



# Epi Data Brief

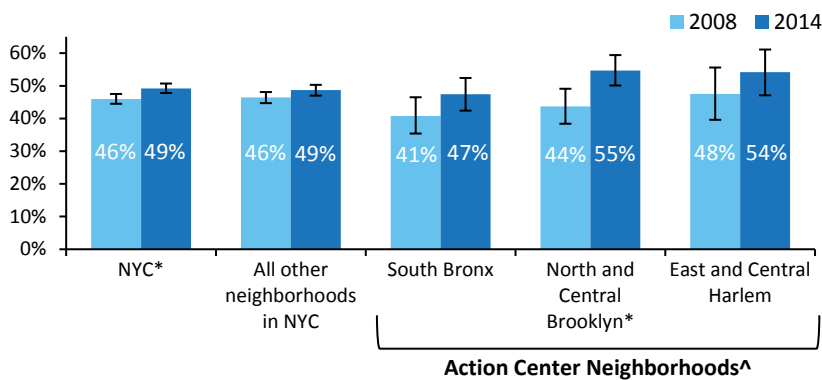
New York City Department of Health and Mental Hygiene

December 2016, No. 84

## Changes in Accessibility and Consumption of Fruits and Vegetables in New York City

Low-income communities have historically faced limited access to healthy food options. Over the past decade, New York City (NYC) has implemented many initiatives, including Health Bucks, Green Carts, and Shop Healthy NYC to address the need for fresh, affordable fruits and vegetables.<sup>1</sup> In this data brief, changes over time in the accessibility and consumption of fruits and vegetables are explored in three areas where the Health Department established District Public Health Offices (now called Neighborhood Health Action Centers) and in other city neighborhoods. In addition, disparities in access and consumption by household poverty level are presented.

### Adults living within a five-minute walk to purchase fruits and vegetables in New York City, 2008 and 2014



Bars represent 95% Confidence Intervals (CIs). CIs are a measure of estimate precision. The wider the CI, the more imprecise the estimate.

\*Percentage in 2014 is statistically different from the percentage in 2008 ( $p < 0.05$ ).

^ To promote health equity and reduce health disparities, the Health Department established District Public Health Offices (now called [Neighborhood Health Action Centers](#)) in neighborhoods with high rates of chronic disease and premature death.

Source: NYC Community Health Survey, 2008 and 2014

### Access to fruits and vegetables improved for some New Yorkers between 2008 and 2014

- In 2014, almost half of all adults in NYC could walk from home to purchase fruits and vegetables in five minutes or less, a 7% increase compared with 2008 (49% vs. 46%).
- The North and Central Brooklyn Action Center area experienced an increase in the percent of adults who could walk in five minutes or less to purchase fruits and vegetables between 2008 and 2014 (44% vs. 55%).
- The percent of adults who could walk in five minutes or less to purchase fruits and vegetables remained similar in 2008 and 2014 in the South Bronx and East and Central Harlem Action Center areas.

#### Data Source:

#### The New York City Community Health Survey (CHS) 2008-2015:

CHS is a population-based survey conducted annually by the New York City (NYC) Department of Health and Mental Hygiene with approximately 9,000 NYC residents ages 18 and older. Starting in 2009, the CHS included adults with landlines as well as cell phones. For more survey details, visit [nyc.gov/health/survey](http://nyc.gov/health/survey).

#### Fruit and Vegetable Survey Items:

To assess access to fruits and vegetables, NYC adult residents were asked "If you were to walk from your home to purchase fresh fruits and vegetables, how long would it take you to get there? 5 minutes or less, more than 5 minutes but less than 10 minutes or 10 minutes or more?" To assess consumption, NYC adult residents were asked "How many total servings of fruit and/or vegetables did you eat yesterday? A serving would equal one medium apple, a handful of broccoli, or a cup of carrots."

**Analysis:** Percentages presented in this brief were age-adjusted to the US 2000 standard population. Trends were assessed using joinpoint regression analyses of average annual percent changes. P-values of  $< 0.05$  indicate statistically significant differences. Text citing an increase/decrease or greater/less likelihood denotes significant difference; text citing no change or similar percentages denotes no statistically significant difference.

**\*Note:** To promote health equity and reduce health disparities at the neighborhood level, the Health Department established District Public Health Offices (now called [Neighborhood Health Action Centers](#)) in the South Bronx, East and Central Harlem, and North and Central Brooklyn, neighborhoods with high rates of chronic disease and premature death. The Neighborhood Health Action Centers work with community partners to improve local conditions for good health.

## In some neighborhoods, access to fruits and vegetables varied by socioeconomic status in 2014

- Citywide, a greater proportion of adults living in low-to-medium-poverty<sup>y</sup> households reported being able to walk from home to purchase fruits and vegetables in five minutes or less compared with adults living in high-poverty households (55% vs. 43%).
- In North and Central Brooklyn, 62% of adults in low-to-medium-poverty households could walk from home to purchase fruits and vegetables in five minutes or less compared with 50% of adults living in high-poverty households.
- In the South Bronx and East and Central Harlem neighborhoods, access to fruits and vegetables did not differ by household poverty status<sup>\*\*</sup>.
- In NYC neighborhoods outside of Action Center areas, 54% of adults living in low-to-medium-poverty households could walk from home to purchase fruits and vegetables in five minutes or less in 2014 compared with 42% of adults living in high-poverty households.

## Fruit and vegetable consumption did not change in NYC over time, except in Action Center neighborhoods

- The percentage of NYC adults who did not consume any servings of fruits and vegetables or consumed one to four servings remained similar from 2008 to 2015.
- The percentage of adults who consumed five or more daily servings of fruits and vegetables changed substantially between 2008 and 2015 in each of the Action Center neighborhoods. The South Bronx experienced a 5% average annual decrease, North and Central Brooklyn experienced a 5% average annual increase, and East and Central Harlem experienced a 20% average annual increase.

## Most adults in New York City consume one to four daily servings of fruit and vegetables

- In 2015, 12% of NYC adults did not consume any daily servings of fruit and vegetables. Most (77%) adults consumed one to four daily servings and 11% consumed five or more servings.
- Seventeen percent of adults in the South Bronx did not consume any daily servings of fruits and vegetables and 79% of adults in the South Bronx consumed one to four daily servings.
- In North and Central Brooklyn, 17% of adults did not consume any daily fruits and vegetable servings, whereas 75% consumed one to four daily servings.
- In East and Central Harlem, 13% of adults did not consume any daily servings and the majority (71%) of adults consumed one to four daily servings of fruits and vegetables.
- In all other NYC neighborhoods, 11% of adults did not consume any daily servings of fruit and vegetables and 77% consumed one to four daily servings.

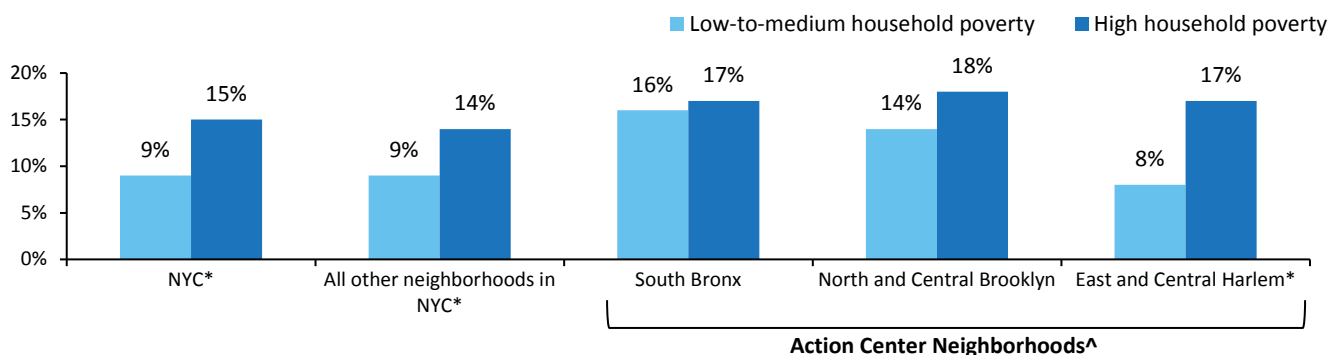
### Improved fruit and vegetable consumption requires equity

Despite an overall increase in the percent of adults who lived within a five-minute walk of purchasing fruits and vegetables, consumption did not increase among most New Yorkers. Fruit and vegetable consumption is impacted by factors beyond access, including affordability, quality, variety, and social norms around food.<sup>2-5</sup> In order to achieve greater consumption of fruits and vegetables across all neighborhoods and income levels, more interventions and policies are needed that concomitantly address the socioeconomic, cultural, and environmental determinants associated with healthy eating.

## In some neighborhoods, there were disparities in fruit and vegetable consumption by socioeconomic status in 2015

- Citywide, among adults living in high-poverty households, 15% reported not eating any daily servings of fruits and vegetables, compared with 9% living in low-to-medium poverty households.
- Comparable results were found in East and Central Harlem where adults living in high-poverty households were more than twice as likely as adults living in low-to-medium poverty households to report eating no daily servings of fruit and vegetables. Fruit and vegetable consumption was similar in high-poverty households compared with low-to-medium-poverty households in the South Bronx and North and Central Brooklyn Action Center areas.

## Adults consuming no daily servings of fruits and vegetables in New York City by neighborhood<sup>^</sup> and household poverty<sup>¥</sup> in 2015



\*Percentage among high poverty household is statistically different from the percentage among low-to-medium poverty household ( $p < 0.05$ ).

<sup>^</sup> To promote health equity and reduce health disparities, the Health Department established District Public Health Offices (now called [Neighborhood Health Action Centers](#)) in neighborhoods with high rates of chronic disease and premature death.

<sup>¥</sup>The federal poverty level (FPL) was used to define household poverty status where high-poverty was defined as less than 200% of the FPL and low-/medium-poverty was defined as greater than or equal to 200% of the FPL.

Source: NYC Community Health Survey, 2015

<sup>¥</sup>The federal poverty level (FPL) was used to define household poverty status where high-poverty was defined as less than 200% of the FPL and low-/medium-poverty was defined as greater than or equal to 200% of the FPL. In the 2008 CHS data, household poverty status was analyzed only for CHS respondents who provided income information. In the 2014 CHS data, household income was imputed for respondents who had missing information.

\*\* Interpret with caution; estimate's relative standard error is >30% and/ or denominator is <50 and/or 95% confidence interval half width is >10

### References:

<sup>1</sup> Sacks R, Yi S, and Nonas C. Increasing access to fruits and vegetables: Perspectives from the New York City Experience. *American Journal of Public Health*. 2015; 105(5): e29-e37.

<sup>2</sup> Kamphuis C, Giskes K, Brujin G, Wendel-Vos W, Burg J, and van Lenthe F. Environmental determinants of fruit and vegetable consumption among adults: a systematic review. *British Journal of Nutrition*. 2006; 96(4): 620-635.

<sup>3</sup> Larson N, Story M, and Nelson M. Neighborhood environments: disparities in access to healthy foods in the U.S. *American Journal of Preventative Medicine*. 2009; 36(1): 74-81.

<sup>4</sup> Higgs S and Thomas J. Social influences on eating. *Current Opinion in Behavioral Sciences*. 2016; 9: 1-6.

<sup>5</sup> Haynes-Maslow L, Parsons S, Wheeler S, and Leone L. A qualitative study of perceived barriers to fruit and vegetable consumption among low-income populations, North Carolina, 2011. *Preventing Chronic Disease*. 2013; 10:120206.

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# Epi Data Tables

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## Changes in Accessibility and Consumption of Fruits and Vegetables in New York City

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### Data Source

**The New York City Community Health Survey, 2008-2015:** The Community Health Survey (CHS) is a population-based survey conducted annually by the New York City Department of Health and Mental Hygiene with approximately 9,000 NYC residents ages 18 and older. NHAC-level data began being collected in 2008. Percentages presented in this brief are age adjusted to the US 2000 standard population. Starting in 2009, the CHS included adults with landline as well as cell phones. For more survey details, visit [nyc.gov/health/survey](http://nyc.gov/health/survey).

**Table 1. Percent of adults who reported living within a walking distance of five minutes or less to fresh fruits and vegetables in 2008 and 2014 by neighborhood in New York City**

Source: NYC Community Health Survey (CHS), 2008 and 2014

CHS 2008 data are weighted to the NYC adult population per Census 2000.

CHS 2014 data are weighted to the adult residential population per the American Community Survey, 2013.

Estimates are age-adjusted to the 2000 US standard population.

Neighborhood	2008			2014			2014 vs. 2008		
	%	95% Confidence Interval <sup>^</sup>	Weighted N	%	95% Confidence Interval <sup>^</sup>	Weighted N	Relative percent change	Weighted N change	p-value <sup>±</sup>
NYC	46.0	(44.5-47.5)	2,770,000	49.2	(47.8-50.7)	3,180,000	7.0	410,000	<b>0.003</b>
<b>All other neighborhoods</b>	46.4	(44.7-48.1)	2,333,000	48.7	(47.0-50.3)	2,563,000	5.0	230,000	0.065
<b>South Bronx</b>	40.8	(35.4-46.5)	139,000	47.4	(42.4-52.4)	192,000	16.2	53,000	0.087
<b>North and Central Brooklyn</b>	43.7	(38.4-49.1)	208,000	54.7	(50.1-59.4)	298,000	25.2	90,000	<b>0.002</b>
<b>East and Central Harlem</b>	47.5 <sup>U</sup>	(39.6-55.6)	90,000	54.2	(47.1-61.1)	108,000	14.1	18,000	0.227

<sup>^</sup>95% Confidence Interval (CI) is a measure of estimate precision; the wider the CI, the more imprecise the estimate.

<sup>±</sup> Measure of statistical significance of t-test. A p-value less than 0.05 means the percentage in 2014 is statistically different from the percentage in 2008. Bold p-values are significant at the 0.05 level.

<sup>U</sup> When reporting to nearest whole percent, round up.

Weighted N population estimates are rounded to the nearest 1,000.

**Table 2. Percent of adults who reported living within a walking distance of five minutes or less to fresh fruits and vegetables in 2008 and 2014 by neighborhood in New York City**

Source: NYC Community Health Survey (CHS), 2008 and 2014

CHS 2008 data are weighted to the NYC adult population per Census 2000.

CHS 2014 data are weighted to the adult residential population per the American Community Survey, 2013.

Estimates are age-adjusted to the 2000 US standard population.

Neighborhood	2008			2014		
	%	95% Confidence Interval <sup>^</sup>	p-value <sup>±</sup>	%	95% Confidence Interval <sup>^</sup>	p-value <sup>±</sup>
NYC	46.0	(44.5-47.5)		49.2	(47.8-50.7)	
All other neighborhoods	46.4	(44.7-48.1)	Reference	48.7	(47.0-50.3)	Reference
South Bronx	40.8	(35.4-46.5)	0.060	47.4	(42.4-52.4)	0.640
North and Central Brooklyn	43.7	(38.4-49.1)	0.339	54.7	(50.1-59.4)	<b>0.016</b>
East and Central Harlem	47.5 <sup>U</sup>	(39.6-55.6)	0.792	54.2	(47.1-61.1)	0.136

<sup>^</sup>95% Confidence Interval (CI) is a measure of estimate precision: the wider the CI, the more imprecise the estimate.

<sup>±</sup> Measure of statistical significance of T-test. A p-value less than 0.05 means the percentage in 2014 is significantly different from the percentage in 2008. Bold p-values are significant at the 0.05 level.

<sup>U</sup> When reporting to nearest whole percent, round up.

**Table 3a. Percent of adults living in high-poverty\* households who reported living within a walking distance of five minutes or less to purchase fresh fruits and vegetables in 2008 and 2014 by neighborhood in New York City**

Source: NYC Community Health Survey (CHS), 2008 and 2014

CHS 2008 data are weighted to the NYC adult population per Census 2000.

CHS 2014 data are weighted to the adult residential population per the American Community Survey, 2013.

Estimates are age-adjusted to the 2000 US standard population.

\*Combined household income &lt;200% of the Federal Poverty Level (FPL). In the 2008 CHS data, household poverty status was analyzed only for CHS respondents who provided income information. In the 2014 CHS data, household income was imputed for respondents who had missing information.

Neighborhood	2008			2014			2014 vs. 2008		
	%	95% Confidence Interval <sup>^</sup>	Weighted N	%	95% Confidence Interval <sup>^</sup>	Weighted N	Relative percent change	Weighted N change	p-value <sup>±</sup>
NYC	40.1	(37.5-42.7)	864,000	43.4	(41.4-45.4)	1,359,000	8.2	495,000	0.050
All other neighborhoods	39.3	(36.2-42.5)	635,000	41.9	(39.6-44.4)	984,000	6.6	349,000	0.186
South Bronx	40.5 <sup>D</sup>	(33.5-47.8)	88,000	44.9	(39.4-50.6)	138,000	10.9	50,000	0.336
North and Central Brooklyn	45.7	(38.3-53.2)	108,000	49.9	(44.1-55.8)	168,000	9.2	60,000	0.380
East and Central Harlem	40.3 <sup>**</sup>	(29.3-52.4)	32,000	52.6	(43.5-61.5)	59,000	30.5	27,000	0.105

<sup>^</sup>95% Confidence Interval (CI) is a measure of estimate precision: the wider the CI, the more imprecise the estimate.<sup>\*\*</sup>Estimate should be interpreted with caution. Estimate's Relative Standard Error (a measure of estimate precision) is greater than 30% or the sample size is less than 50, or the 95% Confidence Interval half width is greater than ten, making the estimate potentially unreliable.<sup>±</sup> Measure of statistical significance of T-test. A p-value less than 0.05 means the percentage in 2014 is statistically different from the percentage in 2008. Bold p-values are significant at the 0.05 level.<sup>D</sup> When reporting to nearest whole percent, round down.

Weighted N population estimates are rounded to the nearest 1,000.

**Table 3b. Percent of adults living in low-to-medium-poverty\* households who reported living within a walking distance of five minutes or less to purchase fresh fruits and vegetables in 2008 and 2014 by neighborhood in New York City**

Source: NYC Community Health Survey (CHS), 2008 and 2014

CHS 2008 data are weighted to the NYC adult population per Census 2000.

CHS 2014 data are weighted to the adult residential population per the American Community Survey, 2013.

Estimates are age-adjusted to the US 2000 standard population.

\*Combined household income ≥200% of the Federal Poverty Level (FPL). In the 2008 CHS data, household poverty status was analyzed only for CHS respondents who provided income information. In the 2014 CHS data, household income was imputed for respondents who had missing information.

Neighborhood	2008			2014			2014 vs. 2008		
	%	95% Confidence Interval <sup>^</sup>	Weighted N	%	95% Confidence Interval <sup>^</sup>	Weighted N	Relative percent change	Weighted N change	p-value <sup>±</sup>
NYC	49.9	(47.7-52.1)	1,487,000	54.8	(52.7-56.9)	1,821,000	9.8	334,000	<b>0.002</b>
All other neighborhoods	50.0	(47.6-52.4)	1,329,000	54.0	(51.8-56.3)	1,579,000	8.0	250,000	<b>0.017</b>
South Bronx	46.6	(36.0-57.5)	38,000	54.8 <sup>**</sup>	(43.7-65.3)	54,000	17.6	16,000	0.303
North and Central Brooklyn	42.7	(33.9-51.9)	71,000	62.2	(54.8-69.0)	130,000	45.7	59,000	<b>0.001</b>
East and Central Harlem	57.8 <sup>**</sup>	(44.2-70.4)	49,000	57.3 <sup>**</sup>	(46.6-67.3)	49,000	-0.9	< 1,000	0.949

<sup>^</sup>95% Confidence Interval (CI) is a measure of estimate precision: the wider the CI, the more imprecise the estimate.<sup>\*\*</sup>Estimate should be interpreted with caution. Estimate's Relative Standard Error (a measure of estimate precision) is greater than 30% or the sample size is less than 50, or the 95% Confidence Interval half width is greater than ten, making the estimate potentially unreliable.<sup>±</sup> Measure of statistical significance of T-test. A p-value less than 0.05 means the percentage in 2014 is statistically different from the percentage in 2008. Bold p-values are significant at the 0.05 level.

Weighted N population estimates are rounded to the nearest 1,000.



**Table 4. Percent of adults who reported living within a walking distance of five minutes or less to purchase fresh fruits and vegetables in 2014 by neighborhood: comparisons between household poverty level in New York City**

Source: NYC Community Health Survey (CHS), 2014

CHS 2014 data are weighted to the adult residential population per the American Community Survey, 2013.

Estimates are age-adjusted to the 2000 US standard population.

Neighborhood	High-poverty*			Low-to-medium-poverty‡			High-poverty* vs. Low-to-medium-poverty‡	
	%	95% Confidence Interval^	Weighted N	%	95% Confidence Interval^	Weighted N	Percent difference	p-value±
NYC	43.4	(41.4-45.4)	1,359,000	54.8	(52.7-56.9)	1,821,000	-11.4	<0.001
All other neighborhoods	41.9	(39.6-44.4)	984,000	54.0	(51.8-56.3)	1,579,000	-12.1	<0.001
South Bronx	44.9	(39.4-50.6)	138,000	54.8**	(43.7-65.3)	54,000	-9.9	0.119
North and Central Brooklyn	49.9	(44.1-55.8)	168,000	62.2	(54.8-69.0)	130,000	-12.3	<b>0.010</b>
East and Central Harlem	52.6	(43.5-61.5)	59,000	57.3**	(46.6-67.3)	49,000	-4.7	0.512

\*Combined household income &lt;200% of the Federal Poverty Level (FPL)

‡Combined household income ≥200% of the Federal Poverty Level (FPL)

^95% Confidence Interval (CI) is a measure of estimate precision: the wider the CI, the more imprecise the estimate.

\*\*Estimate should be interpreted with caution. Estimate's Relative Standard Error (a measure of estimate precision) is greater than 30% or the sample size is less than 50, or the 95% Confidence Interval half width is greater than ten, making the estimate potentially unreliable.

± Measure of statistical significance of T-test. A p-value less than 0.05 means the high-poverty group is statistically different from the low-to-medium-poverty group.

Bold p-values are significant at the 0.05 level.

Weighted N population estimates are rounded to the nearest 1,000.



**Table 5. Adult fruit and vegetable consumption in New York City by neighborhood, 2008-2015**

Source: NYC Community Health Survey (CHS), 2008-2015

CHS 2008 data are weighted to the NYC adult population per Census 2000.

CHS 2009 data are weighted to the 2008 HVS for phone usage and the Census 2000.

CHS 2010 are weighted to the 2008 HVS for phone usage and the Census 2000.

CHS 2011 data are weighted to the residential adult population per Census 2010, the 2008 Household Vacancy Survey for phone usage, and the 2008-2010 American Community Survey.

CHS 2012 data are weighted to the adult residential population per the American Community Survey, 2011.

CHS 2013 data are weighted to the adult residential population per the American Community Survey, 2012.

CHS 2014 data are weighted to the adult residential population per the American Community Survey, 2013.

CHS 2015 data are weighted to the adult residential population per the American Community Survey, 2014.

Estimates are age-adjusted to the 2000 US standard population except for median servings.

Neighborhood	2008			2009			2010			2011			2012			2013			2014			2015			Average Annual Percent Change	08-15 Trend Test p-values
	%	95% Confidence Interval <sup>a</sup>	Weighted N	%	95% Confidence Interval <sup>a</sup>	Weighted N	%	95% Confidence Interval <sup>a</sup>	Weighted N	%	95% Confidence Interval <sup>a</sup>	Weighted N	%	95% Confidence Interval <sup>a</sup>	Weighted N	%	95% Confidence Interval <sup>a</sup>	Weighted N	%	95% Confidence Interval <sup>a</sup>	Weighted N	%	95% Confidence Interval <sup>a</sup>	Weighted N		
<b>NYC</b>																										
0 servings	12.9	(11.9-14.1)	771,000	12.4	(11.4-13.5)	757,000	11.6	(10.6-12.8)	698,000	12.3	(11.1-13.7)	753,000	12.5 <sup>U</sup>	(11.4-13.6)	772,000	13.0	(12.0-14.0)	807,000	12.2	(11.2-13.2)	765,000	12.1	(11.2-13.1)	770,000	-0.3%	0.644
1-4 servings	77.7	(76.3-79.0)	4,630,000	76.5 <sup>U</sup>	(75.2-77.8)	4,557,000	76.0	(74.5-77.4)	4,510,000	77.3	(75.5-78.9)	4,716,000	77.7	(76.3-79.0)	4,805,000	75.7	(74.4-77.0)	4,687,000	77.7	(76.4-79.0)	4,888,000	77.2	(76.0-78.3)	4,898,000	0.1%	0.678
5+ servings	9.4	(8.5-10.2)	562,000	11.1	(10.2-12.1)	664,000	12.3	(11.3-13.5)	734,000	10.4	(9.3-11.7)	637,000	9.8	(8.9-10.8)	606,000	11.3	(10.4-12.3)	705,000	10.1	(9.2-11.1)	636,000	10.7	(9.9-11.6)	676,000	0.2%	0.872
Median servings	1.5 <sup>D</sup>	(1.4-1.5)		1.6	(1.5-1.7)		1.7	(1.6-1.7)		1.5 <sup>U</sup>	(1.5-1.6)		1.5 <sup>U</sup>	(1.5-1.6)		1.6	(1.6-1.7)		1.6	(1.5-1.6)		1.5 <sup>U</sup>	(1.5-1.6)			
<b>All other neighborhoods</b>																										
0 servings	12.0	(10.8-13.3)	591,000	10.8	(9.8-11.9)	538,000	10.4	(9.2-11.7)	511,000	11.5 <sup>U</sup>	(10.1-13.1)	561,000	11.5 <sup>U</sup>	(10.3-12.8)	573,000	11.1	(75.3-78.2)	548,000	11.1	(10.0-12.3)	573,000	11.3	(10.3-12.4)	587,000	-0.1%	0.853
1-4 servings	78.2	(76.7-79.6)	3,901,000	77.1	(75.7-78.5)	3,792,000	76.4	(74.6-78.0)	3,750,000	77.3	(75.3-79.2)	3,811,000	78.0	(76.4-79.5)	3,899,000	76.8	(75.3-78.2)	3,800,000	78.4	(76.9-79.8)	4,048,000	77.4	(76.0-78.7)	4,028,000	0.1%	0.346
5+ servings	9.8	(8.9-10.8)	494,000	12.1	(11.1-13.2)	601,000	13.2	(12.0-14.5)	650,000	11.2	(9.9-12.7)	552,000	10.5 <sup>U</sup>	(9.5-11.7)	526,000	12.0	(11.0-13.2)	597,000	10.5 <sup>D</sup>	(9.5-11.6)	541,000	11.3	(10.3-12.3)	587,000	-0.5%	0.648
Median servings	1.6	(1.5-1.6)		1.7	(1.6-1.71.1)		1.8	(1.7-1.8)		1.6	(1.5-1.7)		1.6	(1.5-1.7)		1.7	(1.6-1.8)		1.7	(1.6-1.7)		1.6	(1.6-1.7)			
<b>South Bronx</b>																										
0 servings	23.1	(18.5-28.3)	80,000	24.5 <sup>D</sup>	(19.7-30.0)	82,000	17.6	(14.3-21.6)	58,000	22.6	(17.6-28.6)	83,000	18.0	(14.3-22.4)	64,000	25.8	(21.4-30.7)	95,000	16.6	(13.1-20.9)	60,000	16.7	(13.7-20.1)	67,000	-3.3%	0.083
1-4 servings	71.2	(65.7-76.2)	226,000	69.0	(63.3-74.1)	217,000	76.7	(72.4-80.6)	244,000	71.0	(64.7-76.5)	252,000	77.7	(73.0-81.8)	276,000	68.1	(63.1-72.7)	252,000	78.8	(74.3-82.8)	293,000	79.3	(75.6-82.6)	304,000	1.4%	0.018
5+ servings	5.7	(3.3-9.7)	21,000	6.5 <sup>U</sup>	(3.8-10.9)	24,000	5.6	(3.8-8.3)	17,000	6.4	(4.0-10.2)	22,000	4.3	(2.6-7.1)	19,000	6.2	(4.4-8.6)	23,000	4.5 <sup>U</sup>	(2.9-7.1)	17,000	4.0	(2.6-6.1)	15,000	-4.9%	<b>0.010</b>
Median servings	0.9	(0.7-1.1)		1.0	(0.7-1.3)		1.1	(0.9-1.3)		1.0	(0.8-1.3)		1.2	(1.0-1.4)		0.9	(0.7-1.1)		1.1	(0.9-1.3)		0.9	(0.8-1.0)			
<b>North and Central Brooklyn</b>																										
0 servings	15.4	(11.9-19.7)	72,000	17.5 <sup>D</sup>	(13.5-22.4)	83,000	17.0	(13.3-21.4)	80,000	13.6	(10.1-17.9)	68,000	18.8	(14.9-23.6)	96,000	18.3	14.5-22.8	98,000	17.2	(13.9-21.1)	89,000	16.6	(13.3-20.6)	88,000	1.1%	0.375
1-4 servings	76.7	(71.6-81.0)	352,000	76.2	(71.2-80.6)	342,000	75.3	(70.5-79.5)	334,000	78.8	(73.5-83.3)	393,000	74.4	(69.5-78.8)	371,000	72.7	67.9-77.1	371,000	73.0	(68.5-77.0)	376,000	75.3	(71.0-79.1)	392,000	-0.6%	0.134
5+ servings	7.9	(5.2-12.0)	39,000	6.3	(4.5-8.8)	28,000	7.7	(5.3-11.0)	36,000	7.6	(4.9-11.8)	35,000	6.7	(4.6-9.7)	35,000	9.0	6.7-12.0	49,000	9.8	(7.3-13.1)	55,000	8.1	(6.0-10.8)	42,000	4.6%	<b>0.016</b>
Median servings	1.2	(1.0-1.4)		1.3	(1.2-1.5)		1.2	(1.0-1.5)		1.4	(1.1-1.6)		1.0	(0.8-1.3)		1.3	1.1-1.5		1.3	(1.1-1.5)		1.3	(1.1-1.5)			
<b>East and Central Harlem</b>																										
0 servings	15.6	(10.2-23.2)	28,000	19.3	(12.7-28.1)	35,000	13.1	(7.7-21.5)	26,000	9.2 <sup>**</sup>	(4.9-16.6)	18,000	12.9	(8.7-18.7)	25,000	15.0	(11.1-19.9)	30,000	20.0	(14.4-27.1)	39,000	13.2	(9.6-17.9)	27,000	0.2%	0.956
1-4 servings	80.2	(72.6-86.1)	151,000	78.0	(69.5-84.7)	146,000	73.8	(63.4-82.1)	138,000	84.2	(74.5-90.6)	160,000	79.2	(71.8-85.2)	138,000	76.6	(71.0-81.4)	140,000	69.2	(61.8-75.8)	132,000	71.2	(65.0-76.6)	143,000	-1.6%	0.055
5+ servings	4.2	(2.4-7.2)	8,000	2.7	(1.6-4.6)	5,000	13.1	(7.4-22.2)	25,000	6.6 <sup>**</sup>	(2.6-15.7)	13,000	7.9 <sup>**</sup>	(4.1-14.6)	15,000	8.4	(5.5-12.5)	16,000	10.8	(7.0-16.3)	21,000	15.6	(11.3-21.1)	32,000	20.0%	<b>0.002</b>
Median servings	1.5 <sup>D</sup>	(1.2-1.8)		1.4	(1.0-1.8)		1.6	(1.2-1.9)		1.4	(1.1-1.8)		1.5 <sup>D</sup>	(1.1-1.8)		1.3	(1.0-1.6)		1.3	(0.9-1.7)		1.5 <sup>D</sup>	(1.2-1.7)			

<sup>a</sup>95% Confidence Interval (CI) is a measure of estimate precision: the wider the CI, the more imprecise the estimate.

<sup>\*\*</sup>Estimate should be interpreted with caution. Estimate's Relative Standard Error (a measure of estimate precision) is greater than 30% or the sample size is less than 50, or the 95% Confidence Interval half width is greater than ten, making the estimate potentially unreliable.

<sup>±</sup> Measure of statistical significance of trend test. A p-value less than 0.05 indicates a statistically significant trend (2008-2015) using joinpoint regression. Bold p-values are significant at the 0.05 level.

<sup>D</sup> When reporting to nearest whole percent, round down.

<sup>U</sup> When reporting to nearest whole percent, round up.

Weighted N population estimates are rounded to the nearest 1,000.

**Figures 1-5. Daily fruit and vegetable consumption of zero, one to four, and five servings among adults in New York City by neighborhood, 2008-2015**

Source: NYC Community Health Survey (CHS), 2008-2015

CHS 2008 data are weighted to the NYC adult population per Census 2000.

CHS 2009 data are weighted to the 2008 HVS for phone usage and the Census 2000.

CHS 2010 are weighted to the 2008 HVS for phone usage and the Census 2000.

CHS 2011 data are weighted to the residential adult population per Census 2010, the 2008 HVS for phone usage, and the 2008-2010 American Community Survey.

CHS 2012 data are weighted to the adult residential population per the American Community Survey, 2011.

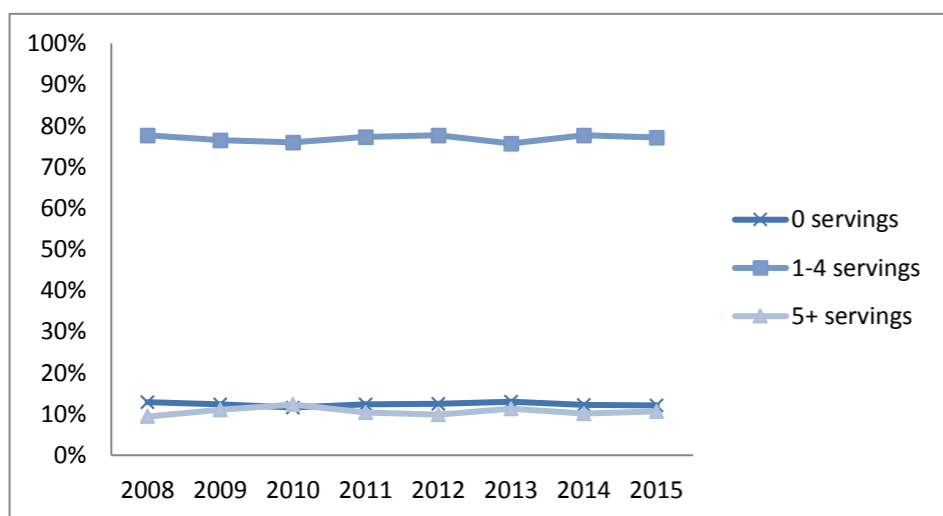
CHS 2013 data are weighted to the adult residential population per the American Community Survey, 2012.

CHS 2014 data are weighted to the adult residential population per the American Community Survey, 2013.

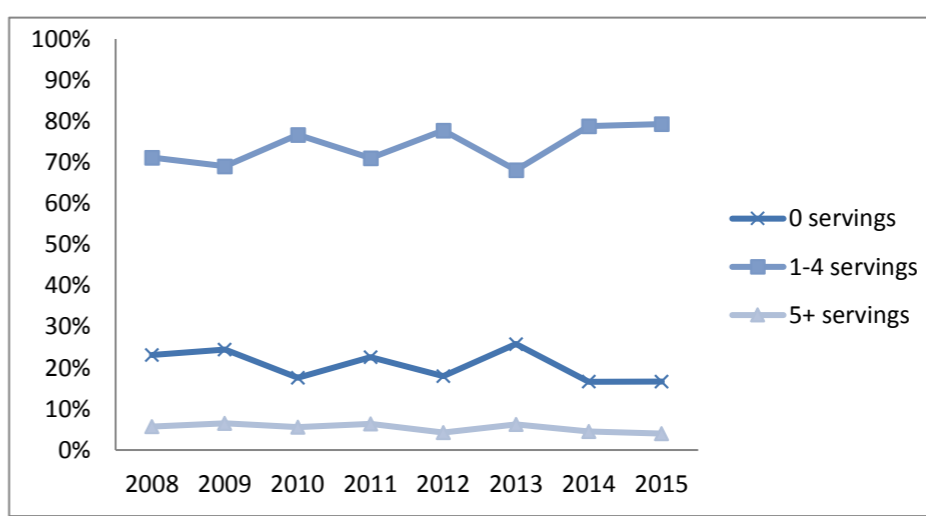
CHS 2015 data are weighted to the adult residential population per the American Community Survey, 2014.

Estimates are age-adjusted to the 2000 US standard population.

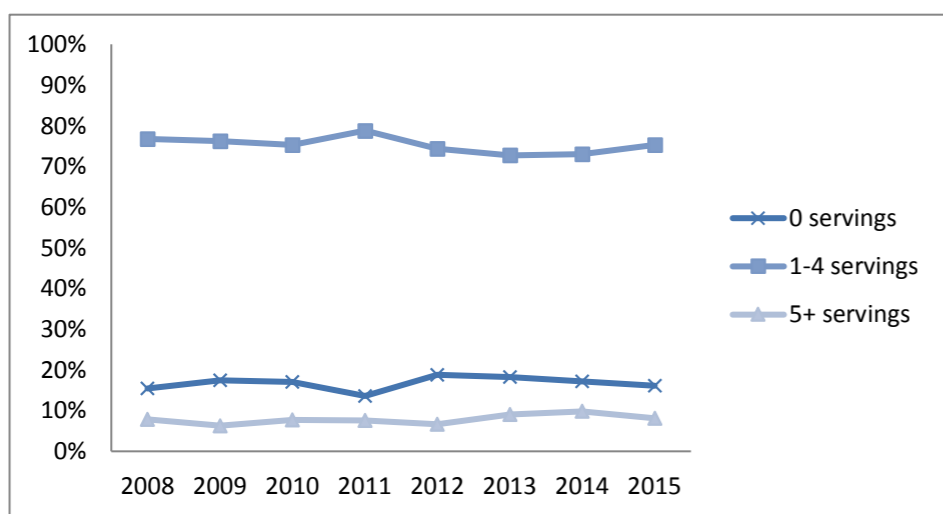
**Figure 1. Daily fruit and vegetable consumption of zero, one to four, and five or more servings among adults in New York City, 2008-2015**



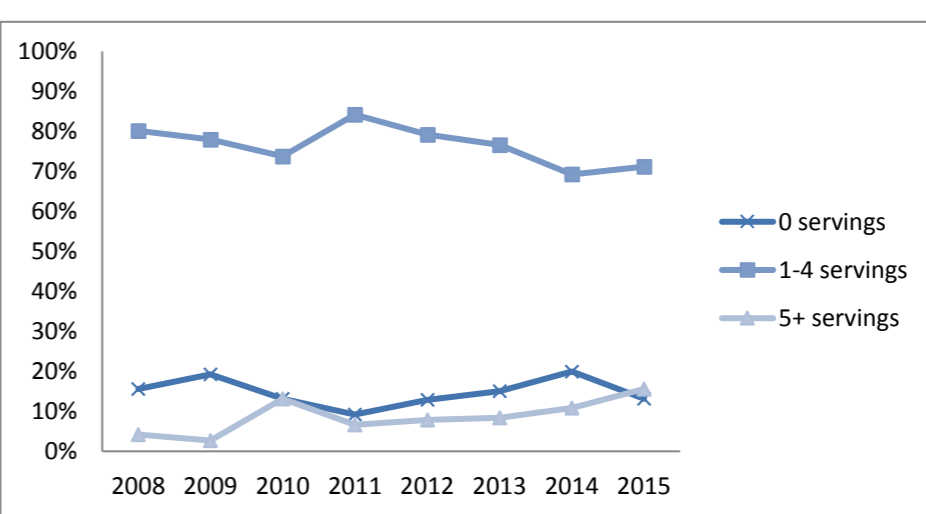
**Figure 2. Daily fruit and vegetable consumption of zero, one to four, and five or more servings among adults in the South Bronx, 2008-2015**



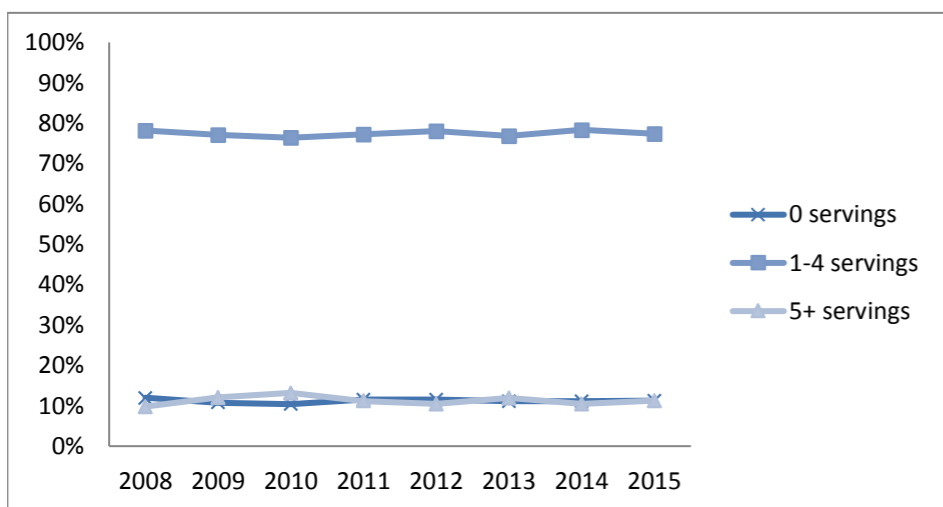
**Figure 3. Daily fruit and vegetable consumption of zero, one to four, and five or more servings among adults in North and Central Brooklyn, 2008-2015**



**Figure 4. Daily fruit and vegetable consumption of zero, one to four, and five or more servings among adults in East and Central Harlem, 2008-2015**



**Figure 5. Daily fruit and vegetable consumption of zero, one to four, and five or more servings among adults in all other neighborhoods in New York City, 2008-2015**



**Figures 6 -8. Daily fruit and vegetable consumption among adults in New York City and the Action Center neighborhoods by serving, 2008-2015**

Source: NYC Community Health Survey (CHS), 2008-2015

CHS 2008 data are weighted to the NYC adult population per Census 2000.

CHS 2009 data are weighted to the 2008 HVS for phone usage and the Census 2000.

CHS 2010 are weighted to the 2008 Housing Vacancy Survey for phone usage and the Census 2000.

CHS 2011 data are weighted to the residential adult population per Census 2010, the 2008 Housing Vacancy Survey for phone usage, and the 2008-2010 American Community Survey.

CHS 2012 data are weighted to the adult residential population per the American Community Survey, 2011.

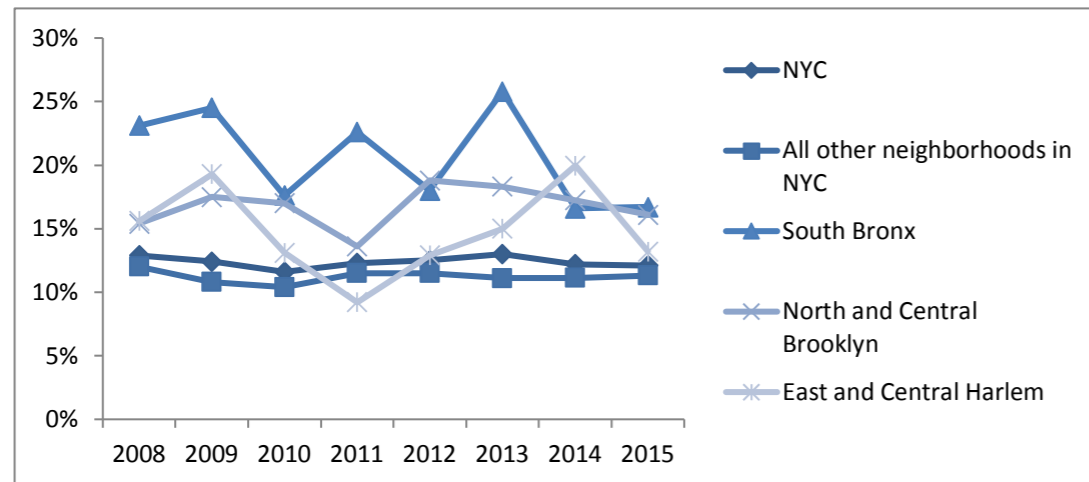
CHS 2013 data are weighted to the adult residential population per the American Community Survey, 2012.

CHS 2014 data are weighted to the adult residential population per the American Community Survey, 2013.

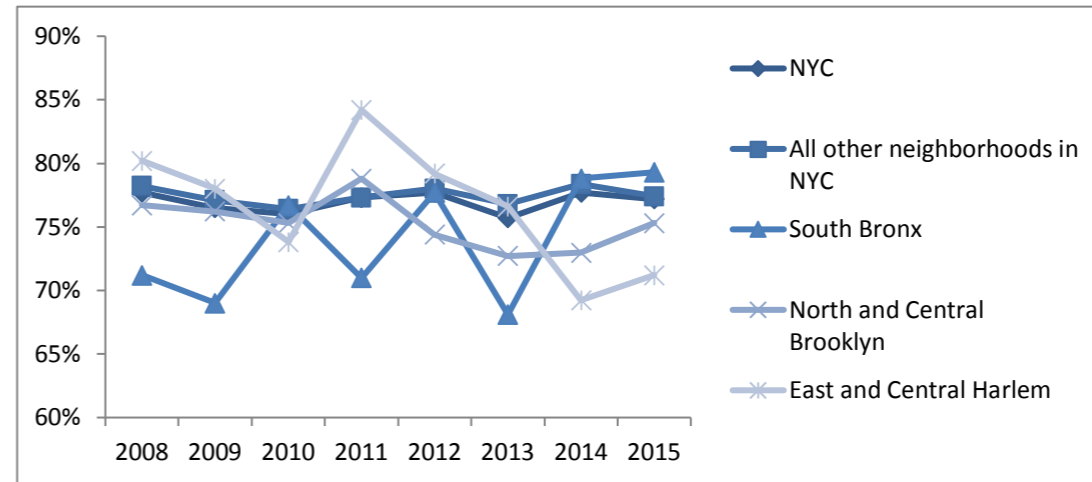
CHS 2015 data are weighted to the adult residential population per the American Community Survey, 2014.

Estimates are age-adjusted to the 2000 US standard population.

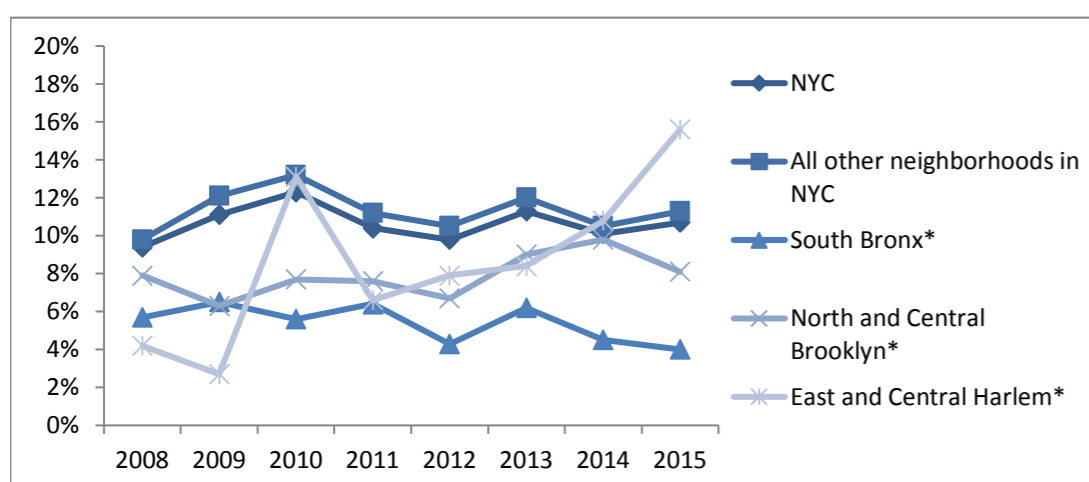
**Figure 6. Zero daily fruit and vegetable consumption among adults in New York City and the Action Center neighborhoods, 2008-2015**



**Figure 7. Adults consuming one to four servings of fruit and vegetables New York City and the Action Center neighborhoods, 2008-2015**



**Figure 8. Adults consuming five or more servings of fruit and vegetables New York City and the Action Center neighborhoods, 2008-2015**



**Table 6a. Percent of adults who reported zero fruit and vegetable consumption in 2008 by neighborhood: comparisons between household poverty levels in New York City.**

Percent of adults reporting having consumed zero servings of fruits and vegetables during the previous day

Source: NYC Community Health Survey (CHS), 2008

CHS 2008 data are weighted to the NYC adult population per Census 2000.

Estimates are age-adjusted to the 2000 US standard population.

In the 2008 CHS data, household poverty status was analyzed only for CHS respondents who provided income information.

Neighborhood	High-poverty*			Low-to-medium-poverty <sup>‡</sup>			High-poverty* vs. Low-to-medium-poverty <sup>‡</sup>	
	%	95% Confidence Interval <sup>^</sup>	Weighted N	%	95% Confidence Interval <sup>^</sup>	Weighted N	Percent difference	p-value <sup>±</sup>
NYC	16.6	(14.7-18.8)	357,000	9.7	(11.9-14.1)	279,000	6.9	<0.001
All other neighborhoods	15.3	(13.1-17.9)	246,000	9.2	(7.8-10.9)	237,000	6.1	<0.001
South Bronx	22.0	(16.6-28.6)	50,000	19.0	(18.5-28.3)	15,000	3.0	0.567
North and Central Brooklyn	18.7	(13.5-25.4)	44,000	10.8**	(6.7-17.0)	19,000	7.9	<b>0.049</b>
East and Central Harlem	20.7**	(11.8-33.7)	17,000	12.5 <sup>D</sup> **	(5.4-26.3)	8,000	8.2	0.277

\*Combined household income &lt;200% of the Federal Poverty Level (FPL).

‡Combined household income ≥200% of the Federal Poverty Level (FPL)

<sup>^</sup>95% Confidence Interval (CI) is a measure of estimate precision: the wider the CI, the more imprecise the estimate.

\*\*Estimate should be interpreted with caution. Estimate's Relative Standard Error (a measure of estimate precision) is greater than 30% or the sample size is less than 50, or the 95% Confidence Interval half width is greater than ten, making the estimate potentially unreliable.

<sup>±</sup> Measure of statistical significance of T-test. A p-value less than 0.05 means the high-poverty group is statistically different from the low-to-medium-poverty group. Bold p-values are significant at the 0.05 level.<sup>D</sup> When reporting to nearest whole percent, round down.

Weighted N population estimates are rounded to the nearest 1,000.

**Table 6b. Percent of adults who reported zero fruit and vegetable consumption in 2015 by neighborhood: comparisons between household poverty level in New York City.**

Percent of adults who reported having consumed zero servings of fruit and/or vegetables during the previous day

Source: NYC Community Health Survey (CHS), 2015

CHS 2015 data are weighted to the adult residential population per the American Community Survey, 2014.

Estimates are age-adjusted to the 2000 US standard population.

In the 2015 CHS data, household income was imputed for respondents who had missing information.

Neighborhood	High-poverty*			Low-/medium-poverty <sup>‡</sup>			High-poverty* vs. Low-/medium-poverty <sup>‡</sup>	
	%	95% Confidence Interval <sup>^</sup>	Weighted N	%	95% Confidence Interval <sup>^</sup>	Weighted N	Percent difference	p-value <sup>±</sup>
NYC	15.1	(13.7-16.5)	483,000	9.2	(8.1-10.6)	287,000	5.9	<0.001
All other neighborhoods	14.4	(12.9-16.0)	350,000	8.7	(7.5-10.2)	236,000	5.7	<0.001
South Bronx	17.2	(13.7-21.3)	52,000	15.8	(10.6-23.0)	15,000	1.4	0.717
North and Central Brooklyn	18.4	(13.9-24.0)	61,000	13.9	(9.6-19.8)	28,000	4.5	0.224
East and Central Harlem	17.2	(11.7-24.4)	19,000	8.4	(4.7-14.7)	8,000	8.8	<b>0.031</b>

\*Combined household income &lt;200% of the Federal Poverty Level (FPL)

‡Combined household income ≥200% of the Federal Poverty Level (FPL)

<sup>^</sup>95% Confidence Interval (CI) is a measure of estimate precision: the wider the CI, the more imprecise the estimate.

\*\*Estimate should be interpreted with caution. Estimate's Relative Standard Error (a measure of estimate precision) is greater than 30% or the sample size is less than 50, or the 95% Confidence Interval half width is greater than ten, making the estimate potentially unreliable.

<sup>±</sup> Measure of statistical significance of T-test. A p-value less than 0.05 means the high-poverty group is statistically different from the low-to-medium-poverty group. Bold p-values are significant at the 0.05 level.<sup>U</sup> When reporting to nearest whole percent, round up.

Weighted N population estimates are rounded to the nearest 1,000.