Premature Heart Disease and Stroke Deaths among Adults in New York City

In 2015, heart disease and stroke together accounted for 24% of all premature deaths (death before age 65) among New York City adults. A person's risk of dying early from heart disease or stroke is linked to their cumulative lifetime exposure to certain social, economic, and physical environments that dictate access to resources, influence individual behavior, and in some cases, directly increase risk. High blood pressure, high cholesterol, diabetes, and obesity increase the risk of these two conditions as do smoking, an unhealthy diet, high sodium consumption, physical inactivity, and excessive alcohol intake.[1,2] The purpose of this report is to highlight disparities in who is dying early from heart disease and stroke.

One in six deaths due to heart disease and stroke occurs among adults before the age of 65
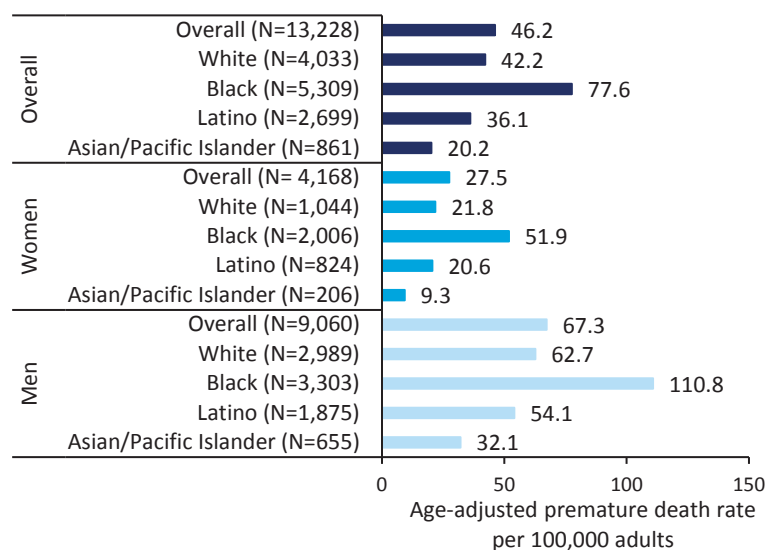
- In 2011-2015, 17% of deaths from heart disease occurred among adults younger than 65 years of age (13,228 of 79,417 deaths).
  - This varied by demographic characteristics with the highest proportions seen in men (24%), Black adults (26%), adults living in very high poverty neighborhoods (28%), and adults living in the Bronx (22%).
- In 2011-2015, 21% of deaths from stroke occurred among adults younger than 65 years of age (1,696 of 8,112 deaths).
  - The proportion of premature deaths from stroke was highest among men (30%), Black adults (32%), adults living in very high poverty neighborhoods (30%), and adults living in the Bronx (27%).

> **Race/ethnicity:** For the purpose of this publication, Latino includes persons of Hispanic origin based on ancestry reported on the death certificate, regardless of reported race; Latino excludes reported ancestry from non-Spanish speaking Central/South American countries, and non-Spanish speaking Caribbean islands. Black, White, Asian, and Other race categories do not include persons of Latino origin.

Racial and ethnic disparities in premature heart disease death rates are greater among women than men

- In 2011-2015, Black adults had a premature death rate due to heart disease (77.6 per 100,000) that was 1.8 times that of White (42.2 per 100,000), 2.1 times that of Latino (36.1 per 100,000), and 3.8 times that of Asian/Pacific Islander adults (20.2 per 100,000).

- Among Black women the rate was 2.4 times the rate of White women (51.9 vs. 21.8 per 100,000) and 5.6 times the rate of Asian/Pacific Islander women (51.9 vs. 9.3 per 100,000).

- The rate of premature death due to heart disease in adult men was 2.4 times that of women (67.3 vs. 27.5 per 100,000).

- The greatest difference between men and women was seen among Asian/Pacific Islanders where the rate in men was 3.5 times the rate in women (32.1 vs. 9.3 per 100,000).

Premature death due to heart disease among New York City adults, by race and sex, 2011-2015

	Age-adjusted premature death rate per 100,000 adults
Overall	
Overall (N=13,228)	46.2
White (N=4,033)	42.2
Black (N=5,309)	77.6
Latino (N=2,699)	36.1
Asian/Pacific Islander (N=861)	20.2
Women	
Overall (N= 4,168)	27.5
White (N=1,044)	21.8
Black (N=2,006)	51.9
Latino (N=824)	20.6
Asian/Pacific Islander (N=206)	9.3
Men	
Overall (N=9,060)	67.3
White (N=2,989)	62.7
Black (N=3,303)	110.8
Latino (N=1,875)	54.1
Asian/Pacific Islander (N=655)	32.1

Asian/Pacific Islander, Black, and White races exclude Latino ethnicity. Latino includes Hispanic or Latino of any race. Race/ethnicity estimates are age-adjusted to the 2000 U.S. standard population.
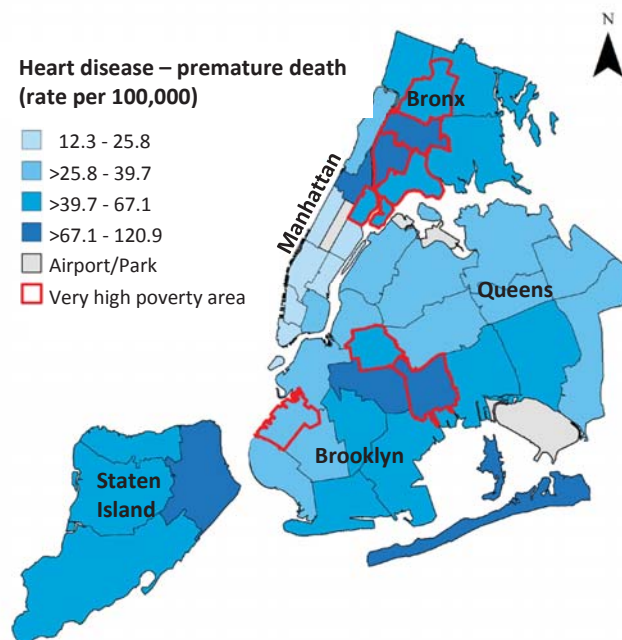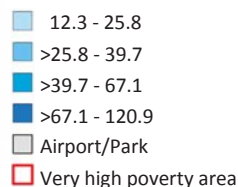*Source: Bureau of Vital Statistics, 2011-2015*

The premature death rate due to heart disease is twice as high in very high poverty than low poverty neighborhoods

- In 2011-2015, among adults living in very high poverty neighborhoods, the rate of premature death due to heart disease was 2.4 times that of adults living in low poverty (wealthiest) neighborhoods (66.8 vs. 27.9 per 100,000).

- The five neighborhoods with the highest crude rates of premature death due to heart disease were: Rockaways, Bedford-Stuyvesant/Crown Heights, East New York/New Lots, High Bridge/Morrisania, and Central Bronx.

Premature heart disease death rates among adults, by neighborhood, New York City, 2011-2015

Heart disease – premature death
(rate per 100,000)

- ▢ 12.3 - 25.8
- ▢ >25.8 - 39.7
- ▢ >39.7 - 67.1
- ▢ >67.1 - 120.9
- ▢ Airport/Park
- ▢ Very high poverty area

The United Hospital Fund (UHF) classifies New York City into 42 neighborhoods, comprised of contiguous ZIP codes.
Very high poverty neighborhoods have ≥30% of the population living below the federal poverty line based on American Community Survey 2011-2015.
Rates are not age-adjusted and do not account for neighborhood differences in age distribution.
Source: Bureau of Vital Statistics, 2011-2015

Definitions:
Neighborhood poverty (based on ZIP code) is defined as the percentage of the population living below the Federal Poverty Line (FPL) based on the American Community Survey 2011-2015. Neighborhoods are categorized into four groups as follows: "Low poverty" neighborhoods are those with <10% of the population living below the FPL; "Medium poverty" neighborhoods have 10-<20% of the population below FPL; "High Poverty" neighborhoods have 20-<30% of the population living below the FPL; "Very high poverty" neighborhoods have ≥30% of the population living below the FPL.
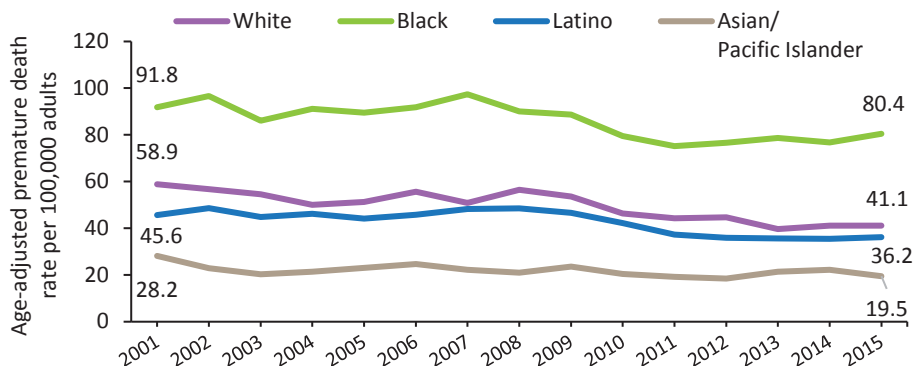**Neighborhood:** The United Hospital Fund classified New York City into 42 neighborhoods comprised of contiguous zip codes.
Adults: ages 18 and older

While premature heart disease death rates have decreased overall since 2001, the disparity between Whites and Blacks has persisted

- Rates of premature death due to heart disease decreased by 24% from 2001 to 2015 (61.0 to 46.4 per 100,000) among NYC adults, with a higher reduction in women than men (31% vs. 21%).

- From 2001 to 2015, the percent decline in premature heart disease death rates was 31%, 30%, 21%, and 12% for Asian/Pacific Islander, White, Latino, and Black adults, respectively.

Heart disease premature mortality rates, New York City adults, 2001-2015

Asian/Pacific Islander, Black, and White races exclude Latino ethnicity. Latino includes Hispanic or Latino of any race. Race/ethnicity estimates are age-adjusted to the 2000 U.S. standard population.
Source: Bureau of Vital Statistics, 2001-2015

- Between 2006 and 2015, adults living in very high poverty neighborhoods had a smaller decrease in premature mortality from heart disease compared with adults living in low poverty neighborhoods (18% vs. 29%).

Black adults have more than three times the premature death rate due to stroke than Whites, a finding more pronounced in Black women

- Among Black adults, the rate of premature death due to stroke (10.5 per 100,000) was 3.2 times that of White (3.3 per 100,000), 1.8 times that of Latino (6.0 per 100,000), and 2.4 times that of Asian/Pacific Islander adults (4.4 per 100,000).

  o Among Black women, the rate was 3.5 times the rate of White women (8.8 vs. 2.5 per 100,000) and 2.8 times the rate of Asian/Pacific Islander women (8.8 vs. 3.2 per 100,000).

- The premature death rate due to stroke in men was 1.6 times that of women (7.3 vs. 4.7 per 100,000).

  o Latino men had 1.9 times the premature death rate due to stroke of Latino women (8.1 vs. 4.2 per 100,000).

Premature death due to stroke among New York City adults, by race and sex, 2011-2015

Asian/Pacific Islander, Black, and White races exclude Latino ethnicity. Latino includes Hispanic or Latino of any race. Race/ethnicity estimates are age-adjusted to the 2000 U.S. standard population.
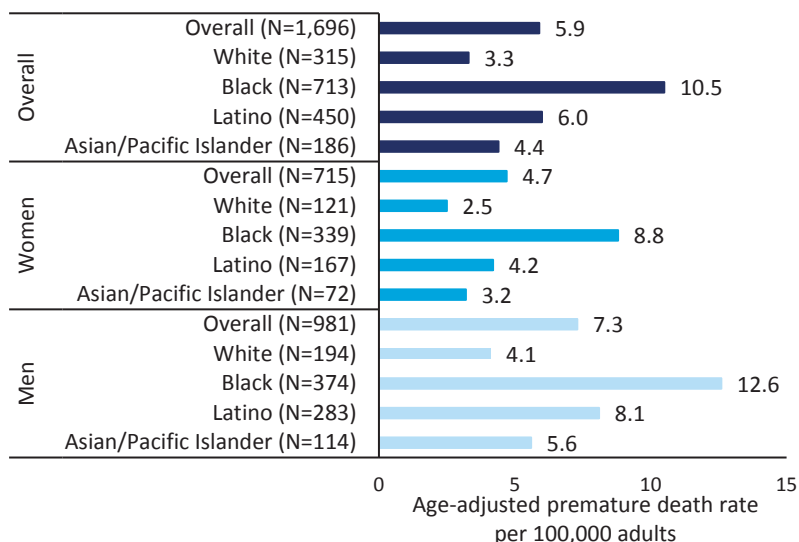*Source: Bureau of Vital Statistics, 2011-2015*

The rate of premature death due to stroke in very high poverty neighborhoods is over three times that of low poverty neighborhoods

- Among adults living in very high poverty neighborhoods, the rate of premature death due to stroke was 3.4 times that of adults living in low poverty neighborhoods (9.1 vs. 2.7 per 100,000).

- In 2011-2015, the five neighborhoods with the highest crude premature stroke death rates were: East Harlem, East New York/New Lots, Central Bronx, Bedford-Stuyvesant/Crown Heights, and Flatbush.

Premature stroke death rates among adults, by neighborhood, New York City, 2011-2015

The United Hospital Fund (UHF) classifies New York City into 42 neighborhoods, comprised of contiguous ZIP codes.
Very high poverty neighborhoods have ≥30% of the population living below the federal poverty line based on American Community Survey 2011-2015.
Rates are not age-adjusted and do not account for neighborhood differences in age distribution.
Source: Bureau of Vital Statistics, 2011-2015

The disparity in premature stroke death rates between Whites and Blacks has remained unchanged over the past 15 years

Premature stroke death rates among adults, by race/ethnicity, New York City adults, 2001-2015
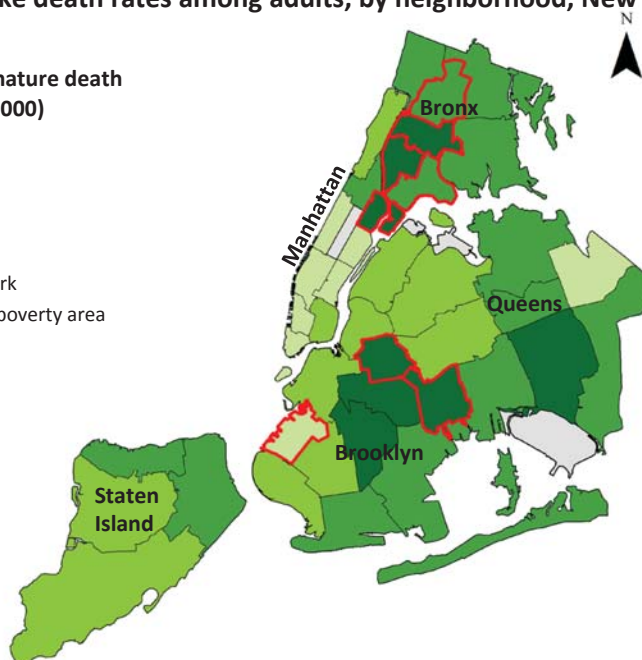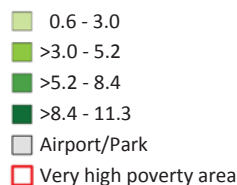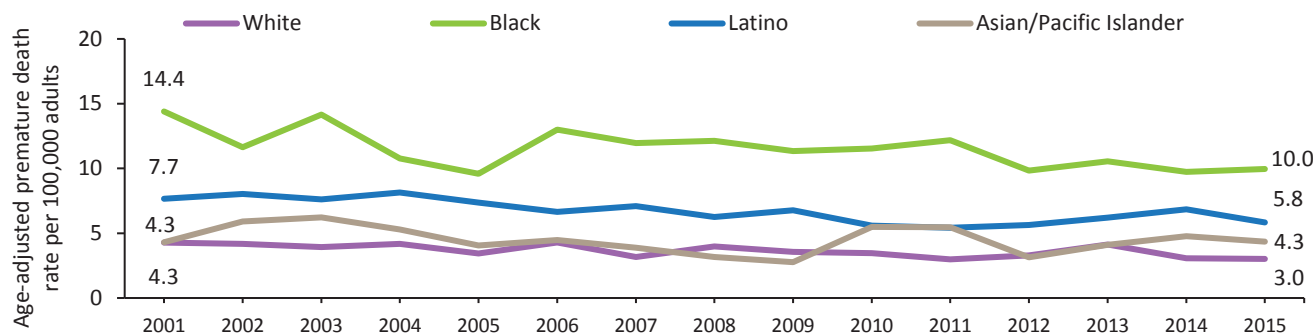

Asian/Pacific Islander, Black, and White races exclude Latino ethnicity. Latino includes Hispanic or Latino of any race. Race/ethnicity estimates are age-adjusted to the 2000 U.S. standard population.
Source: Bureau of Vital Statistics, 2001-2015

- Since 2001, rates of premature death due to stroke among White, Black, and Latino adults have decreased substantially (30%, 31%, and 24%, respectively).
- The decrease in premature death rate among women was more than double that among men (34% vs. 16%).
- Between 2006 and 2015, adults living in very high poverty neighborhoods had a smaller decrease in the rate of premature death from stroke compared with adults living in low poverty neighborhoods (18% vs. 35%).

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Epi Data Tables

Premature Heart Disease and Stroke Deaths among Adults in New York City

Data Sources

NYC Department of Health and Mental Hygiene Bureau of Vital Statistics: Mortality data on cause of death are classified for Heart Disease using Primary diagnosis ICD10 = I00-I09, I11, I13, I20-I51 and for Stroke using Primary diagnosis ICD10 = I60-69

NYC DOHMH Population Estimates: modified from US Census Bureau interpolated intercensal population estimates 2000-2015, updated August 2016, were used for denominators in rate calculations.

Definitions

Race/ethnicity: For the purpose of this publication, Latino includes persons of Hispanic origin based on ancestry reported on the death certificate, regardless of reported race; Latino excludes reported ancestry from non-Spanish speaking Central/South American countries, and non-Spanish speaking Caribbean islands. Black, White, Asian, and Other race categories do not include persons of Latino origin.

Neighborhood poverty (based on ZIP code) is defined as the percentage of the population living below the Federal Poverty Line (FPL) based on the American Community Survey 2011-2015. Neighborhoods are categorized into four groups as follows: "Low poverty" neighborhoods are those with <10% of the population living below the FPL; "Medium poverty" neighborhoods have 10-<20% of the population below FPL; "High Poverty" neighborhoods have 20-<30% of the population living below the FPL; "Very high poverty" neighborhoods have ≥30% of the population living below the FPL.

United Hospital Fund neighborhood: The United Hospital Fund (UHF) classifies New York City into 42 neighborhoods, comprised of contiguous ZIP codes. For more information visit: http://www1.nyc.gov/assets/doh/downloads/pdf/ah/zipcodetable.pdf.

Table 1. Top premature and overall causes of death, New York City adults, 2015

Source: Bureau of Vital Statistics 2015

primary diagnosis ICD10=I00-I09, I11, I13, I20-I51

Data are restricted to NYC residents.

Premature deaths, ages 18-64			Overall deaths, ages 18+		
Cause	N	% of premature deaths	Cause	N	% of overall deaths
1. Malignant neoplasms (Cancer)	3,523	28.2	1. Diseases of heart	16,170	32.9
2. Diseases of heart	2,701	21.6	2. Malignant neoplasms (Cancer)	11,695	23.8
3. Use of or poisoning by psychoactive substance	880	7.1	3. Influenza and pneumonia	1,971	4.0
4. Diabetes mellitus	500	4.0	4. Diabetes mellitus	1,765	3.6
5. Accidents except drug poisoning	420	3.4	5. Cerebrovascular disease (Stroke)	1,700	3.5
6. Intentional Self-Harm (Suicide)	385	3.1	6. Chronic lower respiratory diseases	1,665	3.4
7. Human immunodeficiency virus	363	2.9	7. Essential hypertension and renal diseases	1,047	2.1
8. Cerebrovascular disease (Stroke)	332	2.7	8. Alzheimer's disease	1,045	2.1
9. Chronic liver disease and cirrhosis	327	2.6	9. Use of or poisoning by psychoactive substance	934	1.9
10. Assault (Homicide)	303	2.4	10. Accidents except drug doisoning	897	1.8
All Other Causes	2,748	22.0	All Other Causes	10,239	20.8
Total	12,482	100.0	Total	49,128	100.0

Table 2. Overall and premature deaths due to heart disease and stroke, New York City adults, 2011-2015

Source: Bureau of Vital Statistics 2011-2015

primary diagnosis ICD10=I00-I09, I11, I13, I20-I51

Data are age-adjusted to the US 2000 Standard Population where indicated.

Data are restricted to NYC residents.

	Heart disease				Stroke			
	Overall deaths (ages 18+ years)		Premature deaths (ages 18-64 years)		Overall deaths (ages 18+ years)		Premature deaths (ages 18-64 years)	
	N	Age-adjusted death rate	N	% of overall deaths	Age-adjusted death rate	N	Age-adjusted death rate	N	% of overall deaths	Age-adjusted death rate
All	79,417	248.7	13,228	16.7	46.2	8,112	25.3	1,696	20.9	5.9
Sex										
Men	37,367	278.6	9,060	24.2	67.3	3,311	24.4	981	29.6	7.3
Women	42,050	224.7	4,168	9.9	27.5	4,801	25.7	715	14.9	4.7
Race/ethnicity[1]										
White	40,652	295.7	4,033	9.9	42.2	3,209	23.3	315	9.8	3.3
Black	20,262	280.0	5,309	26.2	77.6	2,236	30.6	713	31.9	10.5
Latino	12,525	179.3	2,699	21.5	36.1	1,681	23.7	450	26.8	6.0
Asian/Pacific Islander	4,565	119.4	861	18.9	20.2	844	21.9	186	22.0	4.4
Neighborhood poverty[2]										
Low	9,802	207.6	1,040	10.6	27.9	912	19.3	100	11.0	2.7
Medium	37,889	247.6	5,551	14.7	41.0	3,752	24.4	734	19.6	5.4
High	20,126	273.1	3,389	16.8	52.2	1,964	26.6	416	21.2	6.4
Very high	11,584	249.7	3,241	28.0	66.8	1,482	31.8	444	30.0	9.1
Borough										
Bronx	13,147	272.0	2,864	21.8	62.2	1,389	28.5	371	26.7	8.1
Brooklyn	25,293	273.5	4,413	17.4	52.4	2,398	25.7	594	24.8	7.1
Manhattan	13,384	199.6	1,858	13.9	34.1	1,717	25.6	225	13.1	4.1
Queens	21,172	230.6	3,202	15.1	38.5	2,172	23.6	425	19.6	5.1
Staten Island	6,405	324.4	884	13.8	50.0	435	22.0	79	18.2	4.5

Rates are per 100,000 population.

[1]For the purpose of this publication, Latino includes persons of Hispanic origin based on ancestry reported on the death certificate, regardless of reported race; Latino excludes reported ancestry from non-Spanish speaking Central/South American countries, and non-Spanish speaking Caribbean islands. Black, White, Asian, and Other race categories do not include persons of Latino origin.

[2]Neighborhood poverty (based on ZIP code) is defined as the percentage of the population living below the Federal Poverty Line (FPL) based on the American Community Survey 2011-2015. Neighborhoods are categorized into four groups as follows: "Low poverty" neighborhoods are those with <10% of the population living below the FPL; "Medium poverty" neighborhoods have 10-<20% of the population below FPL; "High Poverty" neighborhoods have 20-<30% of the population living below the FPL; "Very high poverty" neighborhoods have ≥30% of the population living below the FPL.

Table 3. Premature deaths due to heart disease and stroke, by sex and race/ethnicity, New York City adults, 2011-2015

Source: Bureau of Vital Statistics 2011-2015

primary diagnosis ICD10=I00-I09, I11, I13, I20-I51

Data are age-adjusted to the US 2000 Standard Population where indicated.

Data are resticted to NYC residents.

	Premature deaths due to heart disease and stroke (ages 18-64 years)											
	Heart disease						Stroke					
	Men			Women			Men			Women		
	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate
Race/ethnicity[1]												
White	2,989	66.0	62.7	1,044	22.7	21.8	194	4.3	4.1	121	2.6	2.5
Black	3,303	118.2	110.8	2,006	58.6	51.9	374	13.4	12.6	339	9.9	8.8
Latino	1,875	48.5	54.1	824	20.4	20.6	283	7.3	8.1	167	4.1	4.2
Asian/Pacific Islander	655	33.4	32.1	206	9.4	9.3	114	5.8	5.6	72	3.3	3.2

Rates are per 100,000 population

[1]For the purpose of this publication, Latino includes persons of Hispanic origin based on ancestry reported on the death certificate, regardless of reported race; Latino excludes reported ancestry from non-Spanish speaking Central/South American countries, and non-Spanish speaking Caribbean islands. Black, White, Asian, and Other race categories do not include persons of Latino origin.

Table 4. Premature deaths due to heart disease, by sex and United Hospital Fund neighborhood, New York City adults, 2011-2015

Source: Bureau of Vital Statistics 2011-2015

primary diagnosis ICD10=I00-I09, I11, I13, I20-I51

Data are age-adjusted to the US 2000 Standard Population where indicated.

Data are restricted to NYC residents.

| | | Premature deaths due to heart disease (ages 18-64 years) | | | | | | | | |
| | | Overall | | | Men | | | Women | | |
UHF neighborhood	Neighborhood poverty level	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate
Bronx										
Kingsbridge/Riverdale (101)	Medium poverty	143	50.3	44.8	97	74.6	67.7	46	29.9	26.5
The Northeast Bronx (102)	Medium poverty	405	67.1	58.0	257	96.0	85.0	148	44.1	37.3
Fordham/Bronx Park (103)	Very high poverty	474	56.2	58.4	321	80.4	85.4	153	34.5	35.1
Pelham/Throgs Neck (104)	High poverty	571	58.7	55.6	400	87.0	85.3	171	33.3	30.5
Crotona/Tremont (105)	Very high poverty	487	72.7	73.8	314	102.1	105.6	173	47.8	47.7
Highbridge/Morrisania (106)	Very high poverty	495	72.9	73.4	338	107.7	110.7	157	43.0	42.5
Hunts Point/Mott Haven (107)	Very high poverty	289	65.9	70.2	182	87.8	96.9	107	46.3	47.7
Brooklyn										
Greenpoint (201)	High poverty	155	31.6	45.2	123	49.5	71.1	32	13.2	19.3
Downtown Brooklyn/Heights/Slope (202)	Medium poverty	321	38.4	48.1	193	49.2	61.4	128	28.9	36.5
Bedford Stuyvesant/Crown Heights (203)	High poverty	841	79.5	81.5	529	113.2	119.0	312	52.9	53.0
East New York/New Lots (204)	Very high poverty	445	75.1	74.1	278	103.6	104.1	167	51.5	50.1
Sunset Park (205)	Very high poverty	148	32.5	36.3	112	47.1	54.3	36	16.5	18.0
Borough Park (206)	High poverty	357	34.6	34.5	269	52.1	52.6	88	17.1	16.8
Flatbush (207)	Medium poverty	555	56.9	52.3	367	84.3	80.8	188	34.8	30.8
Canarsie and Flatlands (208)	Medium poverty	356	56.6	48.1	248	89.5	78.2	108	30.7	26.0
Bay Ridge/Bensonhurst (209)	Medium poverty	283	39.7	36.5	209	59.3	55.6	74	20.5	18.5
Coney Island (210)	High poverty	538	57.6	49.1	378	84.2	73.7	160	32.9	27.4
Williamsburg/Bushwick (211)	Very high poverty	414	59.5	68.5	279	81.9	100.2	135	38.0	41.5
Manhattan										
Washington Heights/Inwood (301)	High poverty	338	38.6	39.1	244	56.3	60.2	94	21.3	20.5
Central Harlem (302)	Very high poverty	399	70.0	75.5	246	93.1	101.1	153	50.0	53.6
East Harlem (303)	Very high poverty	249	66.8	69.7	154	85.8	93.3	95	49.2	49.4
Upper West Side (304)	Medium poverty	197	25.8	24.0	144	40.9	36.6	53	12.9	12.4
Upper East Side (305)	Low poverty	127	16.7	16.5	81	24.3	23.3	46	10.8	10.9
Chelsea/Clinton (306)	Medium poverty	147	23.6	27.0	122	37.2	39.4	25	8.5	10.5
Gramercy Park/Murray Hill (307)	Low poverty	88	17.0	20.4	70	29.2	33.3	18	6.5	8.3
Greenwich Village/SoHo (308)	Low poverty	40	12.3	13.8	28	17.1	18.2	12	7.4	8.9
Lower East Side (309)	High poverty	241	32.4	35.5	163	45.5	49.6	78	20.2	22.2
Lower Manhattan (310)	Medium poverty	32	14.3	21.2	19	17.2	24.2	13	11.4	18.0
Queens										
Long Island City/Astoria (401)	Medium poverty	253	31.5	36.3	179	44.1	51.0	74	18.6	21.5
West Queens (402)	Medium poverty	490	28.3	28.9	374	40.4	43.3	116	14.4	14.0
Flushing/Clearview (403)	Medium poverty	309	35.0	29.1	236	55.5	47.0	73	15.9	12.9
Bayside/Little Neck (404)	Low poverty	82	28.7	21.9	55	40.2	30.9	27	18.1	13.7
Ridgewood/Forest Hills (405)	Medium poverty	309	38.1	34.1	226	57.8	52.5	83	19.8	17.4
Fresh Meadows (406)	Medium poverty	113	35.8	31.4	83	55.2	48.8	30	18.1	16.2
Southwest Queens (407)	Medium poverty	456	50.8	46.0	350	78.9	71.8	106	23.4	21.0
Jamaica (408)	Medium poverty	523	54.4	49.7	344	75.5	70.8	179	35.4	31.7
Southeast Queens (409)	Low poverty	249	38.8	33.1	176	58.6	50.5	73	21.4	18.2
The Rockaways (410)	Medium poverty	418	120.9	106.4	276	171.1	149.5	142	76.9	68.5
Staten Island										
Port Richmond (501)	High poverty	142	63.1	58.6	94	86.1	81.2	48	41.4	38.1
Stapleton/St. George (502)	Medium poverty	288	71.6	62.8	183	93.6	83.1	105	50.7	43.8
Willowbrook (503)	Low poverty	138	50.4	41.8	95	71.8	61.4	43	30.4	24.2
South Beach (504)	Low poverty	316	52.7	43.0	218	74.1	62.4	98	32.1	24.9

Rates are per 100,000 population.

Neighborhood poverty (based on ZIP code) is defined as the percentage of the population living below the Federal Poverty Line (FPL) based on the American Community Survey 2011-2015. Neighborhoods are categorized into four groups as follows: "Low poverty" neighborhoods are those with <10% of the population living below the FPL; "Medium poverty" neighborhoods have 10-<20% of the population below FPL; "High Poverty" neighborhoods are those with 20-<30% of the population living below the FPL; "Very high poverty" neighborhoods have ≥30% of the population living below the FPL.

Table 5. Premature deaths due to heart disease, overall and by sex, New York City adults, 2001-2015

Source: Bureau of Vital Statistics, 2001-2015

primary diagnosis ICD10=I00-I09, I11, I13, I20-I51

Data are age-adjusted to the US 2000 Standard Population where indicated.

Data are restricted to NYC residents.

	Premature deaths due to heart disease (ages 18-64 years)								
	Overall				**Men**			**Women**	
Year	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate
2001	3,301	57.7	61.0	2,121	77.8	84.8	1,180	39.5	40.6
2002	3,365	58.5	61.1	2,203	80.3	86.6	1,162	38.7	39.3
2003	3,213	55.7	57.5	2,068	75.1	79.9	1,145	37.9	38.2
2004	3,199	55.4	56.5	2,042	74.1	77.8	1,157	38.3	38.1
2005	3,197	55.3	55.7	2,063	74.7	77.3	1,134	37.5	36.9
2006	3,077	58.3	58.4	2,032	80.9	83.1	1,045	37.8	37.0
2007	3,087	58.2	57.9	2,032	80.3	82.0	1,055	38.0	37.0
2008	3,129	58.4	57.9	2,069	80.9	82.2	1,060	37.8	36.7
2009	3,081	56.9	56.1	2,063	79.7	80.5	1,018	36.0	34.7
2010	2,774	50.8	49.8	1,901	72.8	73.0	873	30.6	29.4
2011	2,600	47.3	46.2	1,763	67.0	66.8	837	29.2	28.0
2012	2,635	47.6	46.5	1,797	67.7	67.5	838	29.1	27.8
2013	2,638	47.3	46.1	1,805	67.5	67.1	833	28.7	27.5
2014	2,654	47.3	46.0	1,856	68.9	68.2	798	27.4	26.2
2015	2,701	48.0	46.4	1,839	67.9	66.8	862	29.5	28.1

Rates are per 100,000 population

Table 6. Premature deaths due to heart disease, by race, New York City adults, 2001-2015

Source: Bureau of Vital Statistics, 2001-2015

primary diagnosis ICD10=I00-I09, I11, I13, I20-I51

Data are age-adjusted to the US 2000 Standard Population where indicated.

Data are restricted to NYC residents.

				Premature deaths due to heart disease (ages 18-64 years)									
	White, non-Latino				**Black, non-Latino**				**Latino**				**Asian/Pacific Islander**
Year	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate
2001	1,301	61.9	58.9	1,202	87.9	91.8	561	37.5	45.6	169	25.0	28.2
2002	1,260	60.2	56.7	1,285	94.0	96.7	614	40.5	48.6	144	20.6	23.0
2003	1,214	58.3	54.5	1,159	84.9	86.1	578	37.7	44.8	134	18.7	20.3
2004	1,115	53.8	50.0	1,243	91.5	91.1	612	39.7	46.2	147	20.1	21.3
2005	1,145	55.5	51.3	1,235	91.5	89.5	597	38.6	44.2	165	22.1	23.1
2006	1,100	59.9	55.6	1,174	95.4	91.9	584	40.5	45.8	165	23.9	24.7
2007	1,005	54.6	50.9	1,253	102.5	97.4	631	43.4	48.2	155	21.8	22.3
2008	1,110	60.1	56.5	1,171	95.9	90.1	649	44.0	48.6	153	20.9	21.0
2009	1,054	56.9	53.6	1,165	95.1	88.7	640	42.7	46.6	179	23.7	23.6
2010	910	49.2	46.3	1,060	86.0	79.5	597	39.1	42.3	161	20.8	20.5
2011	862	47.0	44.2	1,018	82.1	75.2	536	34.7	37.3	155	19.6	19.2
2012	861	47.0	44.7	1,045	84.2	76.6	526	33.6	35.9	153	18.9	18.5
2013	757	41.5	39.7	1,075	86.3	78.7	534	33.7	35.7	182	22.0	21.4
2014	778	42.8	41.1	1,059	84.9	76.8	542	33.9	35.5	195	22.9	22.2
2015	775	42.9	41.1	1,112	89.3	80.4	561	34.8	36.2	176	20.2	19.5

Rates are per 100,000 population

Table 7. Premature deaths due to heart disease, by neighborhood poverty, New York City adults, 2001-2015

Source: Bureau of Vital Statistics 2001-2015

primary diagnosis ICD10=I00-I09, I11, I13, I20-I51

Data are age-adjusted to the US 2000 Standard Population where indicated.

Data are restricted to NYC residents.

		Premature deaths due to heart disease (ages 18-64 years)										
		Low poverty			Medium poverty			High poverty			Very high poverty	
Year	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate
2006	265	43.2	39.8	1,433	54.2	52.9	797	64.9	68.0	582	73.9	80.5
2007	261	42.5	39.2	1,397	52.5	51.0	818	66.1	69.1	611	76.8	82.8
2008	255	41.5	38.3	1,481	55.1	53.3	823	65.7	68.4	569	70.6	75.6
2009	251	40.9	37.3	1,420	52.3	50.2	813	64.2	66.6	592	72.3	76.8
2010	227	37.0	33.6	1,220	45.3	43.2	749	56.5	58.2	570	68.5	72.2
2011	210	30.8	28.3	1,107	41.9	39.6	706	56.7	58.0	575	61.9	65.2
2012	206	30.2	27.6	1,046	42.3	40.4	819	56.8	56.7	561	59.6	62.7
2013	210	30.8	28.2	1,110	43.3	41.3	604	47.6	47.6	714	67.0	70.4
2014	202	29.7	27.2	1,125	43.6	41.4	622	48.7	48.7	703	65.4	68.5
2015	212	31.2	28.2	1,163	44.9	42.4	638	49.8	49.6	688	63.7	66.3

Rates are per 100,000 popualation

Neighborhood poverty (based on ZIP code) is the percentage of residents with incomes below 100% of federal poverty level (FPL), per American Community Survey 2010-14. Categories: Low (<10% FPL), Medium (10-19% FPL), High (20-29% FPL), Very high (>=30% FPL).

Table 8. Premature deaths due to stroke, by sex and United Hospital Fund neighborhood, New York City adults, 2011-2015

Source: Bureau of Vital Statistics, 2011-2015

primary diagnosis ICD10=I60-69

Data are age-adjusted to the US 2000 Standard Population where indicated.

Data are resticted to NYC residents.

		Premature deaths due to stroke (ages 18-64 years)								
		Overall			Men			Women		
UHF	Neighborhood poverty level	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate
Bronx										
Kingsbridge/Riverdale (101)	Medium poverty	23	8.1	7.3	15	11.5	10.7	8	5.2	4.4
The Northeast Bronx (102)	Medium poverty	47	7.8	6.8	28	10.5	9.3	19	5.7	4.8
Fordham/Bronx Park (103)	Very high poverty	66	7.8	8.2	44	11.0	11.7	22	5.0	5.1
Pelham/Throgs Neck (104)	High poverty	67	6.9	6.5	38	8.3	8.1	29	5.6	5.2
Crotona-Tremont (105)	Very high poverty	71	10.6	10.8	50	16.3	16.9	21	5.8	5.8
Highbridge/Morrisania (106)	Very high poverty	62	9.1	9.2	35	11.1	11.5	27	7.4	7.4
Hunts Point/Mott Haven (107)	Very high poverty	35	8.0	8.5	20	9.6	10.5	15	6.5	6.7
Brooklyn										
Greenpoint (201)	High poverty	23	4.7	6.3	11	4.4	6.1	12	4.9	6.4
Downtown Brooklyn/Heights/Slope (202)	Medium poverty	37	4.4	5.2	19	4.8	5.4	18	4.1	4.9
Bedford Stuyvesant/Crown Heights (203)	High poverty	108	10.2	10.5	53	11.3	11.9	55	9.3	9.4
East New York/New Lots (204)	Very high poverty	65	11.0	10.8	36	13.4	13.5	29	8.9	8.7
Sunset Park (205)	Very high poverty	13	2.9	3.1	9	3.8	4.3	4	1.8	1.9
Borough Park (206)	High poverty	39	3.8	3.8	22	4.3	4.3	17	3.3	3.3
Flatbush (207)	Medium poverty	97	9.9	9.1	50	11.5	10.9	47	8.7	7.8
Canarsie and Flatlands (208)	Medium poverty	53	8.4	7.4	29	10.5	9.2	24	6.8	6.0
Bay Ridge/Bensonhurst (209)	Medium poverty	29	4.1	3.8	19	5.4	5.1	10	2.8	2.5
Coney Island (210)	High poverty	64	6.8	6.1	37	8.2	7.5	27	5.6	4.9
Williamsburg/Bushwick (211)	Very high poverty	66	9.5	10.8	46	13.5	16.3	20	5.6	6.1
Manhattan										
Washington Heights/Inwood (301)	High poverty	43	4.9	5.0	30	6.9	7.4	13	2.9	2.8
Central Harlem (302)	Very high poverty	43	7.5	8.1	17	6.4	6.9	26	8.5	9.2
East Harlem (303)	Very high poverty	42	11.3	11.8	21	11.7	13.0	21	10.9	10.9
Upper West Side (304)	Medium poverty	17	2.2	2.1	8	2.3	2.1	9	2.2	2.1
Upper East Side (305)	Low poverty	13	1.7	1.7	5	1.5	1.4	8	1.9	1.8
Chelsea/Clinton (306)	Medium poverty	19	3.0	3.4	10	3.0	3.1	9	3.1	3.9
Gramercy Park/Murray Hill (307)	Low poverty	5	1.0	1.1	3	1.2	1.5	2	0.7	0.8
Greenwich Village/SoHo (308)	Low poverty	2	0.6	0.7	1	0.6	0.7	1	0.6	0.7
Lower East Side (309)	High poverty	39	5.2	5.6	27	7.5	8.0	12	3.1	3.4
Lower Manhattan (310)	Medium poverty	2	0.9	1.4	1	0.9	1.4	1	0.9	1.4
Queens										
Long Island City/Astoria (401)	Medium poverty	37	4.6	5.2	26	6.4	7.3	11	2.8	3.1
West Queens (402)	Medium poverty	62	3.6	3.7	37	4.0	4.2	25	3.1	3.0
Flushing/Clearview (403)	Medium poverty	53	6.0	5.0	32	7.5	6.2	21	4.6	3.8
Bayside/Little Neck (404)	Low poverty	8	2.8	2.2	3	2.2	2.0	5	3.4	2.5
Ridgewood/Forest Hills (405)	Medium poverty	31	3.8	3.5	21	5.4	4.9	10	2.4	2.1
Fresh Meadows (406)	Medium poverty	22	7.0	6.5	11	7.3	6.7	11	6.6	6.3
Southwest Queens (407)	Medium poverty	58	6.5	5.9	37	8.3	7.6	21	4.6	4.3
Jamaica (408)	Medium poverty	85	8.8	8.0	48	10.5	9.8	37	7.3	6.4
Southeast Queens (409)	Low poverty	40	6.2	5.1	18	6.0	5.0	22	6.4	5.2
The Rockaways (410)	Medium poverty	29	8.4	7.7	22	13.6	12.4	7	3.8	3.5
Staten Island										
Port Richmond (501)	High poverty	18	8.0	7.7	9	8.2	8.2	9	7.8	7.3
Stapleton/St. George (502)	Medium poverty	29	7.2	6.2	17	8.7	7.5	12	5.8	5.0
Willowbrook (503)	Low poverty	12	4.4	3.6	5	3.8	3.3	7	5.0	3.8
South Beach (504)	Low poverty	20	3.3	2.7	9	3.1	2.5	11	3.6	2.9

Rates are per 100,000 population

The United Hospital Fund classifies New York City into 42 neighborhoods, comprised of contiguous ZIP codes. For more information visit: http://www1.nyc.gov/assets/doh/downloads/pdf/ah/zipcodetable.pdf.

Neighborhood poverty (based on ZIP code) is the percentage of residents with incomes below 100% of federal poverty level (FPL), per American Community Survey 2010-14. Categories: Low (<10% FPL), Medium (10-19% FPL), High (20-29% FPL), Very high (>=30% FPL).

Table 9. Premature death due to stroke, overall and by sex, New York City adults, 2001-2015

Source: Bureau of Vital Statistics, 2001-2015

primary diagnosis ICD10=I60-69

Data are age-adjusted to the US 2000 standard population where indicated.

Data are restricted to NYC residents.

	Premature deaths due to stroke (ages 18-64 years)								
	Overall				**Men**			**Women**	
Year	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate
2001	414	7.2	7.6	209	7.7	8.3	205	6.9	7.0
2002	396	6.9	7.1	221	8.1	8.6	175	5.8	5.9
2003	438	7.6	7.8	270	9.8	10.3	168	5.6	5.6
2004	394	6.8	6.9	238	8.6	9.0	156	5.2	5.1
2005	346	6.0	6.0	181	6.6	6.8	165	5.5	5.4
2006	371	7.0	7.0	214	8.5	8.7	157	5.7	5.6
2007	338	6.4	6.3	187	7.4	7.5	151	5.4	5.3
2008	353	6.6	6.5	201	7.9	8.0	152	5.4	5.3
2009	337	6.2	6.2	177	6.8	6.9	160	5.7	5.5
2010	348	6.4	6.3	196	7.5	7.5	152	5.3	5.1
2011	347	6.3	6.2	206	7.8	7.8	141	4.9	4.7
2012	317	5.7	5.6	187	7.0	7.0	130	4.5	4.3
2013	357	6.4	6.3	199	7.4	7.4	158	5.4	5.3
2014	343	6.1	6.0	198	7.4	7.3	145	5.0	4.8
2015	332	5.9	5.7	191	7.1	7.0	141	4.8	4.6

Rates are per 100,000 population

Table 10. Premature deaths due to stroke, by race/ethnicity, New York City adults, 2001-2015

Source: Bureau of Vital Statistics, 2001-2015

primary diagnosis ICD10=I60-69

Data are age-adjusted to the US 2000 standard population where indicated.

Data are restricted to NYC residents.

						Premature deaths due to stroke (ages 18-64 years)									
	White, non-Latino				Black, non-Latino				Latino				Asian/Pacific Islander		
Year	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate
2001	94	4.5	4.3	189	13.8	14.4	96	6.4	7.7	26	3.8	4.3
2002	92	4.4	4.2	155	11.3	11.6	104	6.9	8.0	37	5.3	5.9
2003	87	4.2	3.9	191	14.0	14.2	100	6.5	7.6	41	5.7	6.2
2004	91	4.4	4.2	147	10.8	10.8	110	7.1	8.1	36	4.9	5.3
2005	76	3.7	3.4	131	9.7	9.6	101	6.5	7.4	29	3.9	4.1
2006	84	4.6	4.3	164	13.3	13.0	86	6.0	6.6	30	4.3	4.5
2007	62	3.4	3.2	153	12.5	12.0	94	6.5	7.1	27	3.8	3.9
2008	78	4.2	4.0	158	12.9	12.1	84	5.7	6.2	23	3.1	3.2
2009	70	3.8	3.6	148	12.1	11.4	94	6.3	6.8	21	2.8	2.8
2010	68	3.7	3.5	152	12.3	11.5	79	5.2	5.6	43	5.6	5.5
2011	58	3.2	3.0	164	13.2	12.2	78	5.1	5.4	44	5.6	5.5
2012	63	3.4	3.3	134	10.8	9.8	83	5.3	5.6	26	3.2	3.1
2013	79	4.3	4.1	145	11.6	10.6	93	5.9	6.2	35	4.2	4.1
2014	58	3.2	3.1	132	10.6	9.7	105	6.6	6.9	42	4.9	4.8
2015	57	3.2	3.0	138	11.1	10.0	91	5.6	5.8	39	4.5	4.3

Rates are per 100,000 population

For the purpose of this publication, Latino includes persons of Hispanic origin based on ancestry reported on the death certificate, regardless of reported race; Latino excludes reported ancestry from non-Spanish speaking Central/South American countries, and non-Spanish speaking Caribbean islands. Black, White, Asian, and Other race categories do not include persons of Latino origin.

Table 11. Premature deaths due to stroke, by neighborhood poverty, New York City adults, 2001-2015

Source: Bureau of Vital Statistics, 2001-2015

primary diagnosis ICD10=I60-69

Data are age-adjusted to the US 2000 standard population where indicated.

Data are restricted to NYC residents.

						Premature deaths due to stroke (ages 18-64 years)							
	Low poverty				**Medium poverty**				**High poverty**				**Very high poverty**
Year	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	N	Crude death rate	Age-adjusted death rate	
2006	31	5.0	4.7	171	6.5	6.3	97	7.9	8.2	72	9.1	9.9	
2007	22	3.6	3.3	147	5.5	5.4	74	6.0	6.2	95	11.9	12.8	
2008	24	3.9	3.6	165	6.1	6.0	89	7.1	7.4	75	9.3	10.0	
2009	26	4.2	3.9	152	5.6	5.4	76	6.0	6.2	83	10.1	10.7	
2010	23	3.8	3.4	151	5.6	5.4	94	7.1	7.3	80	9.6	10.2	
2011	12	1.8	1.6	159	6.0	5.7	81	6.5	6.7	94	10.1	10.6	
2012	14	2.1	1.9	132	5.3	5.1	97	6.7	6.7	73	7.8	8.2	
2013	23	3.4	3.1	154	6.0	5.7	79	6.2	6.2	101	9.5	10.0	
2014	28	4.1	3.8	141	5.5	5.2	82	6.4	6.4	92	8.6	9.0	
2015	23	3.4	3.0	148	5.7	5.4	77	6.0	6.0	84	7.8	8.1	

Rates are per 100,000 population

Neighborhood poverty (based on ZIP code) is the percentage of residents with incomes below 100% of federal poverty level (FPL), per American Community Survey 2010-14. Categories: Low (<10% FPL), Medium (10-19% FPL), High (20-29% FPL), Very high (>=30% FPL).

Table 12. Deaths due to heart disease, by age group, New York City adults, 2001-2015

Source: Bureau of Vital Statistics, 2001-2015

primary diagnosis ICD10=I00-I09, I11, I13, I20-I51

Data are restricted to NYC residents.

| | Deaths due to heart disease | | | | | | | | | | | |
| | 18-44 Years | | 45-54 Years | | 55-64 Years | | 65-74 Years | | 75-84 Years | | 85+ Years | |
Year	N	Crude death rate	N	Crude death rate	N	Crude death rate	N	Crude death rate	N	Crude death rate	N	Crude death rate
2001	432	11.4	956	83.1	1,913	247.3	3,618	655.8	6,775	1,834.7	8,878	6,411.1
2002	414	10.9	1,017	87.7	1,934	240.3	3,805	686.8	6,723	1,792.3	9,048	6,521.8
2003	387	10.3	945	80.7	1,881	227.0	3,564	641.2	6,841	1,812.5	9,134	6,538.0
2004	403	10.8	944	80.1	1,852	217.1	3,182	571.3	6,470	1,703.5	8,688	6,197.9
2005	370	9.9	959	80.8	1,868	212.4	3,094	554.9	6,445	1,704.6	8,816	6,119.8
2006	331	9.8	902	83.4	1,844	225.7	3,019	605.8	5,964	1,793.4	8,674	6,688.1
2007	363	10.7	885	81.3	1,839	220.2	2,882	570.2	5,751	1,740.6	8,615	6,475.0
2008	357	10.5	878	79.8	1,894	222.0	2,969	574.4	5,502	1,684.5	8,506	6,272.4
2009	364	10.6	884	79.5	1,833	209.2	2,784	526.3	5,097	1,575.3	8,096	5,783.7
2010	295	8.6	794	71.1	1,685	186.4	2,493	462.8	4,387	1,352.4	7,334	5,093.5
2011	248	7.2	718	64.3	1,634	176.7	2,394	437.3	4,117	1,276.8	6,937	4,738.0
2012	260	7.5	751	67.3	1,624	172.9	2,388	417.4	3,877	1,197.7	6,881	4,587.1
2013	302	8.6	714	63.9	1,622	169.7	2,475	417.4	3,888	1,189.9	6,844	4,470.6
2014	271	7.7	761	68.1	1,622	166.9	2,387	389.7	3,726	1,133.2	6,806	4,388.8
2015	290	8.2	758	67.7	1,653	167.1	2,538	399.7	3,880	1,163.0	7,051	4,452.4

Rates are per 100,000 population

Table 13. Deaths due to stroke, by age group, New York City adults, 2001-2015

Source: Bureau of Vital Statistics, 2001-2015

primary diagnosis ICD10=I60-69

Data are restricted to NYC residents.

	Deaths due to stroke											
	18-44 years		45-54 years		55-64 years		65-74 years		75-84 years		85+ years	
Year	N	Crude death rate	N	Crude death rate	N	Crude death rate	N	Crude death rate	N	Crude death rate	N	Crude death rate
2001	83	2.2	135	11.7	196	25.3	329	59.6	541	146.5	472	340.8
2002	78	2.1	127	10.9	191	23.7	326	58.8	524	139.7	458	330.1
2003	84	2.2	137	11.7	217	26.2	319	57.4	508	134.6	469	335.7
2004	80	2.1	133	11.3	181	21.2	300	53.9	517	136.1	457	326.0
2005	76	2.0	100	8.4	170	19.3	250	44.8	434	114.8	485	336.7
2006	72	2.1	110	10.2	189	23.1	291	58.4	441	132.6	450	347.0
2007	59	1.7	118	10.8	161	19.3	219	43.3	431	130.4	455	342.0
2008	52	1.5	132	12.0	169	19.8	218	42.2	383	117.3	449	331.1
2009	59	1.7	113	10.2	165	18.8	211	39.9	361	111.6	447	319.3
2010	57	1.7	126	11.3	165	18.2	235	43.6	389	119.9	494	343.1
2011	49	1.4	103	9.2	195	21.1	276	50.4	448	138.9	566	386.6
2012	46	1.3	108	9.7	163	17.4	223	39.0	398	122.9	589	392.7
2013	50	1.4	122	10.9	185	19.4	238	40.1	438	134.0	557	363.8
2014	59	1.7	115	10.3	169	17.4	216	35.3	468	142.3	631	406.9
2015	49	1.4	97	8.7	186	18.8	267	42.0	448	134.3	653	412.3

Rates are per 100,000 population