Community Interventions to Address Obesity –
*The Interface of Evidence and Public Policy in New York City*

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New York City Department of Health
EPIDEMIC OF OBESITY IN NYC
Adults with Self Reported Obesity, NYC, 1994-2007

Actual obesity prevalence measured by NYC HANES: 25.7% →

EPIDEMIC OF DIABETES IN NYC
Adults with self reported diabetes 1994-2007

NYC Community Health Survey, NYC Department of Health and Mental Hygiene
NYC Approach to Intervention and the Evidence –
Use it when it's there or generate it when it's not
Interventions to Affect Health

- **Socioeconomic Factors**
  - Poverty, education, housing

- **Long-lasting Protective Interventions**
  - Immunizations, brief intervention, cessation treatment, colonoscopy

- **Clinical Interventions**
  - Rx for high blood pressure, high cholesterol

- **Behavioral Interventions**
  - Condoms, eat healthy, be physically active

**Examples**

- Fluoridation, calorie labeling, trans fat, smoke-free laws, tobacco tax
- Poverty, education, housing
- Immunizations, brief intervention, cessation treatment, colonoscopy
- Rx for high blood pressure, high cholesterol
- Condoms, eat healthy, be physically active

*Changing the Context to make individuals’ default decisions healthy*
Urban conditions were a breeding ground for 19th century epidemics.

**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 19TH & EARLY 20TH 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
### OUR CHANGING HEALTH PROBLEMS

Deaths, New York City, Then and Now

<table>
<thead>
<tr>
<th>DEATHS</th>
<th>1880</th>
<th>1940</th>
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<tbody>
<tr>
<td>MOSTLY CHILDREN &amp; YOUNG ADULTS</td>
<td></td>
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<tr>
<td>Contagion</td>
<td>12.5%</td>
<td>0.2%</td>
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<tr>
<td>Diarrhea</td>
<td>9.6%</td>
<td>0.5%</td>
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<tr>
<td>Tuberculosis (lung)</td>
<td>20.8%</td>
<td>5.8%</td>
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<tr>
<td>Pneumonia</td>
<td>13.7%</td>
<td>3.8%</td>
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<tr>
<td>Typhoid</td>
<td>1.0%</td>
<td>0.003</td>
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<td></td>
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<tr>
<td>MOSTLY OLDER ADULTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart</td>
<td>16.4%</td>
<td>44.7%</td>
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<tr>
<td>Cancer</td>
<td>2.0%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>0.2%</td>
<td>4.0%</td>
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<td></td>
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<tr>
<td>All Other Deaths</td>
<td>12.8%</td>
<td>43.7%</td>
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<tr>
<td></td>
<td>38.3%</td>
<td>25.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>100.0%</td>
<td>100.0%</td>
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**New York City's Aging Population**

**Pediatrics or Geriatrics?**
• **Primary Prevention**  
  – Food Environment  
  – Physical Activity Environment  

• **Secondary Prevention**  
  – Address Obesity Prevention & Management in Clinical Practice
EVIDENCE BASE FOR PUBLIC ACTION

• As in the past while we have relatively good evidence on the problem and its epidemiology, 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 in response to our diagnoses, based on best available evidence, and trying to evaluate the impact of innovative interventions.
FOOD ENVIRONMENT

• Increase availability of healthy foods
• Decrease availability of junk foods
• Change cultural norms
Overall NYC: 14% did not eat any fruits or vegetables on the previous day

AND...

Only 10% ate 5 or more servings
• By 2010: 1000 green carts will be on the streets in under accessed neighborhoods

• Only fresh, non processed produce can be sold on the carts

• 32 years ago, NYC’s farmers’ market renaissance began with the opening of the first Greenmarket.

• Now, there are more than 90 farmers’ markets across the five boroughs.
NYC serves over 225 million meals and snacks per year.

Originally sought only to reduce hunger.

NYC healthier procurement rules to reduce obesity and prevent chronic disease:

- School Food: 2003
- Daycares: 2005
- All publicly funded foods: 2008
• Beverages
  – ≤ 25 calories per 8 oz for beverages other than 100% juice or milk
  • NO SUGAR SWEETENED SODA!
    – Juice must be 100% fruit juice (limited to ≤ 8 oz)
    – Milk must be 1% or non-fat

• Food
  – Minimum of 2 servings of fruits & vegetables for lunch and dinner
  – Elimination of deep fryers – no deep frying allowed!

• Salt
  – Maximum salt levels established
HEALTHY BODEGA INITIATIVE

• Move to 1% Milk: Partnership with bodegas to stock 1% milk, with community to increase demand, over 1000 bodegas (2007-8)

• Fruits & vegetables campaign
  – Working with over 450 bodegas in 2008 to address issues of quantity, quality, display, and distribution
• Bodega Owners Reported:
  – *Increased sales of fruits and vegetables:* 32% of bodegas reported an increase in fruit sales, 26% reported an increase in vegetable sales
  – *Increased variety of fresh produce:* 53% increased their variety of fruits and/or vegetables
  – *Increased quantity of fresh produce:* 46% increased their quantity of fruit and/or vegetables
HEALTH BUCKS

- $2 coupons for purchase of fresh fruits & vegetables at participating farmers markets.

- Each customer gets additional $2 “Health Buck” for every $5 spent using EBT (for food stamps) at the farmers market.


- Program was expanded from $25,000 in 2007 to $200,000 in 2008.
EVALUATION PLAN

1. Community Health Survey (CHS)
   - Long-term CHS data will be followed:
     - Population Fruit & Vegetable Consumption
       (How many total servings of fruit and/or vegetables did you eat yesterday?)
     - Adult BMI (self-reported)

2. Daycare Regulation Evaluation
   - Routine inspections showed 93% compliance on nutrition in 2008
   - Additional evaluations are underway

3. Evaluations of produce sales and availability

4. Fitnessgram measures of BMI in children
• Increase availability of healthy foods
• **Decrease availability and consumption of junk foods**
• Change cultural norms
IS THIS A FOOD SAFETY ISSUE?
LIQUID CANDY

• Biggest Source of Calories in the US diet, 9% of calories are from carbonated and non-carbonated soft drinks*

• Children & Adolescents are getting 10-15% of total calories from sugar-sweetened beverages and 100% fruit juice. Consumption is increasing in all ages.***


TAXATION – PROPOSED ADDITIONAL 18% NYS SALES TAX ON SUGAR SWEETENED BEVERAGES

• Like cigarettes
• Taxation of unhealthy foods can be an important strategy to shift consumption
• NY State currently has a 4% tax (8% in NYC) on soda and some junk food, not high enough.
• Significant taxation on sugar sweetened beverages (and junk food) should be considered worldwide as strategy to prevent obesity and finance interventions, and carefully evaluated.
NYC ADULT SMOKING PREVALENCE
1993-2007

300,000 Fewer Smokers
About 100,000 Premature Deaths Prevented

% of adults

City and State tax increases
Smoke-free workplaces
Free patch programs
Media campaign

3-yr average
21.6%
21.5%
21.7%
21.6%
19.2%
18.9%
18.4%
17.5%
16.9%

PROMOTING TAP WATER – Where’s the Evidence?

NYC Water
Get Your Fill

Zero sugar
Healthy
Refreshing

Great on the rocks.
Clean
Fat free

Cool
Healthy

Zero sugar
Clean

Zero calories

Great on the go
1. Community Health Survey (CHS)
   • Long-term CHS data will be followed:
     • Sugar Sweetened Beverage Consumption
     • Water Consumption
     • BMI
• Increase availability of healthy foods
• Decrease availability of junk foods
• Change cultural norms
Since the 1960s, expenditure on foods eaten away from home steadily increased.
EATING OUT IS ASSOCIATED WITH OBESITY – EVIDENCE ON THE PROBLEM BUT NOT WHAT TO DO!

• Eating out is associated with higher calorie intake and obesity
  – Children eat almost twice as many calories in restaurant meals compared to meals at home (770 vs. 420 calories)

• But what policies could change this? The evidence base needed to be built
Starbucks, 2008
• **Calories I:** Completed (April-May 2007). Baseline study of caloric content of purchases.

• **Calories II:** Completed (May – October 2008). Evaluated % of consumers seeing information and using posted information.

• **Calories III:** Underway. Evaluating changes in menu offerings.

• **Calories IV:** Will evaluate changes in caloric content of purchases.
* Excluding Subway only 4% of patrons reported seeing calorie information as provided prior to the calorie posting regulation

* Of Subway patrons who reported seeing calories information, 37% reported that this information had an effect on their purchase.

* Those who reported seeing & using calorie information purchased 99 fewer calories than those who reported seeing the information and that it had no effect.

* Overall, the % of customers who saw calorie information increased from 23% to 60%
* Among national chains – which were mostly compliant post-regulation – the % increased from 28% to 67%
* Post-regulation, 15% of all customers surveyed report that calorie information affected their purchase, an almost three-fold increase
USE OF MASS MEDIA

300,000 Fewer Smokers
About 100,000 Premature Deaths Prevented

% of adults


City and State tax increases
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LESSONS LEARNED FROM SMOKING CAMPAIGN

• NYC Anti-Smoking Campaign clearly effective in reducing smoking rates especially when combined with taxation

• Hard hitting media campaigns to reduce junk food consumption, and limits on food advertising, should be strongly considered, but while there is evidence on the problem there is limited direct evidence to support the intervention
Campaign in Louisiana
• Increase physical activity promoting environments
• Decrease barriers to physical activity
• Change cultural norms
Physical activity has been systematically designed out of our environments and replaced by energy use.
WE HAVE REPLACED HUMAN AND ANIMAL ENERGY WITH PETROCHEMICAL ENERGY IN ALMOST EVERY ACTIVITY...
WE HAVE REPLACED HUMAN AND ANIMAL ENERGY WITH PETROCHEMICAL ENERGY IN ALMOST EVERY ACTIVITY...
At a NYC affordable housing site stair use increased from 13% to 22% after Stair Prompts were posted. Citywide campaign launched.
FIT-CITY: PROMOTING PHYSICAL ACTIVITY THROUGH DESIGN

Translating the evidence on the built environment into policy with architects

NYC Active Design Guidelines will be finalized in 2009
• Required minimum physical activity minutes daily:
  – For ages 12 mos. and up, at least 60 min./day
  – For ages 3 and older, at least 30 min. of that time must be structured & guided activity
• Young children should not be sedentary for more than 60 min. consecutively, except when sleeping
• 2008 compliance was 98% - based on logs (but not directly observed, real compliance probably lower.)
Since 2003, DOHMH has partnered with the Sports, Play and Active Recreation for Kids! (SPARK!) program. The goal is to train and equip all group daycare centers, preschools, K-2 teachers, and as many after-schools as possible in the highest risk communities, and then citywide. To date, SPARK training and equipment has reached:

- **Daycare**: 9,532 group daycare staff trained @ 1415 sites
- **School-based Pre-K**: 1668 pre-K staff trained @ 485 sites
- **After School Programs**: 776 participants trained @ 178 sites

Reaching **over 90,000** children.
• Evaluation: Ongoing
  – 2006-2007
    • 91% of teachers trained reported using SPARK! during follow up survey
    • In Day Cares the amount of structured physical activity time increased significantly by 28% - from 78 to 100 minutes per week
    • 69% of teachers reported a positive change in children’s behavior since they started using SPARK!
    • 40% noted that lack of space for physical activity is a barrier to using SPARK
  – Data currently based on self report, Accelerometer study is planned for the near future.
• Physical Education Initiatives/ Highlights:
  – Adoption of “Physical Best” as the core health-related physical education curriculum, K-12
  – First-ever accountability metric for physical education included in principal’s annual performance review
  – Ongoing professional development, curriculum resources and technical assistance for 3,000+ physical education teachers
  – Training of elementary classroom teachers to increase weekly minutes of physical activity
  – But guaranteeing sufficient PE time for 1.2 million children is still a huge challenge
• Increase physical activity promoting environments
• **Decrease barriers to physical activity**
• Change cultural norms
Biking has increased 75% from 2000 to 2006 in NYC but still only 1% of NY’ers commute to work by bike.

NYC Bicycle Master Plan, a 1800 mile network of potential bike lanes & paths were identified (goal: complete network by 2030, to date - 420 miles have been constructed)

Bike Storage law pending

Loaner bike program under study

Source: PlaNYC 2030 Report
• Need to promote “complete streets” - where every new street built includes a sidewalk and bike lane
1. Community Health Survey (CHS)
   • Long-term CHS data will be followed:
     • Walked/Biked for transportation (Over the last 30 days, have you walked or bicycled more than 10 blocks as part of getting to and from work, school, public transportation or to do errands?)
     • Bicycle Usage (In the past 12 months, how often have you ridden a bicycle in one of the five boroughs of New York City?)
     • Physical Activity Level (Physical activity categories are based on respondents' self-reported time spent doing moderate and vigorous exercise, compared to Healthy People (HP) 2010 recommended levels.)

2. NYC Transportation Surveys

3. Fitness Gram

4. YRBS
PHYSICAL ACTIVITY

- Increase physical activity promoting environments
- Decrease barriers to physical activity
- Change cultural norms
NYC FITNESSGRAM

- NYCDOE developed in-house web-based application with Cooper Institute for collection of individual student BMI and fitness records
- **600,000+ students** and their parents received individual reports during the 2007-2008 school year
- NYC FITNESSGRAM creates formal student assessment and teacher / administrator accountability in a discipline that has historically had neither
- Criterion referenced fitness assessment tool based upon the Cooper Institute’s Fitnessgram program
- **NYC FITNESSGRAM appears to be the largest such data collection system in use**
NYC FITNESSGRAM

REPORT FOR STUDENT

To be healthy and fit, it is important to do some physical activity almost every day. Aerobic exercise is good for your heart and body composition. Strength and flexibility exercises are good for your muscles and joints.

Ashley Sample
Grade: 06  Age: 10  Class: 500
P.S. 900 School  District 09
Instructor: John Smith

BMI-for-age Percentile

<table>
<thead>
<tr>
<th>Score</th>
<th>Healthy</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Your Score: 44

A high or low percentile could be a sign of (or lead to) health problems.

Healthy Fitness Zone

Your score is in the Healthy Fitness Zone. To maintain fitness, you should be active most days of the week. Try to play active games, sports, or other activities you enjoy a total of 60 minutes each day.

Curl-Ups

Your Score: 12

The number of curl-ups a student can do.

Trunk Lift (inches)

Your Score: 9

The test measures the strength and flexibility of the back.

Push-Ups

Your Score: 3

The test measures upper body strength and endurance.

Sit-and-Reach (inches)

Your Score: 4

The test measures flexibility of hamstring muscles.

More Information About

EXPLANATION OF NYC FITNESSGRAM TESTS

Body Mass Index (BMI)
Body Mass Index (BMI) is a measure that compares a person’s weight and height. The BMI-for-age percentile compares children of the same gender and age. A high or low percentile could mean a health problem. Parents should discuss their child’s BMI results with a healthcare provider.

The PACER: Tests aerobic fitness
The student runs laps, back and forth between two points to the sound of beeps set to music. Each lap needs to be completed in a certain amount of time. The test ends when the student can no longer complete a lap in the time allowed. The score is the total number of laps completed.

Curl-up: Tests abdominal strength and endurance
The curl-up is similar to a “crunch” or a sit-up. The score is the number of curl-ups a student can do.

Trunk Lift: Tests the strength and flexibility of the back
While lying on the stomach, the student lifts the head and shoulders off the floor. The score is the number of inches a student can lift the head off the floor.

Push-up: Tests upper body strength and endurance
The score is the number of push-ups that a student can do at a 90-degree elbow angle.

Back Saver Sit-and-Rasch Test: Flexibility of hamstring muscles
With the leg straightened, the student reaches as far as possible toward the toes. The score is the number of inches the student can stretch.

HEALTHY KIDS, HEALTHY FAMILIES

- Get moving! Kids should get at least 60 minutes of physical activity a day; adults should get at least 30 minutes of physical activity at least 5 days a week. Fun activities work best, such as bicycling, dancing, jumping rope, playing basketball, or going for a walk.
- Limit TV, video, and computer games to less than 1 hour a day. They keep you from moving!
- Eat 5 or more servings of fruits and vegetables a day. Some is better than none. Choose fruits and vegetables in all colors. They contain vitamins and minerals.
- Drink plenty of water. Choose water and low-fat milk, not high-calorie sugar sweetened beverages like sodas and juices.
- Snack on fruits and vegetables instead of chips, cookies and other junk food.

For more information about fitness and health education programs from the New York City Department of Education, visit schools.nyc.gov/fitness or www.champs.org.nyc.

For more information on maintaining a healthy weight from the New York City Department of Health and Mental Hygiene, visit nyc.gov/health/obesity. Or call 311 and ask for Health Bulletin #57: How to Lose Weight.

For more information about Body Mass Index and the U.S. Centers for Disease Control and Prevention, visit cdc.gov/ndi.
Helping Children Reach a Healthy Weight
Proven Tips for Parents

"TeenSpeak... About Getting Fit"

The Real Truth from Real Teens

TeenSpeak was created by and for teens like you. Hear about health... in your own words.
SECONDARY PREVENTION

• Address Obesity Prevention & Management in Clinical Practice
Clinical settings are underused for **effective** communication around obesity

- Less than half (42%) of obese adults report being advised to lose weight by health care professionals

NYC DOH developed tools to improve provider communication with patients on this issue

- Public Health Detailing Obesity Campaign
- Primary Care Provider Nutrition Trainings
- Public Health Detailing Pediatric Obesity Campaign (Under Development)
Over 1,600 Obesity Action Kits were distributed to over 1,600 health care providers and staff members during this campaign.

Time with providers increased by 8 minutes; the average visit was 20 minutes for this campaign.

• Provider Nutrition Training
  – To date: over 2000 providers have been trained

• Evaluation
  – Self reported evaluation data very positive for both the Obesity Detailing Campaign and Nutrition Training.
  – Chart review evaluation of provider practices and outcomes not yet available due to funding constraints
Absence of a stable source of funding for obesity prevention and its evaluation

Rigorous studies are expensive – and can often only be done selectively, randomization is often not feasible

Evidence on intervention effectiveness is most useful but not widely available

In practice, multiple community interventions seek to affect the same behaviors. When implemented simultaneously it is difficult to attribute causality in changes in these behaviors
CONCLUSIONS

• We are still building the evidence base for what interventions work best. But – communities should not be afraid formulate policy based on best evidence and experience, with a strong commitment to evaluation. Some interventions won’t work.

• Integrated financial support for both implementation and evaluation of community prevention must be strengthened
Thank you to C. Nonas, K. Lee, L. Kerr, L. Benson, M. Kennelly, S. Baronberg