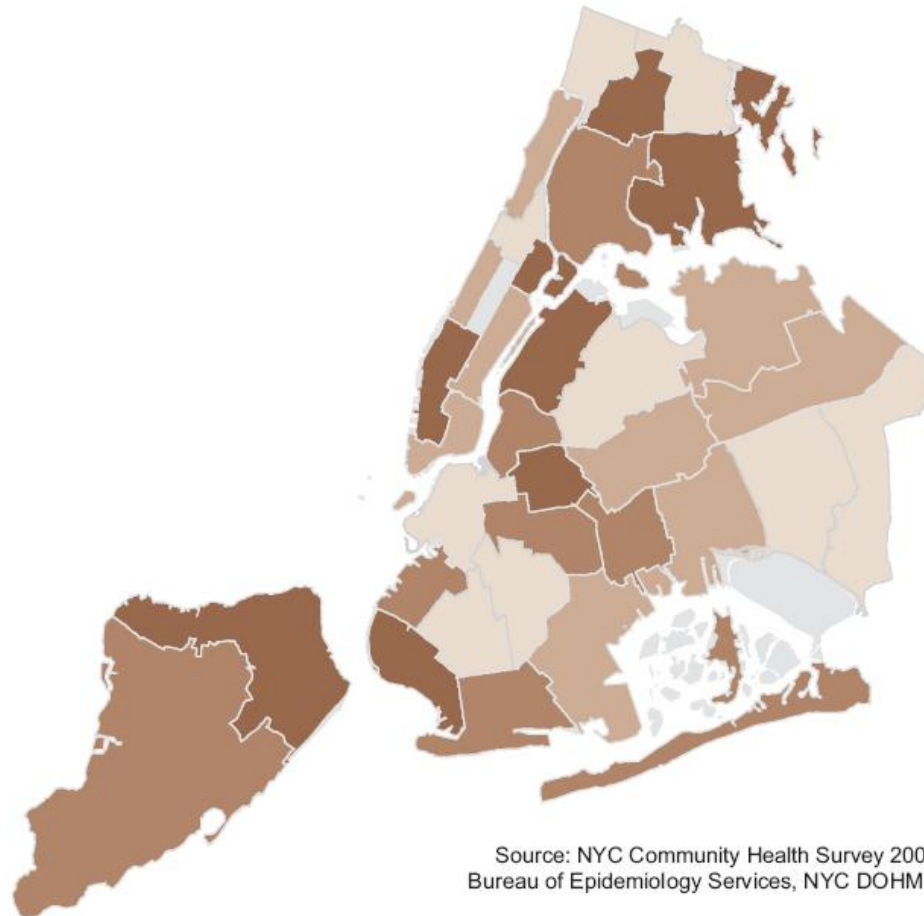
Source: NYC Community Health Survey 2007  
Bureau of Epidemiology Services, NYC DOHMH

# Health Influences in NYC Neighborhoods

## Current smoker



\*Percentages are age adjusted.

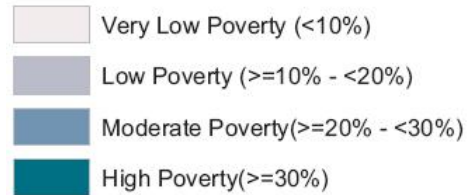


Source: NYC Community Health Survey 2007  
Bureau of Epidemiology Services, NYC DOHMH

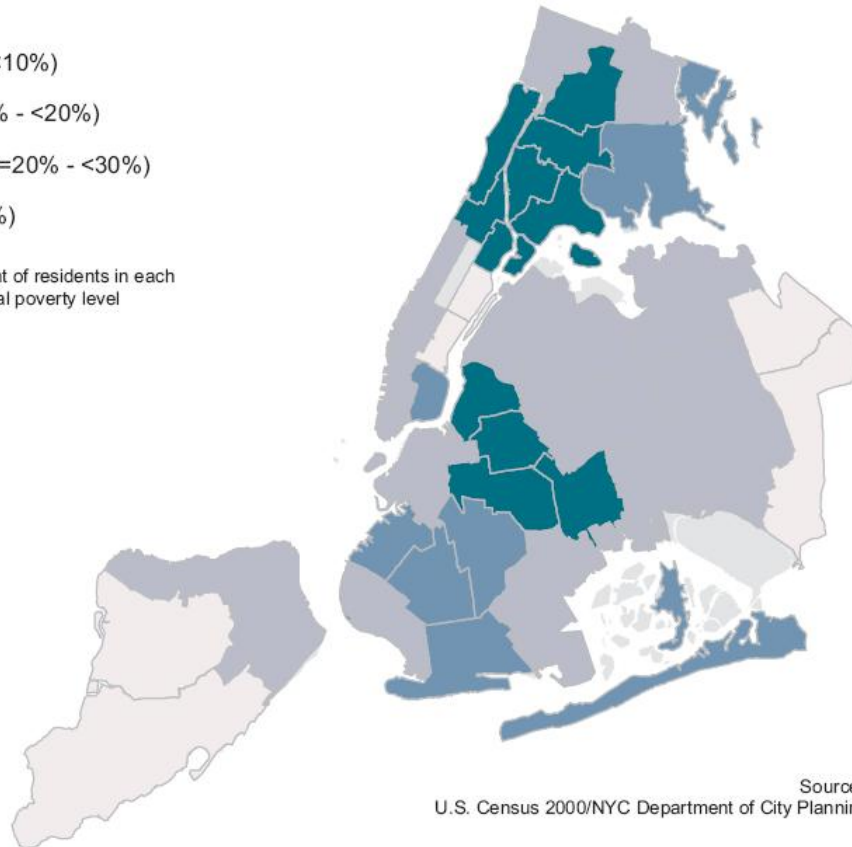


# Health Influences in NYC Neighborhoods

## Neighborhood Poverty

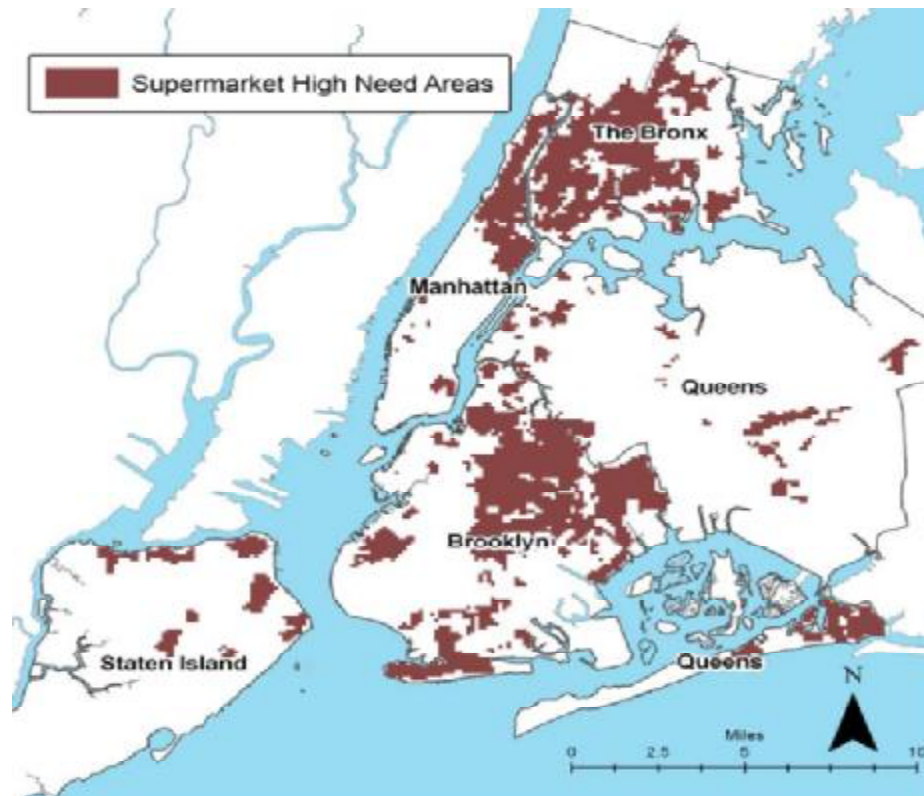


Poverty is categorized by the percent of residents in each neighborhood living below the federal poverty level



Source:  
U.S. Census 2000/NYC Department of City Planning

# Health Influences in NYC Neighborhoods



NYC Department of City Planning, NYC DOHMH, NYC Economic Development Corporation. Going to Market: New York City's Neighborhood Grocery Store and Supermarket Shortage. October 2008.

# Disease Rates in NYC Neighborhoods

## Diabetes ever

4.1% - 6.1%

6.2% - 9%

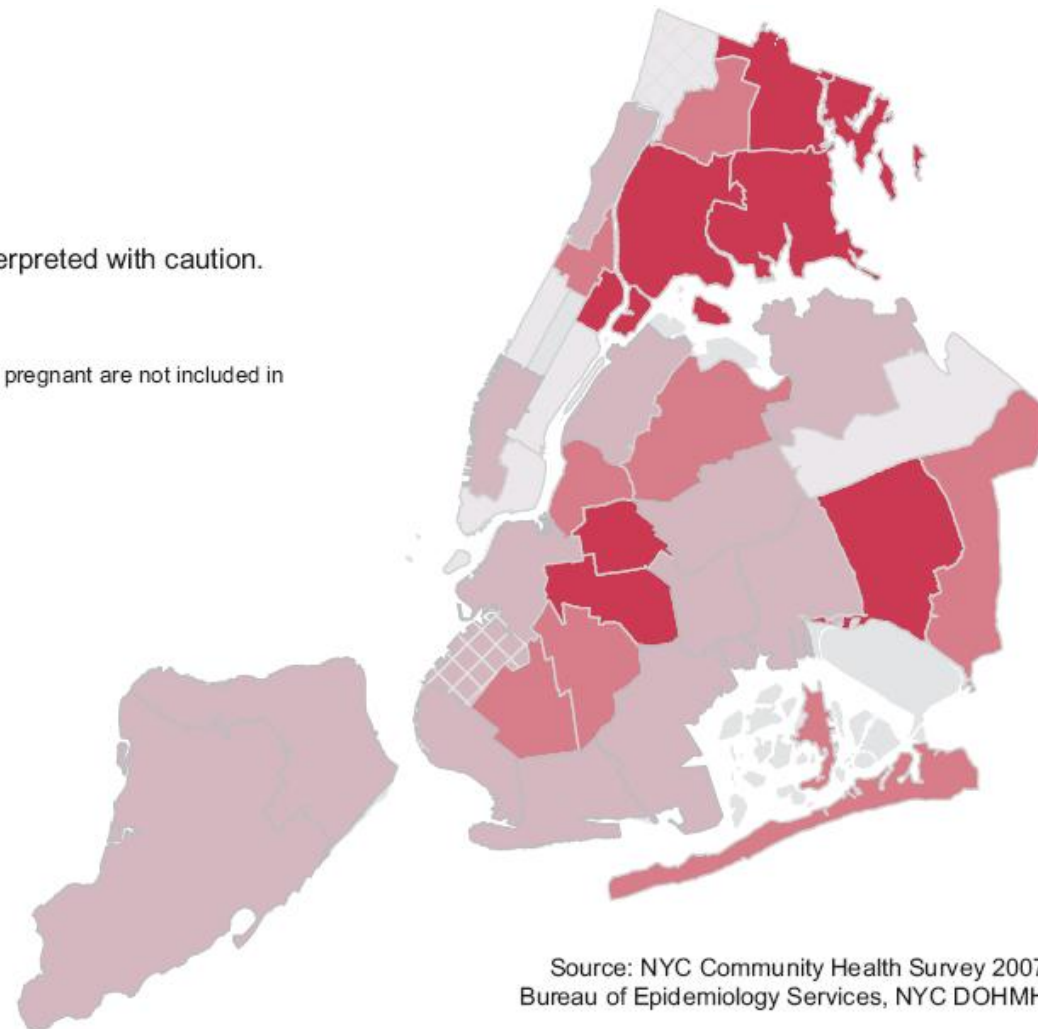
9.1% - 11.1%

11.2% - 16%

Estimate should be interpreted with caution.

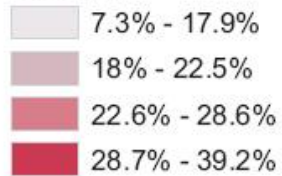
\*Percentages are age adjusted.

Women who had diabetes only while pregnant are not included in these prevalence estimates.



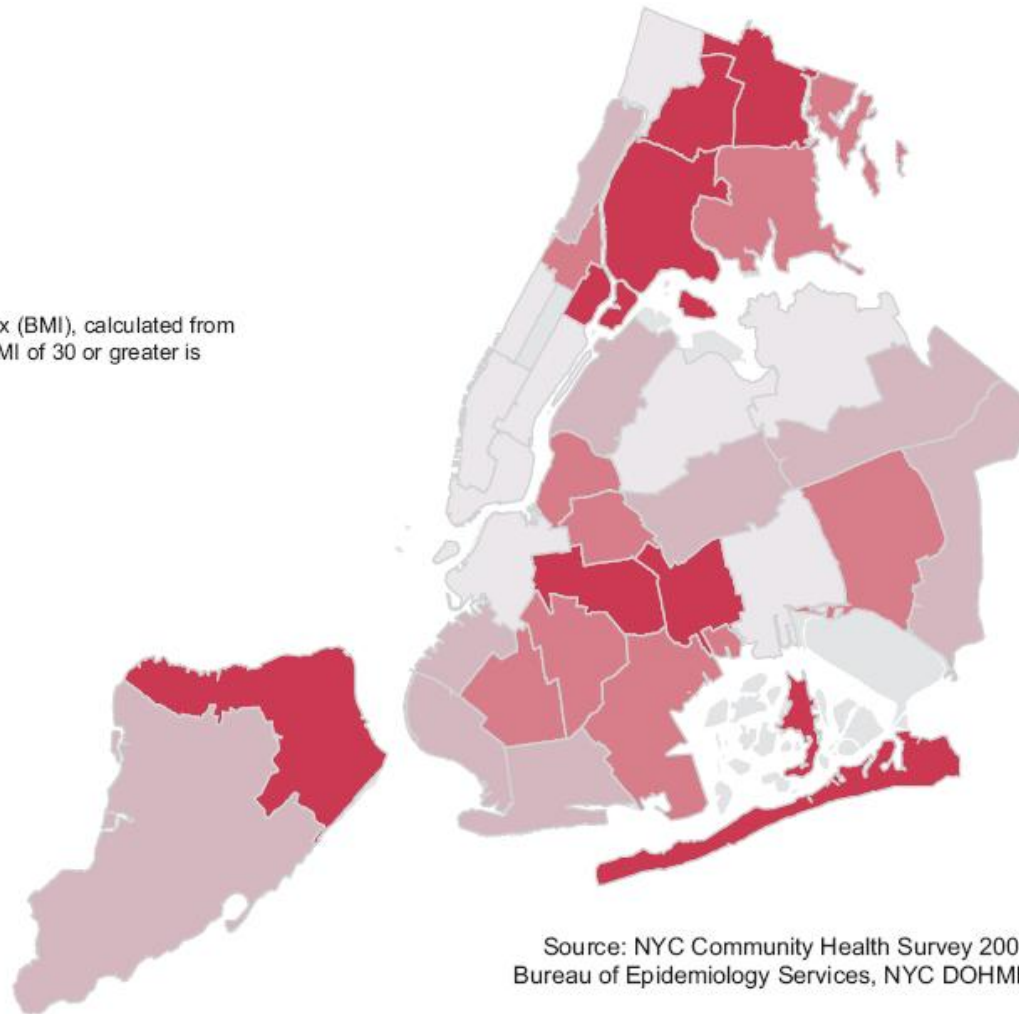
# Disease Rates in NYC Neighborhoods

## Obesity



\*Percentages are age adjusted.

Obesity is based on Body Mass Index (BMI), calculated from self-reported weight and height. A BMI of 30 or greater is classified as obese.



Source: NYC Community Health Survey 2007  
Bureau of Epidemiology Services, NYC DOHMH

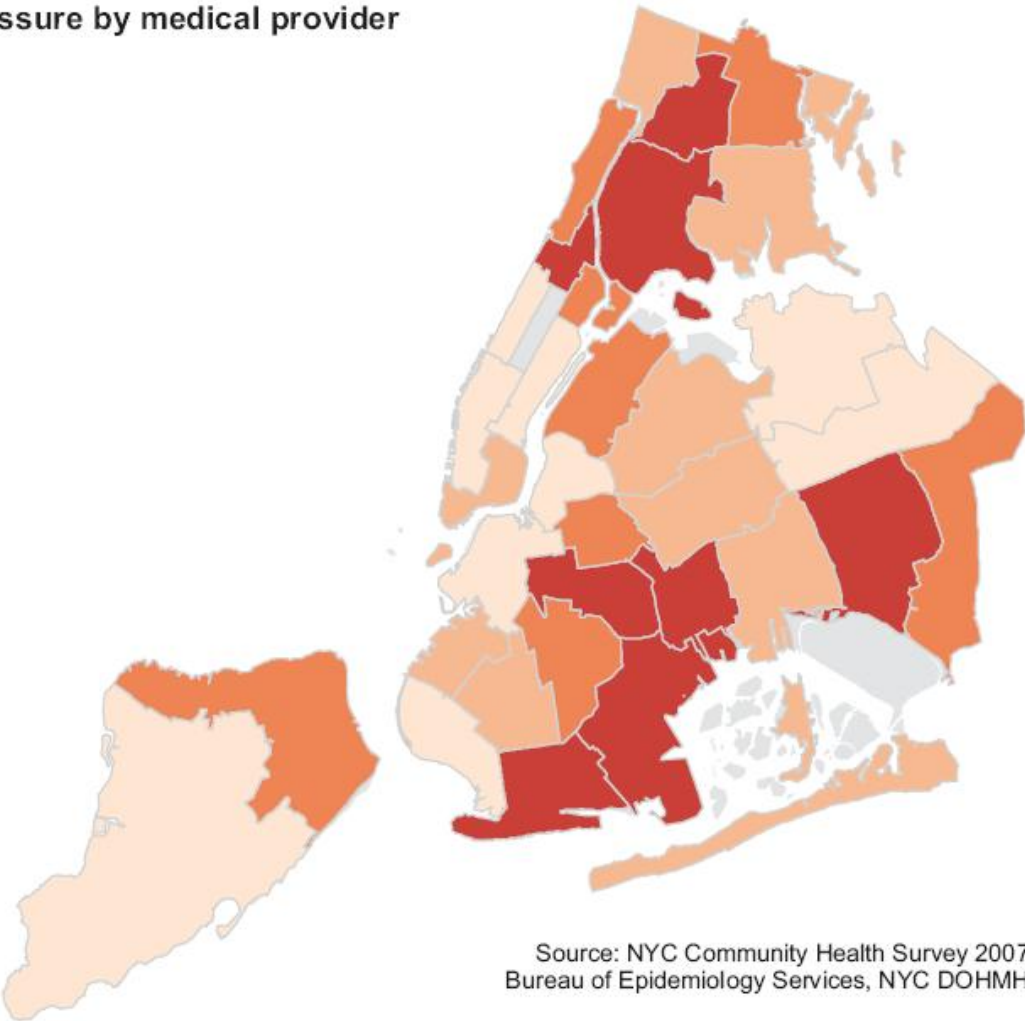


# Disease Rates in NYC Neighborhoods

## Ever told high blood pressure by medical provider

- 17% - 22.5%
- 22.6% - 28.8%
- 28.9% - 32.4%
- 32.5% - 36.3%

\*Percentages are age adjusted.



Source: NYC Community Health Survey 2007  
Bureau of Epidemiology Services, NYC DOHMH

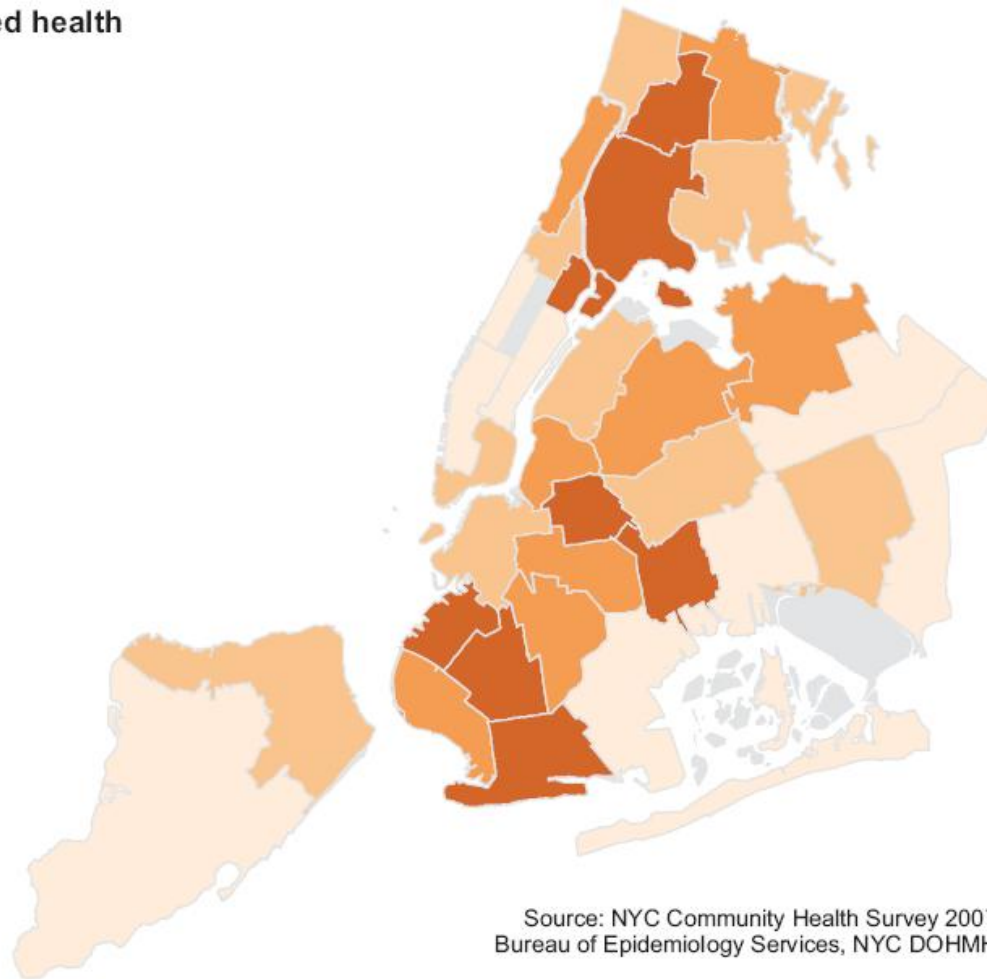


# Disease Rates in NYC Neighborhoods

## Fair or poor self-reported health



\*Percentages are age adjusted.

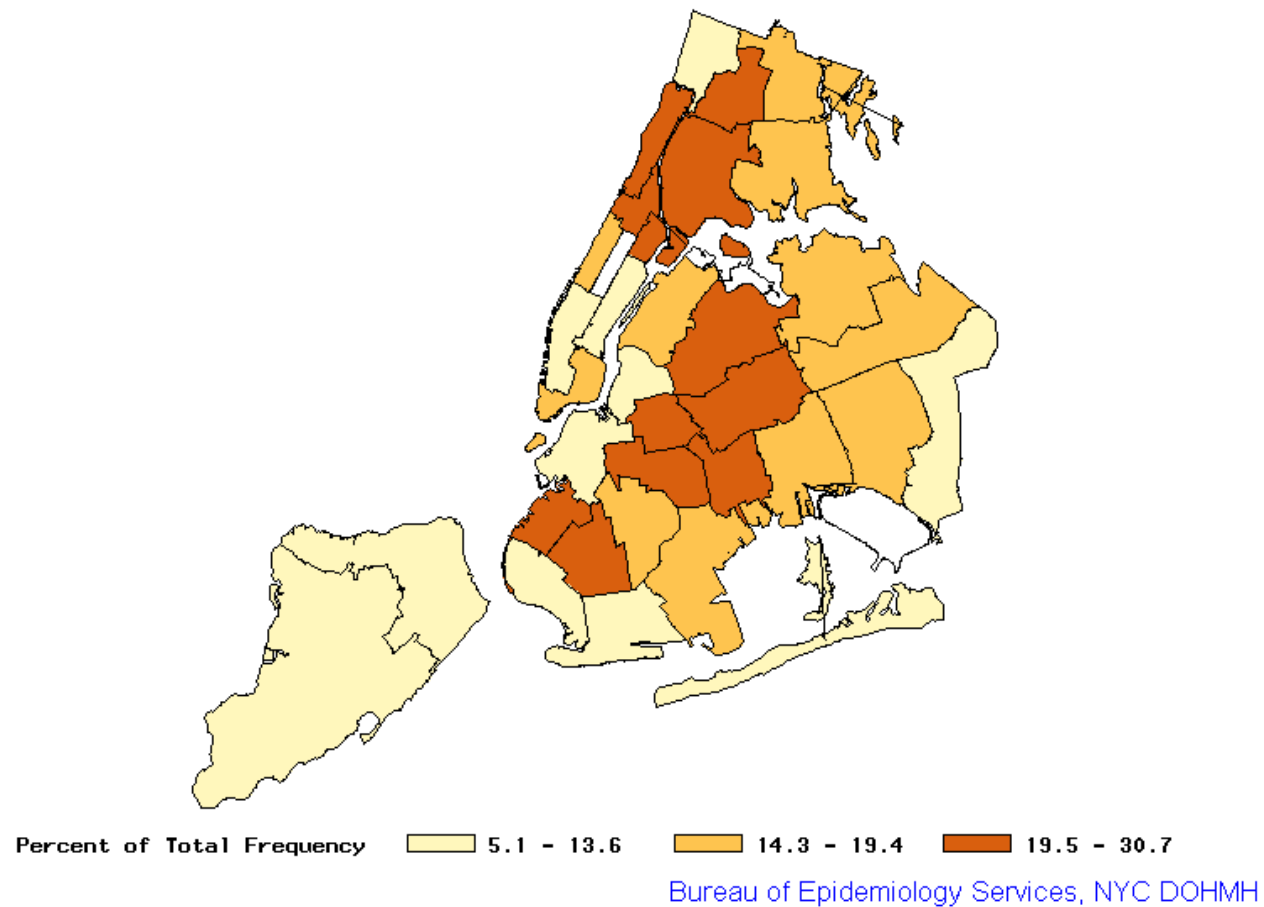


Source: NYC Community Health Survey 2007  
Bureau of Epidemiology Services, NYC DOHMH

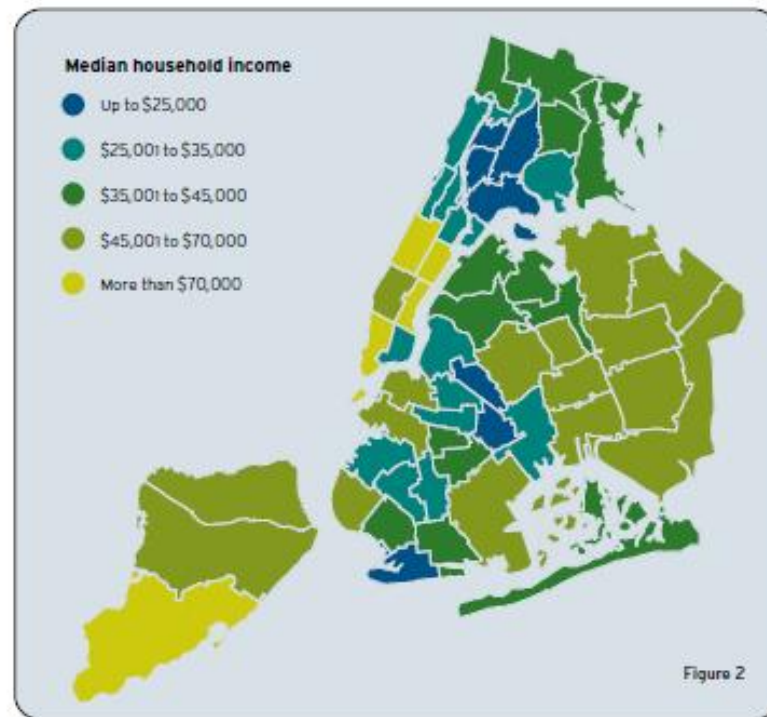


# Health Insurance Coverage in NYC

NYC Community Health Survey 2007  
Percentage of uninsured by neighborhood

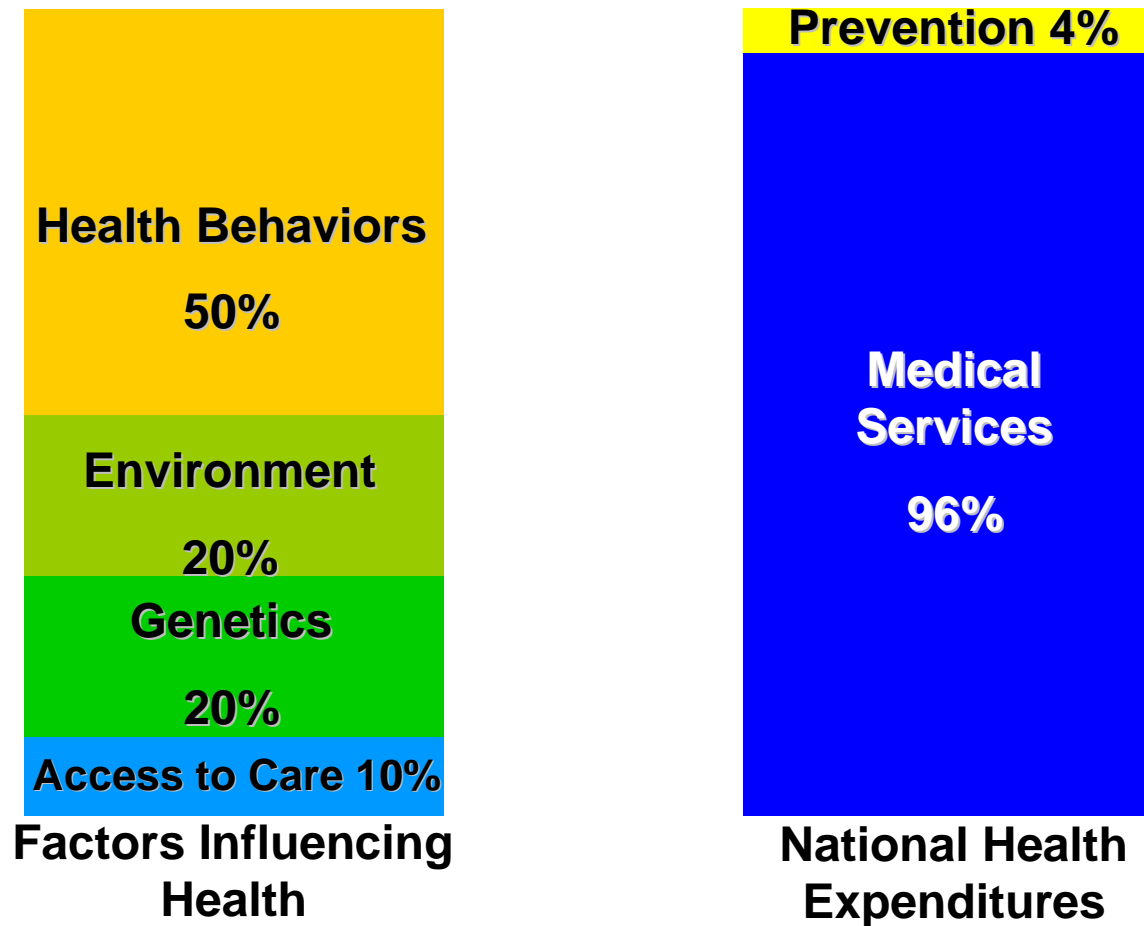


# Poverty in NYC (2005)



Source: Community Service Society, Mapping Poverty in New York City

# Health Care Spending: \$2.2 Trillion in 2007



SOURCE: CDC, Blue Sky Initiative, University of California at San Francisco, Institute of the Future, 2000



# Global Health System Rankings

| Country     | Health expenditure per capita | Health attainment |
|-------------|-------------------------------|-------------------|
| USA         | 1                             | 24                |
| Netherlands | 9                             | 13                |
| Japan       | 13                            | 1                 |
| Slovenia    | 29                            | 34                |
| Cyprus      | 39                            | 25                |

Source: *The World Health Report 2000 Health Systems: Improving Performance*. World Health Organization, 2000

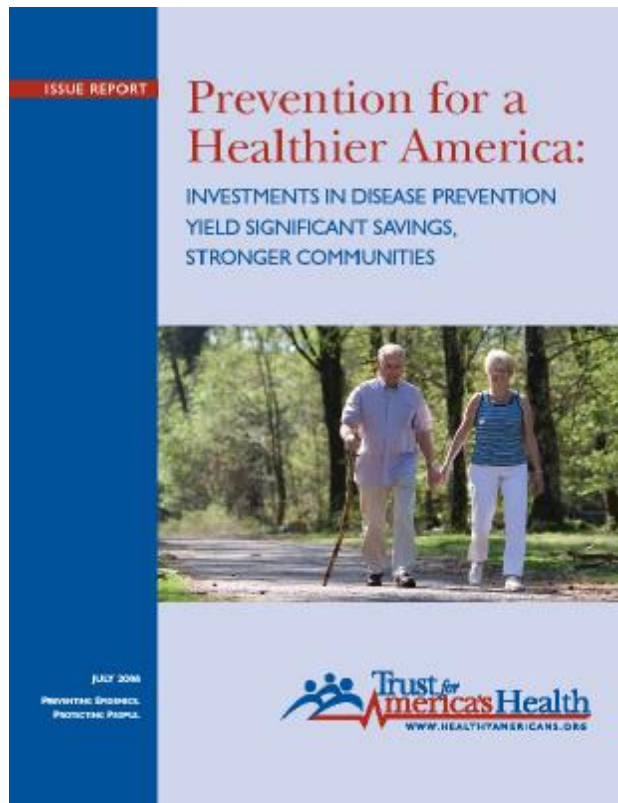


# What is Community-Level Prevention?

- Promoting healthy environments and behaviors that make it easier for people to make healthy choices.
  - Changing community norms and supporting community empowerment
    - Coalition and social network building
    - Social marketing campaigns
  - Changing the physical and social environments
    - Organization practices and governmental policies
    - Facilities and programs
    - Walkability – lighting, sidewalks, signs
  - Increasing individual knowledge and skills
    - Health education programs

# Prevention for a Healthier America

<http://healthyamericans.org/reports/prevention08/>



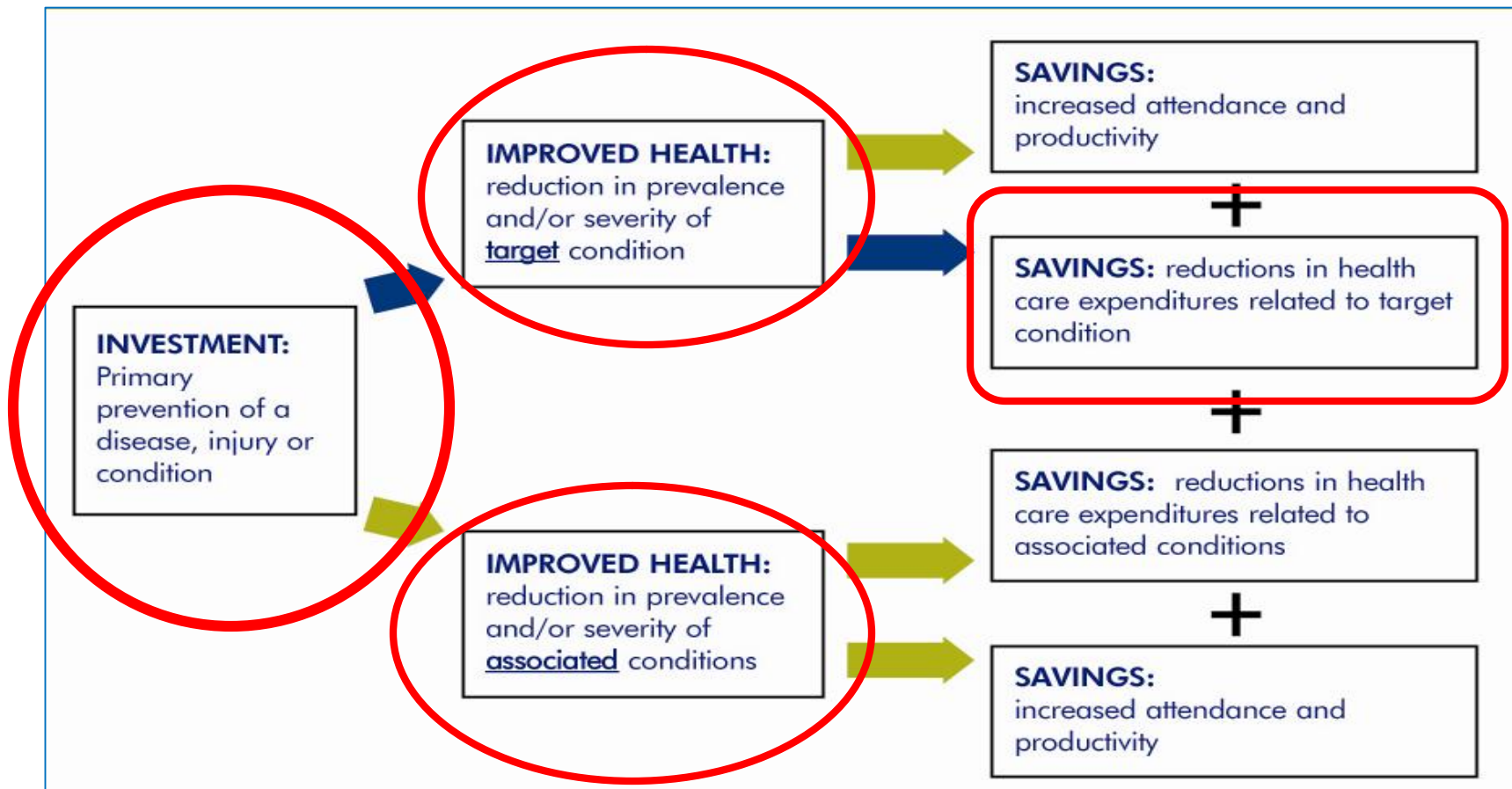


# Financial Return on Investment

*Strategic Investment in Proven Community-Based Prevention Programs to Increase Physical Activity and Good Nutrition and Prevent Tobacco Use*

|  |   |
|--|---|
| <b>INVESTMENT:</b>                           | <b>\$10 per person per year</b>                 |
| <b>HEALTH CARE<br/>COST NET<br/>SAVINGS:</b> | <b>\$16 Billion annually<br/>within 5 years</b> |
| <b>RETURN ON<br/>INVESTMENT<br/>(ROI):</b>   | <b>\$5.60 for every \$1</b>                     |

# Return on Investment Model



# Investment

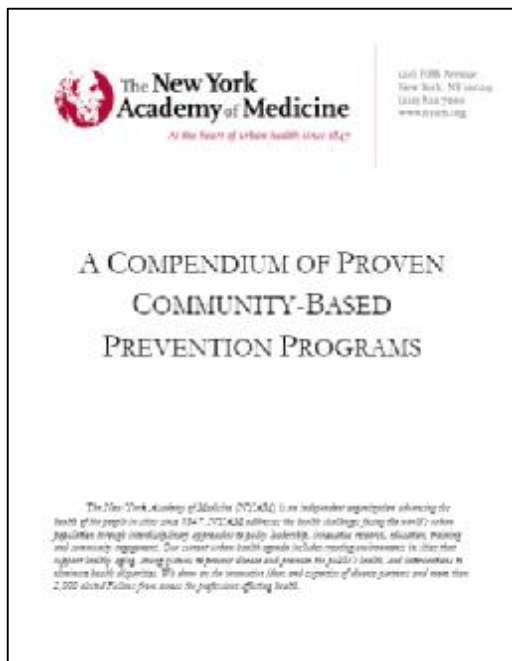
- Community interventions proven effective in reducing, delaying, or mitigating incidence of disease
- Interventions affecting the most expensive diseases
  - Heart disease
  - Cancer (selected)
  - Pulmonary conditions (selected)
  - Diabetes
  - Hypertension
  - Cerebrovascular disease
  - Arthritis
  - Kidney disease
- Interventions with the widest impact on disease: physical activity, nutrition, obesity, and smoking cessation

# Investment: Literature Review

- 300 studies narrowed to 84
- Types of studies
  - peer reviewed RCT
  - quasi-experimental studies without obvious selection bias
  - pre-post studies with large sample size
- Types of interventions
  - community-wide services (e.g. social marketing campaigns, coalition building)
  - multifactorial lifestyle interventions
  - policy changes
  - exclude direct care services or if provider-driven & based in a clinical setting

# Investment: Literature Review

- Types of outcome measures
  - lower risk, prevalence, or incidence of chronic diseases
  - typically measured through intermediate bio risk factor change (eg, BMI,Cholesterol, and Blood Pressure) or a modifiable behavior (eg, exercise, nutrition, smoking, breast feeding)

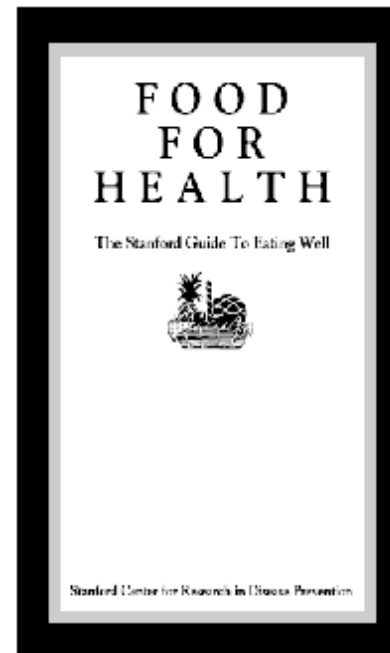


[http://healthyamericans.org/assets/files/NYAM\\_Compendium.pdf](http://healthyamericans.org/assets/files/NYAM_Compendium.pdf)



# Investment: Example Intervention

- Stanford Five-City Project
  - Mass media campaign and community programs promoting exercise, good nutrition, and smoking cessation to a target population of 122,800 people.
  - At five years:
    - coronary heart disease ↓16%
    - CVD mortality ↓ 15%
    - smoking prevalence ↓13%
    - blood pressure ↓ 4%
    - resting pulse rates ↓ 3%
    - cholesterol ↓ 2%.



# Investment: Example Intervention

- Shape Up Somerville
  - Comprehensive obesity-prevention in high-risk elementary school students through healthier school meals, school health curriculum, parent and community outreach and a safe-routes-to-school program.
  - After one year the program reduced an average of one pound of weight gain per child



# Investment: Example Intervention

- New York State Healthy Neighborhoods Program
  - Outreach workers conducted home visits to provide asthma education and show people how to remove and reduce the environmental triggers for asthma in their homes.
  - Average hospitalization rate for asthma (hospital admissions and ER visits) decreased by 23%.





# Investment

- Data vary regarding per capita costs of interventions.
  - Range in the literature is quite wide.
  - We assumed an average of \$10 per capita to be very conservative and to permit a group of interventions to be introduced, including some that might be targeted and higher cost.

# Plausible Intervention Effect

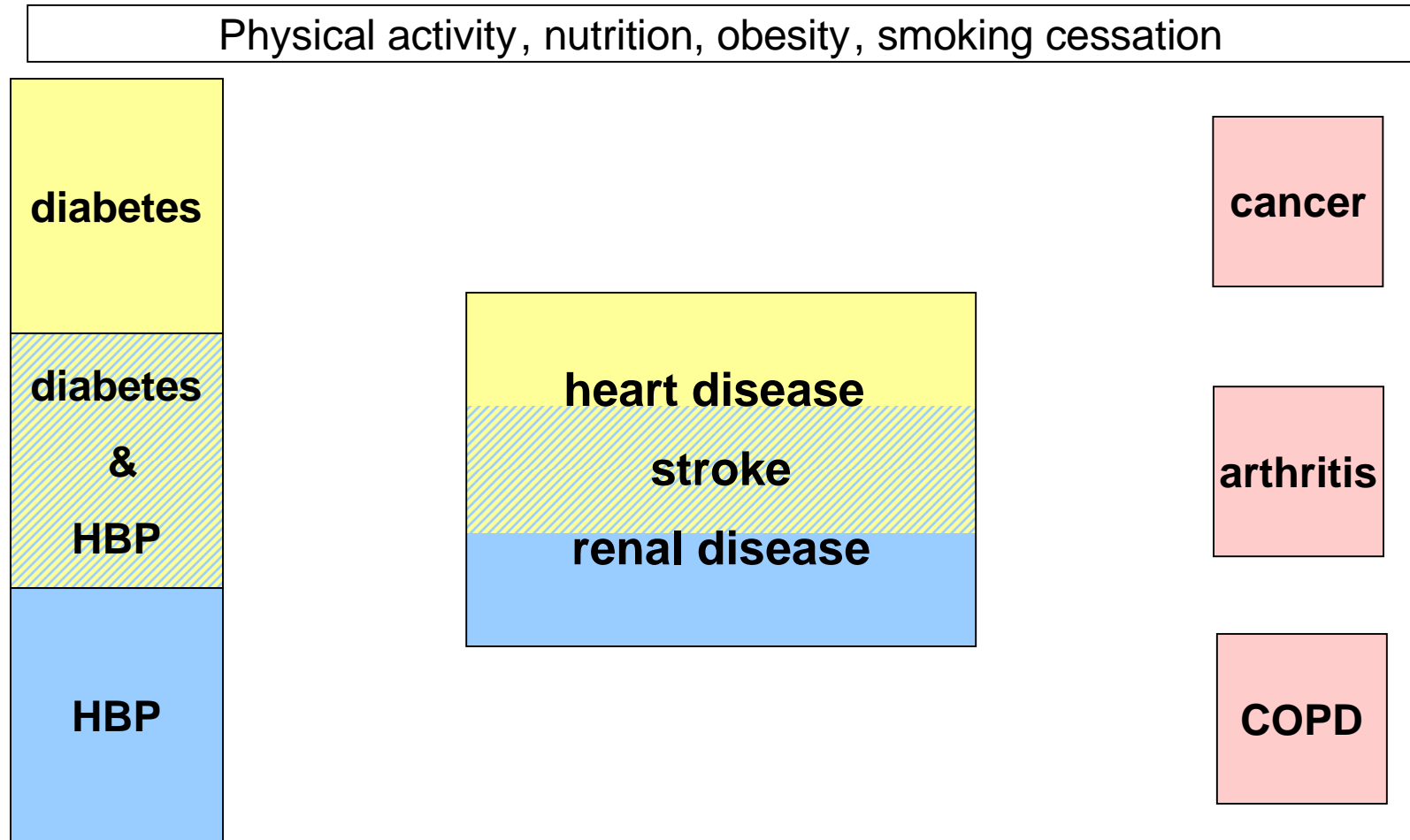
- Literature review offers a broad range of impact of community interventions
  - Literature supports that interventions can have an impact of 10%, but we modeled a 5% impact to be conservative (2.5% for cancers)
  - Literature does not consistently present data to make comparisons across interventions

# Disease-Intervention Pathways:

Short Run

Medium Run

Long Run



# Cost Savings

- Data
  - Medical Expenditures Panel Survey (MEPS), pooled 2003-2005 (adults only, excludes nursing home care)
- Methods
  - Regression analysis to predict expenditures
    - by disease cluster
    - by disease trajectory
    - by payer

# Net Savings By Payer: U.S.

5% Impact at \$10 Per Capita Cost (in 2004 dollars)

|                                     | <b>1-2 Years</b> | <b>5 Years</b>  | <b>10-20 Years</b> |
|-------------------------------------|------------------|-----------------|--------------------|
| <b>Medicare</b>                     | \$487 million    | \$5.213 billion | \$5.971 billion    |
| <b>Medicaid</b>                     | \$370 million    | \$1.951 billion | \$2.195 billion    |
| <b>Private payers/Out of Pocket</b> | \$1.991 billion  | \$9.380 billion | \$10.285 billion   |

# Limitations

- Limited data on sustainability and scalability – hence the assumption that only a one-time effect even though intervention sustained over time. (Or new interventions introduced over time.)
- Model calculates savings from reductions in prevalence; other models look at stemming the rise.
- Savings in 2004 dollars, though costs have risen.
- Model incorporates marginal cost of interventions, not the cost of basic infrastructure.

# Project Findings

- Investment in community-based prevention makes fiscal, as well as public health, sense.
- Community-level prevention can be an equal partner with screening and clinical prevention.
- Offering an ROI is compelling to policymakers.
- *Compendium of Proven Community-based Prevention Programs*
- Examples of influence of this perspective
  - NYS Prevention Agenda
  - ARRA \$650 million for community-based prevention
  - Health Care Reform Ideas
    - National Prevention and Health Promotion Strategy
    - Prevention and Public Health Investment Fund
    - Community Prevention Services Task Force
    - Community Transformation Grants