NYC

Health

Testimony

of

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Division of Family and Child Health
New York City Department of Health and Mental Hygiene

before the

New York City Council Committee on Health

on

Intros 1161, 1162, 1172

December 7, 2016
250 Broadway – Committee Room
New York City

Good morning Chair Johnson and members of the Committee. I am Dr. Deborah Kaplan, Assistant Commissioner of the Bureau of Maternal, Infant and Reproductive Health at the New York City Department of Health and Mental Hygiene. I am joined by my colleague Dr. Jane Zucker, Assistant Commissioner of the Bureau of Immunization. On behalf of Commissioner Bassett, I want to thank you for the opportunity to testify on these important issues. I would like to also recognize Council Member Crowley and the Women's Caucus for championing women's rights in this City, and thank Speaker Melissa Mark-Viverito for her leadership and for courageously using her story to reduce the stigma surrounding HPV and encourage more New Yorkers get vaccinated.

The mission of the Department is to improve the health of all New Yorkers and to eliminate health inequities, which are rooted in historical and contemporary injustices and discrimination, including racism. It is through this lens that we focus our work related to maternal, sexual and reproductive health.

Starting in 2014, the Department began a five-year initiative to increase awareness of and access to a full continuum of sexual and reproductive health and related services, including the full range of contraceptive methods, so that all people can make informed decisions about their sexual and reproductive health, and act on those decisions. We adopted a sexual and reproductive justice framework, which promotes individual choice and body autonomy within the context of our nation's history of reproductive oppression and coercion directed at women of color and low-income women. Sexual and reproductive justice exists when all people have the power and resources to make healthy decisions about their bodies, sexuality and reproduction.

Reproductive Justice, a term from which emerged a framework and a collective, SisterSong, led by and for indigenous women and women of color, is the human right to:
- Decide if and when you will have a child and the conditions under which you will give birth or create a family.
- Decide if you will *not* have a child and your options for preventing or ending a pregnancy.
- Parent the child(ren) you want or already have with the necessary social supports in safe environments and healthy communities, and without threat of harm from individuals, organizations or institutions of the state.
- Bodily autonomy from any form of sexual or reproductive oppression.

As part of this approach, we regularly convene a group of community leaders, activists and nonprofit organizations known as the Sexual and Reproductive Justice Community Engagement Group, where we jointly plan and implement activities. Last fall, we launched a citywide public awareness campaign – "Maybe the IUD" – that provided information about the IUD among a full range of birth control options, stressing the importance of assuring that women who want birth control are supported to choose the contraceptive method that best meets their needs. Additionally, we work with local hospitals on a learning collaborative to implement best clinical practices for the provision of contraceptive services postpartum, post-abortion and in primary care settings, ensuring that reproductive decisions are made with complete information and free of coercion. A key issue that a sexual and reproductive justice framework seeks to address is the disparities in reproductive health outcomes, which includes maternal mortality. Addressing these disparities is a top priority of the Department.

Complementing this work are the ongoing efforts of the Department to provide clinical services for all New Yorkers at eight STD clinics. Our work focuses on New Yorkers at highest risk for negative sexual health outcomes who may face obstacles to accessing needed services elsewhere. In addition, the Department has a multi-pronged approach toward prevention of the human papillomavirus virus infection, otherwise known as HPV. The most effective way to stop HPV is to vaccinate eligible people. In accordance with CDC recommendations, we strongly encourage vaccination for pre-teens, and for teens and young adults who were not previously vaccinated. HPV vaccines are up to 99 percent effective in preventing cervical, vaginal and vulvar infections, which could develop into cancer if left untreated. The vaccines can also prevent anal cancer precursor lesions and likely penile and oropharyngeal cancers.

With regard to the bills being heard today:

Intro. 1161

The Administration supports the intent of Intro. 1161, which would require the Department to report data on New Yorkers' immunization rates for HPV. The Department collects data regarding immunization rates by gender and number of doses received through the Citywide Immunization Registry, and we would be happy to work with Council to determine the most appropriate way for this information to be shared.

In New York City, HPV vaccine is administered by a broad range of pediatric-care providers, including: public clinics, private practitioners, school-based health centers, and the Department's immunization clinic. Through the Citywide Immunization Registry, providers can identify patients who have not received HPV vaccine and those needing to complete the series, and generate follow-up letters or a list of patients to call for follow-up. To further facilitate HPV vaccination, the Department released a new text messaging recall service which providers can use without charge.

In New York City, as of September 30, 2016, 73 percent of females and 67 percent for males aged 13 to 17 had at least one dose of HPV vaccine; and 50 percent of females and 42 percent of males have received all three doses. While we are proud of the progress we have made, we are still far from achieving the national target of 80 percent coverage by 2020. Nation-wide, Latinos and lower-income groups have the highest coverage levels, while Whites and higher-income groups have the lowest coverage. In New York City, we find similar disparities in HPV vaccination among people who attend the Department's clinics that treat sexually transmitted infections. Geographically, HPV vaccine coverage is highest in the southern Bronx and northern Manhattan. It is lowest in Staten Island, Central/Southern Brooklyn and Greenpoint/Williamsburg. The Department has undertaken a number of activities to increase coverage citywide and to target practices in low coverage neighborhoods in particular.

Intro. 1162

The Administration supports the intent of Intro 1162, and supports gathering and sharing information about the use of a comprehensive range of contraceptive methods. We are happy to share the available data when it is collected via the Community Health Survey in an appropriate manner, and look forward to discussing this further with the Council.

The Department conducts the NYC Community Health Survey annually to gather data on the health of New Yorkers, including neighborhood, borough, and citywide estimates on a broad range of chronic diseases and behavioral risk factors. The Community Health Survey is a timely surveillance instrument that is able to inform up-to-date agency priorities, and we determine the list of questions based on their ability to serve this purpose.

The 2013, 2014 and 2016 Community Health Survey collected data regarding contraceptive methods used by women 18-44 who had vaginal sex in the prior 12 months, and includes condoms, birth control pills, Depo-Provera, the birth control patch or ring, emergency contraception, IUDs, contraceptive implants, a combination of methods or no method. We know from the Community Health Survey that among those women who used birth control, the most popular methods were condoms (34.6%) and the pill (23.5%). About 8.3% of women using birth control used IUDs or contraceptive implants. We further know that in 2014, 58.5% of adult female New Yorkers having vaginal sex who did not use any form of contraception did not intend to become pregnant at the time of their last intercourse. Additionally, in 2013, almost 6 in 10 known pregnancies among NYC women are unintended (58%). These data suggest that more can be done to educate women about the range of available birth control options and ensure that they have easy access to all options. In accordance with the sexual and reproductive justice framework, we do not recommend reporting solely on one specific contraceptive method. Our goal is not to promote one particular method over another. Rather, our goal is to increase access to all birth control methods and support New Yorkers in making the contraceptive choice that's best for them.

Intro. 1172

The Administration supports the intent of Intro 1172 to share data regarding maternal mortality in New York City, and we look forward to working with the Council to share non-identifiable data as it becomes available.

The Department currently collects this information through death certificate data and additional surveillance of pregnancy-associated deaths. The Department has issued two reports on enhanced surveillance of pregnancy-associated (deaths during pregnancy or within one year of pregnancy from any cause) and pregnancy-related mortality (a sub-set of these deaths that are causally related to the pregnancy) based on data from 2001-2005 and 2006-2010. A similar analysis of pregnancy-associated mortality data from 2011-2015 is currently underway. Additionally, the Department conducts routine surveillance on maternal deaths within 42 days of delivery; in 2014, the last year we have data, there were 23 maternal deaths. The data shows decreasing maternal deaths; this is consistent with the decreasing pregnancy-related mortality ratio, which decreased 48% in NYC from 2001 to 2010.

Both reports highlight the unacceptable racial disparity in pregnancy-related mortality in New York City. From 2006-2010, Black women were twelve times more likely to die from a pregnancy-related cause than White women. Pregnancy-related mortality also disproportionately impacts Asian/Pacific Islander and Latina women, although not to the same extent as for Black women. Pregnancy-related mortality is associated with obesity, underlying chronic disease, and poverty that also disproportionately affect New York City's Black population. The chronic stress of racism and social inequality contributes to pregnancy-related mortality, along with racial disparities in other health outcomes, including infant mortality, preterm birth and low birth weight outcomes.

This past August, the Department released a report on the first ever citywide severe maternal morbidity surveillance system in the United States. Severe maternal morbidity is defined as a life-threatening complication during childbirth. Examples include heavy bleeding, kidney failure, stroke or heart attack during delivery. Our surveillance found that the rate of severe maternal morbidity in New York City was higher than the national severe maternal morbidity rate, and that nearly 3,000 women experienced life threatening complications during pregnancy in 2012. Like maternal mortality, we found stark disparities. The severe maternal morbidity rate among Black women was three times that of White women.

The Department recognizes that improving women's health before pregnancy is critical to reducing maternal and infant mortality and addressing the unacceptable racial and ethnic disparities in birth outcomes. It is our belief that achieving this also requires a particular focus on those neighborhoods most impacted – neighborhoods with high concentrations of people of color and poverty. Furthermore, it requires an understanding of and willingness to name and address racism and other structural factors, past and present, which contribute to negative birth outcomes. Engaging community members and organizations in meaningful dialogue is essential for developing an effective strategy for improving sexual and reproductive health outcomes and achieving health equity in our city.

Thank you again for the opportunity to testify. We are happy to answer any questions.

New York City Community Health Profiles Atlas

2015

NYC Health

Table of Contents

Background and Notes

Community Health Profiles and Atlas

The 2015 Community Health Profiles feature health, social, economic and environmental information about each of the 59 neighborhoods in New York City. The indicators were selected to reflect a broad set of conditions that impact health. This Atlas is a companion to the 2015 Community Health Profiles (http://www.nyc.gov/html/doh/html/data/nyc-health-profiles.shtml) and contains choropleth maps and ranking tables showing these same indicators across all of New York City.

What are Community Districts?

New York City Community Districts (CDs) were established citywide by local law in 1975. The CDs correspond to NYC Community Boards, which are the most local unit of government in NYC . The names of neighborhoods contained within CDs are not officially designated. The names used in this document are not an exhaustive list of all known neighborhood names within an area. A complete listing of all CDs and their names can be found on page 5 of this Atlas or by visiting http://www.nyc.gov/html/dcp/html/neigh_info/nhmap.shtml.
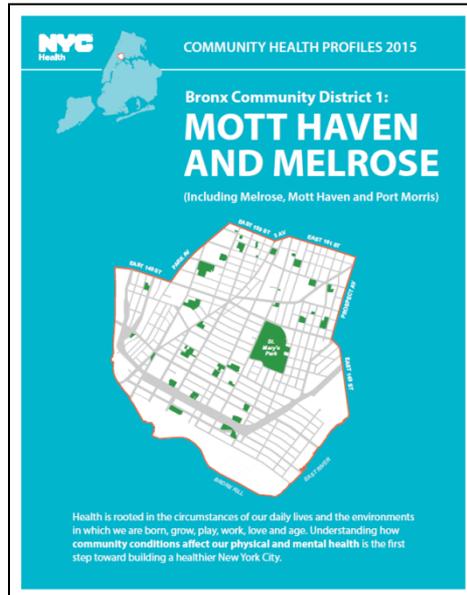
Technical notes, sources and additional resources

All population denominators for rates come from the NYC DOHMH population estimates, modified from US Census Bureau interpolated intercensal population estimates, 2000-2013. A complete dataset including numbers, rates, rankings and confidence intervals, as well as definitions and complete citations, can be found online by going to nyc.gov and searching "Community Health Profiles."

Additional sources of data are available through NYC DOHMH's online tools: **EpiQuery** (http://www.nyc.gov/health/EpiQuery) and the **Environment & Health Data Portal** (http://a816-dohbesp.nyc.gov/IndicatorPublic/PublicTracking.aspx).

COMMUNITY HEALTH PROFILES 2015

Bronx Community District 1:

MOTT HAVEN AND MELROSE

(Including Melrose, Mott Haven and Port Morris)

Health is rooted in the circumstances of our daily lives and the environments in which we are born, grow, play, work, love and age. Understanding how **community conditions affect our physical and mental health** is the first step toward building a healthier New York City.

EpiQuery
NYC Interactive Health Data
nyc.gov/health/EpiQuery

Environment & Health Data Portal
A tool for exploring environmental and health data from New York City
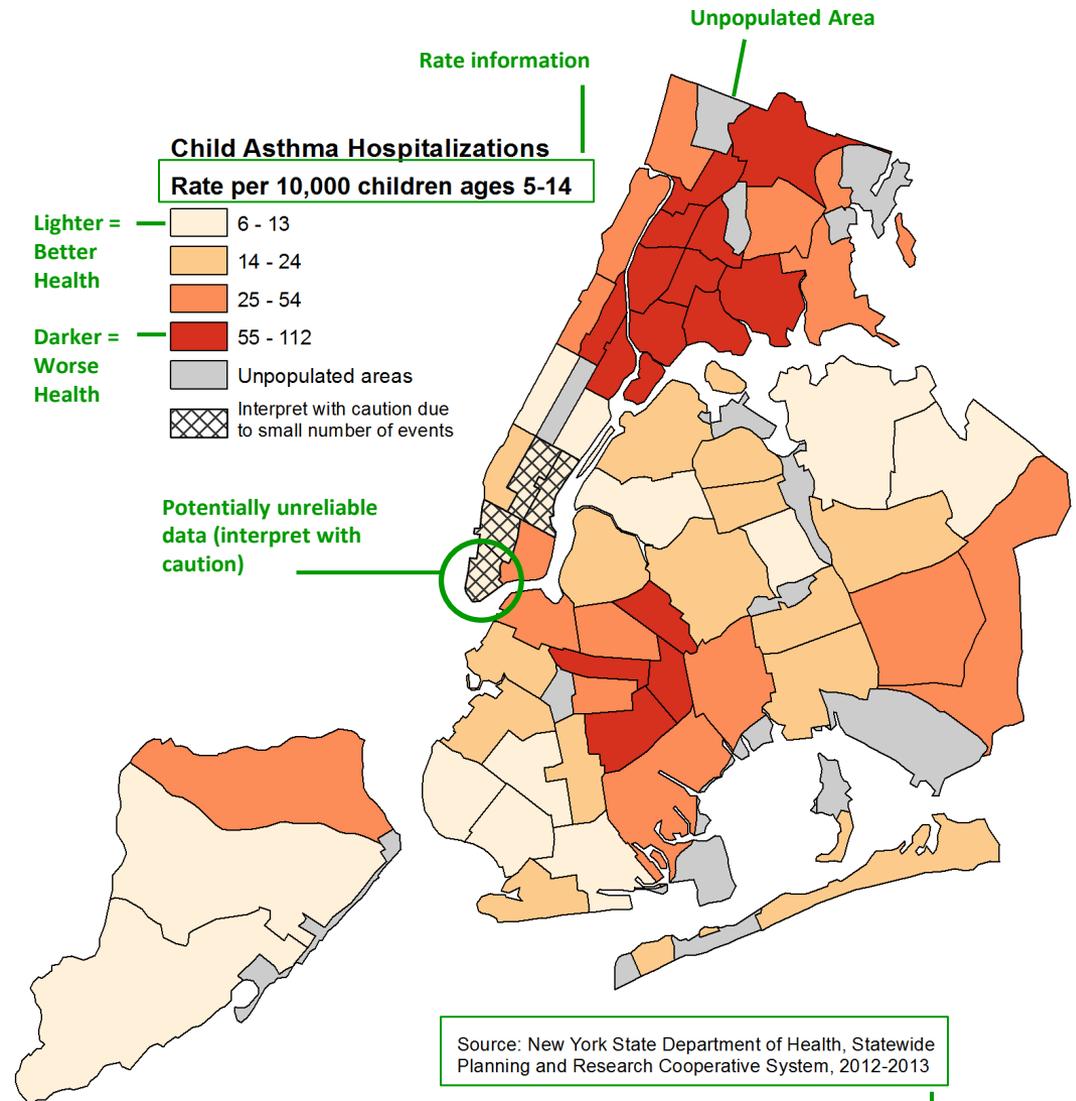
Interpreting the Maps

The data for each indicator in the Atlas are divided into quartiles (the total frequency of the sample is divided into four equal proportions). For demographic indicators, a yellow-green color gradient is used, with the darker color representing the larger percentage for the indicator. For all other indicators, an orange-red color gradient is used, with the darker color representing a more negative measure of health (e.g., a high rate of child asthma hospitalizations or a low percent of flu vaccinations).

The crosshatching pattern represents estimates or values that are potentially unreliable due to small sample sizes or a small number of events. These numbers should be interpreted with caution. An estimate or value was considered potentially unreliable if the Relative Standard Error (a measure of estimate precision) was greater than 30% or if the sample size was too small.

The gray areas on the maps are Joint Interest Areas (JIAs), which are unpopulated areas such as parks, beaches or airports.

The maps in this Atlas were designed to allow readers to copy any given map and paste it into another document or presentation.

Community Districts are ranked on every indicator. Tables are included with each map and show the top five and bottom five neighborhoods for each indicator. If two CDs have the same value, they are considered to be tied and are given the same rank; both are shown in the tables.

Unpopulated Area

Rate information

Child Asthma Hospitalizations

Rate per 10,000 children ages 5-14

Lighter = Better Health

	6 - 13
	14 - 24
	25 - 54

Darker = Worse Health

	55 - 112
	Unpopulated areas
	Interpret with caution due to small number of events

Potentially unreliable data (interpret with caution)

Source: New York State Department of Health, Statewide Planning and Research Cooperative System, 2012-2013

Data source

NYC Community Districts

No.	Community District	Borough
101	Financial District	Manhattan
102	Greenwich Village and Soho	Manhattan
103	Lower East Side and Chinatown	Manhattan
104	Clinton and Chelsea	Manhattan
105	Midtown	Manhattan
106	Stuyvesant Town and Turtle Bay	Manhattan
107	Upper West Side	Manhattan
108	Upper East Side	Manhattan
109	Morningside Heights and Hamilton Heights	Manhattan
110	Central Harlem	Manhattan
111	East Harlem	Manhattan
112	Washington Heights and Inwood	Manhattan
201	Mott Haven and Melrose	Bronx
202	Hunts Point and Longwood	Bronx
203	Morrisania and Crotona	Bronx
204	Highbridge and Concourse	Bronx
205	Fordham and University Heights	Bronx
206	Belmont and East Tremont	Bronx
207	Kingsbridge Heights and Bedford	Bronx
208	Riverdale and Fieldston	Bronx
209	Parkchester and Soundview	Bronx
210	Throgs Neck and Co-op City	Bronx
211	Morris Park and Bronxdale	Bronx
212	Williamsbridge and Baychester	Bronx
301	Greenpoint and Williamsburg	Brooklyn
302	Fort Greene and Brooklyn Heights	Brooklyn
303	Bedford Stuyvesant	Brooklyn
304	Bushwick	Brooklyn
305	East New York and Starrett City	Brooklyn
306	Park Slope and Carroll Gardens	Brooklyn
307	Sunset Park	Brooklyn
308	Crown Heights and Prospect Heights	Brooklyn
309	South Crown Heights and Lefferts Gardens	Brooklyn
310	Bay Ridge and Dyker Heights	Brooklyn
311	Bensonhurst	Brooklyn
312	Borough Park	Brooklyn
313	Coney Island	Brooklyn
314	Flatbush and Midwood	Brooklyn
315	Sheepshead Bay	Brooklyn
316	Brownsville	Brooklyn
317	East Flatbush	Brooklyn
318	Flatlands and Canarsie	Brooklyn

No.	Community District	Borough
401	Long Island City and Astoria	Queens
402	Woodside and Sunnyside	Queens
403	Jackson Heights	Queens
404	Elmhurst and Corona	Queens
405	Ridgewood and Maspeth	Queens
406	Rego Park and Forest Hills	Queens
407	Flushing and Whitestone	Queens
408	Hillcrest and Fresh Meadows	Queens
409	Kew Gardens and Woodhaven	Queens
410	South Ozone Park and Howard Beach	Queens
411	Bayside and Little Neck	Queens
412	Jamaica and Hollis	Queens
413	Queens Village	Queens
414	Rockaway and Broad Channel	Queens
501	St. George and Stapleton	Staten Island
502	South Beach and Willowbrook	Staten Island
503	Tottenville and Great Kills	Staten Island
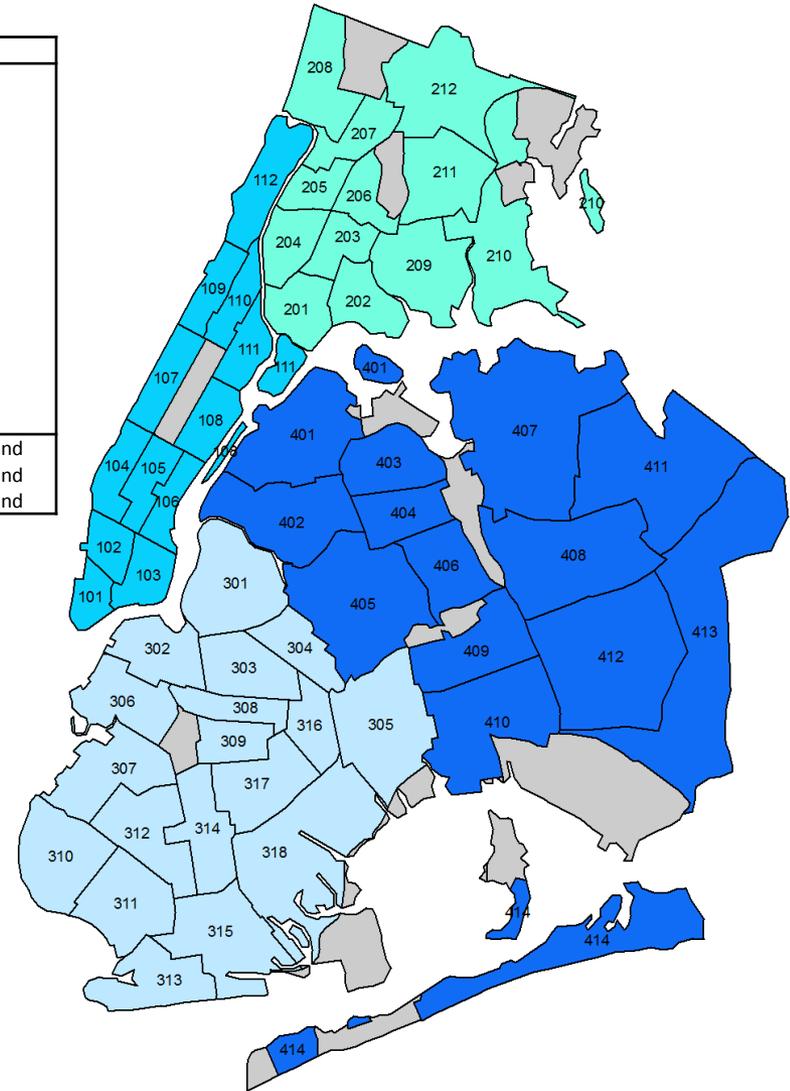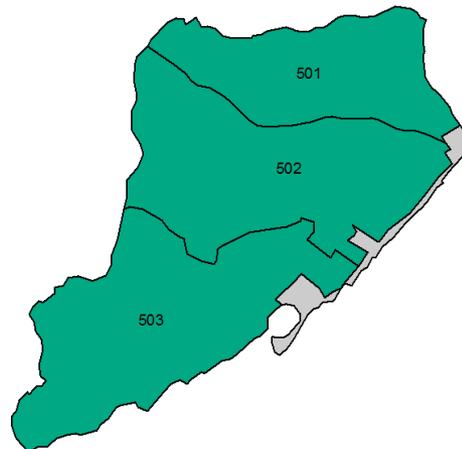
Demographics

- ❖ Children
- ❖ Older adults
- ❖ Non-White Population
- ❖ Foreign Born Population
- ❖ Limited English Proficiency

Children

Percent of children ages 0-17 in the population. Complete data on the breakdown of all five age groups by Community District can be found in the Community Health Profiles.
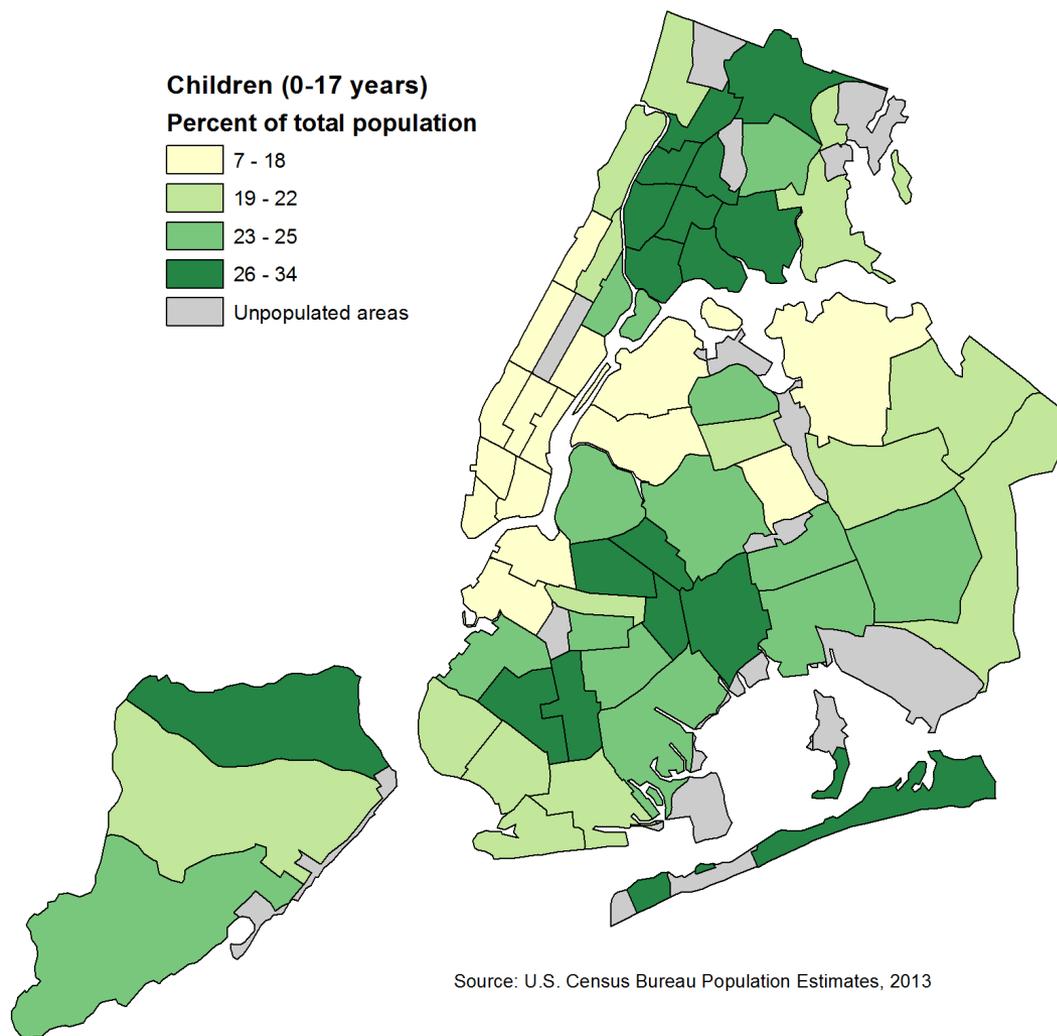
Highest		Percent
1	Borough Park	34
2	Morrisania and Crotona	30
3	Belmont and East Tremont	30
4	Mott Haven and Melrose	29
5	Brownsville	29

Lowest		Percent
59	Midtown	7
58	Stuyvesant Town and Turtle Bay	8
57	Clinton and Chelsea	9
56	Greenwich Village and Soho	9
55	Lower East Side and Chinatown	13

Borough	Percent
Bronx	26
Brooklyn	23
Manhattan	15
Queens	20
Staten Island	22

NYC Overall: 21%

Children (0-17 years)
Percent of total population

- 7 - 18
- 19 - 22
- 23 - 25
- 26 - 34
- Unpopulated areas

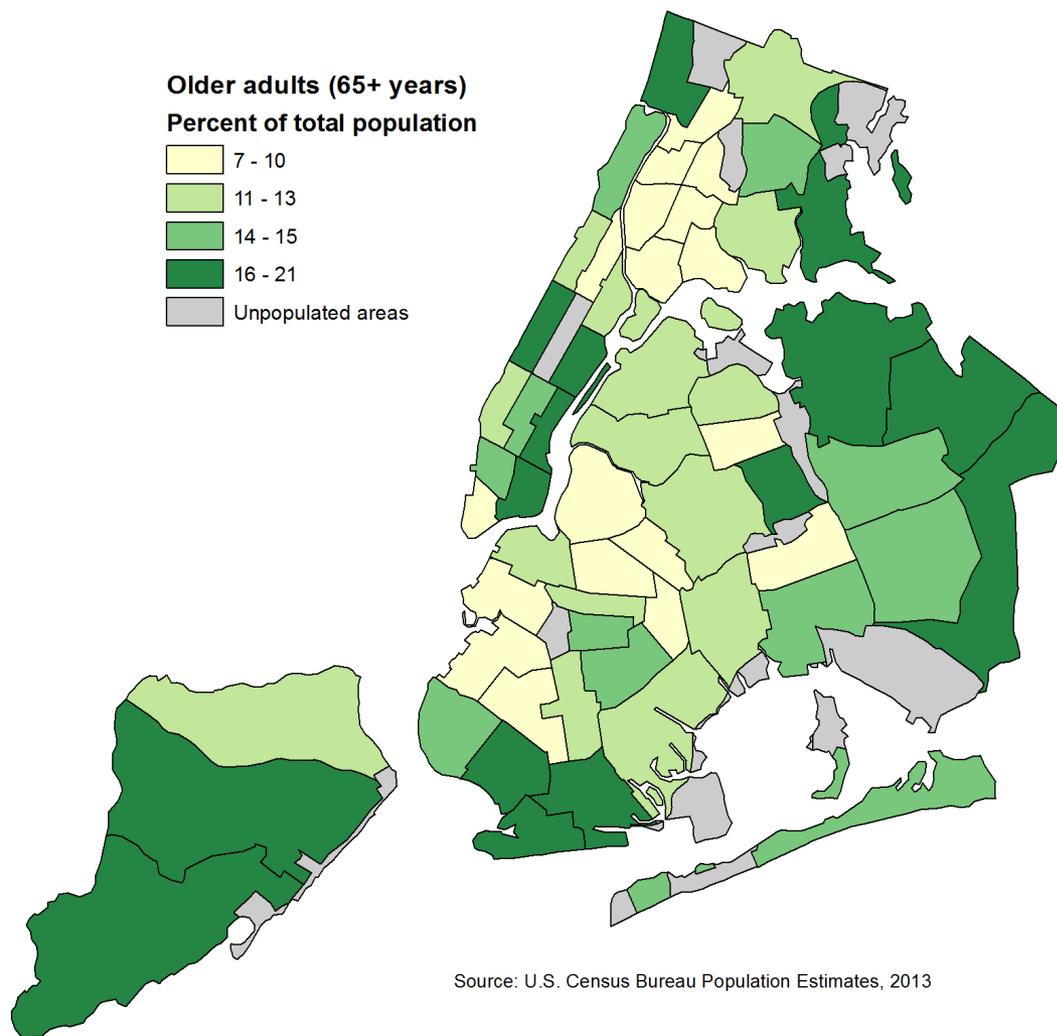Source: U.S. Census Bureau Population Estimates, 2013

Older Adults

Percent of adults ages 65 and older in the population. Complete data on the breakdown of all five age groups by Community District can be found in the Community Health Profiles.

Highest		Percent
1	Coney Island	21
2	Upper East Side	18
3	Rego Park and Forest Hills	18
4	Riverdale and Fieldston	18
5	Throgs Neck and Co-op City	18

Lowest		Percent
59	Financial District	7
58	Fordham and University Heights	7
57	Bushwick	8
56	Morrisania and Crotona	8
55	Belmont and East Tremont	9

Borough	Percent
Bronx	11
Brooklyn	12
Manhattan	13
Queens	13
Staten Island	14

NYC Overall: 13%

Older adults (65+ years)
Percent of total population

- 7 - 10
- 11 - 13
- 14 - 15
- 16 - 21
- Unpopulated areas

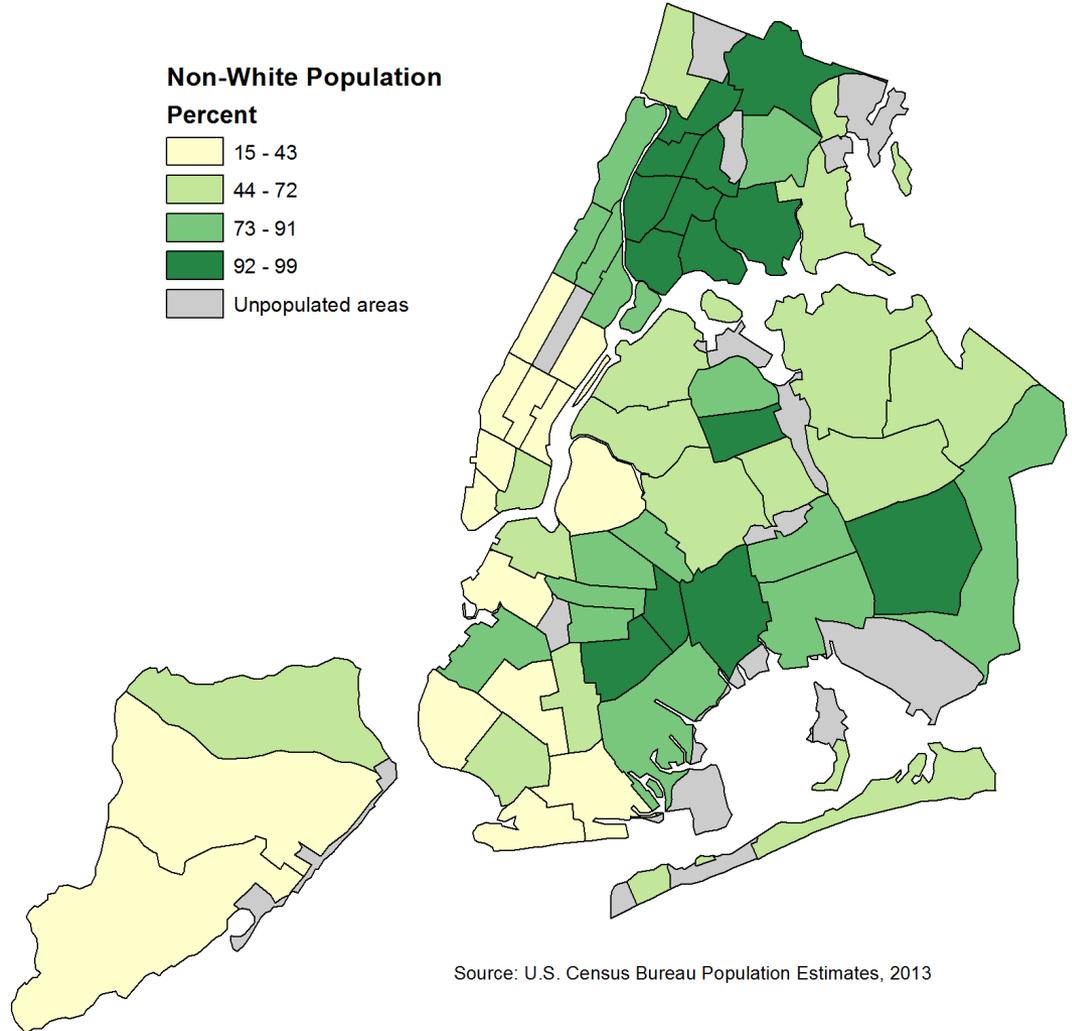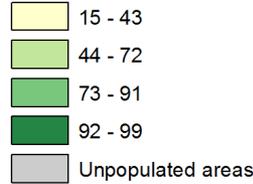Source: U.S. Census Bureau Population Estimates, 2013

Non-White Population

Percent of non-White individuals. Non-White is defined as Black, Asian, Hispanic or Other. Complete data on the breakdown of all five racial groups by Community District can be found in the Community Health Profiles.

Highest		Percent
1	Brownsville	99
2	Morrisania and Crotona	99
3	Hunts Point and Longwood	99
4	Fordham and University Heights	99
5	East Flatbush	99

Lowest		Percent
59	Tottenville and Great Kills	15
58	Upper East Side	21
57	Greenwich Village and Soho	25
56	Stuyvesant Town and Turtle Bay	28
55	Sheepshead Bay	29

Borough	Percent
Bronx	89
Brooklyn	64
Manhattan	52
Queens	73
Staten Island	37

NYC Overall: 67%

Non-White Population Percent

- 15 - 43
- 44 - 72
- 73 - 91
- 92 - 99
- Unpopulated areas

Source: U.S. Census Bureau Population Estimates, 2013

Foreign Born Population

Percent of individuals born outside the U.S. or U.S. territories (including Puerto Rico, U.S. Island areas or born abroad of American parents)

Highest		Percent
1	Elmhurst and Corona	66
2	Jackson Heights	63
3	Flushing and Whitestone	57
4	Woodside and Sunnyside	57
5	Coney Island	55

Lowest		Percent
59	Tottenville and Great Kills	15
58	Park Slope and Carroll Gardens	18
57	Bedford Stuyvesant	19
56	Fort Greene and Brooklyn Heights	20
55	Throgs Neck and Co-op City	29

Borough	Percent
Bronx	34
Brooklyn	38
Manhattan	29
Queens	48
Staten Island	21
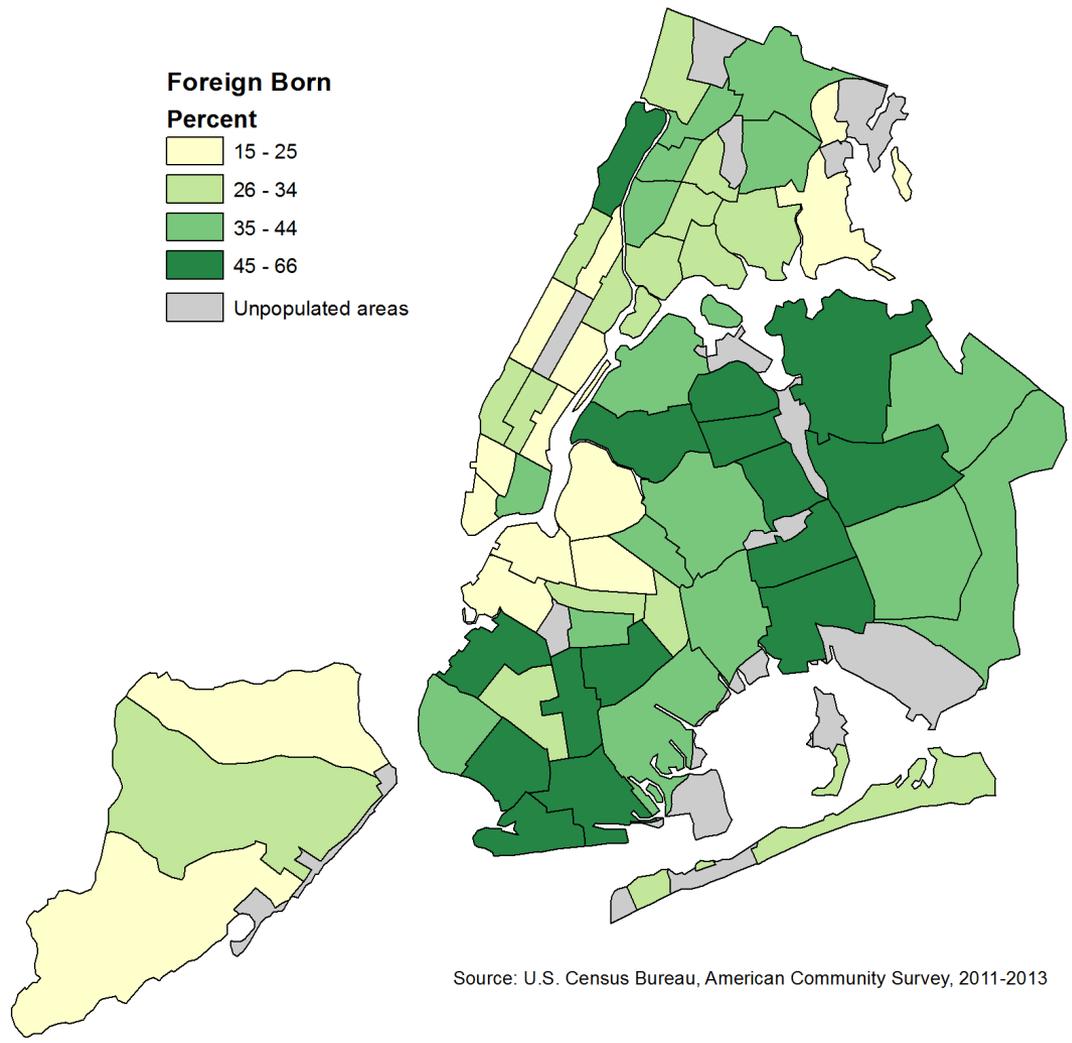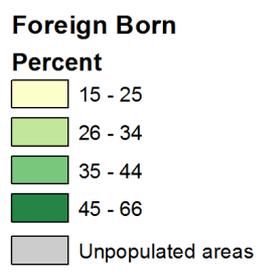
NYC Overall: 37%

Foreign Born Percent

- 15 - 25
- 26 - 34
- 35 - 44
- 45 - 66
- Unpopulated areas

Source: U.S. Census Bureau, American Community Survey, 2011-2013

Limited English Proficiency

Percent of individuals five years and older who report that they speak English "less than very well"

Highest		Percent
1	Elmhurst and Corona	53
2	Jackson Heights	48
3	Flushing and Whitestone	47
4	Sunset Park	47
5	Bensonhurst	47

Lowest		Percent
59	Stuyvesant Town and Turtle Bay	6
58	Upper East Side	6
56	Financial District	6
56	Greenwich Village and Soho	6
55	Tottenville and Great Kills	7

Borough	Percent
Bronx	26
Brooklyn	24
Manhattan	16
Queens	29
Staten Island	11

NYC Overall: 23%

Limited English Proficiency Percent
- 6 - 10
- 11 - 22
- 23 - 31
- 32 - 53
- Unpopulated areas
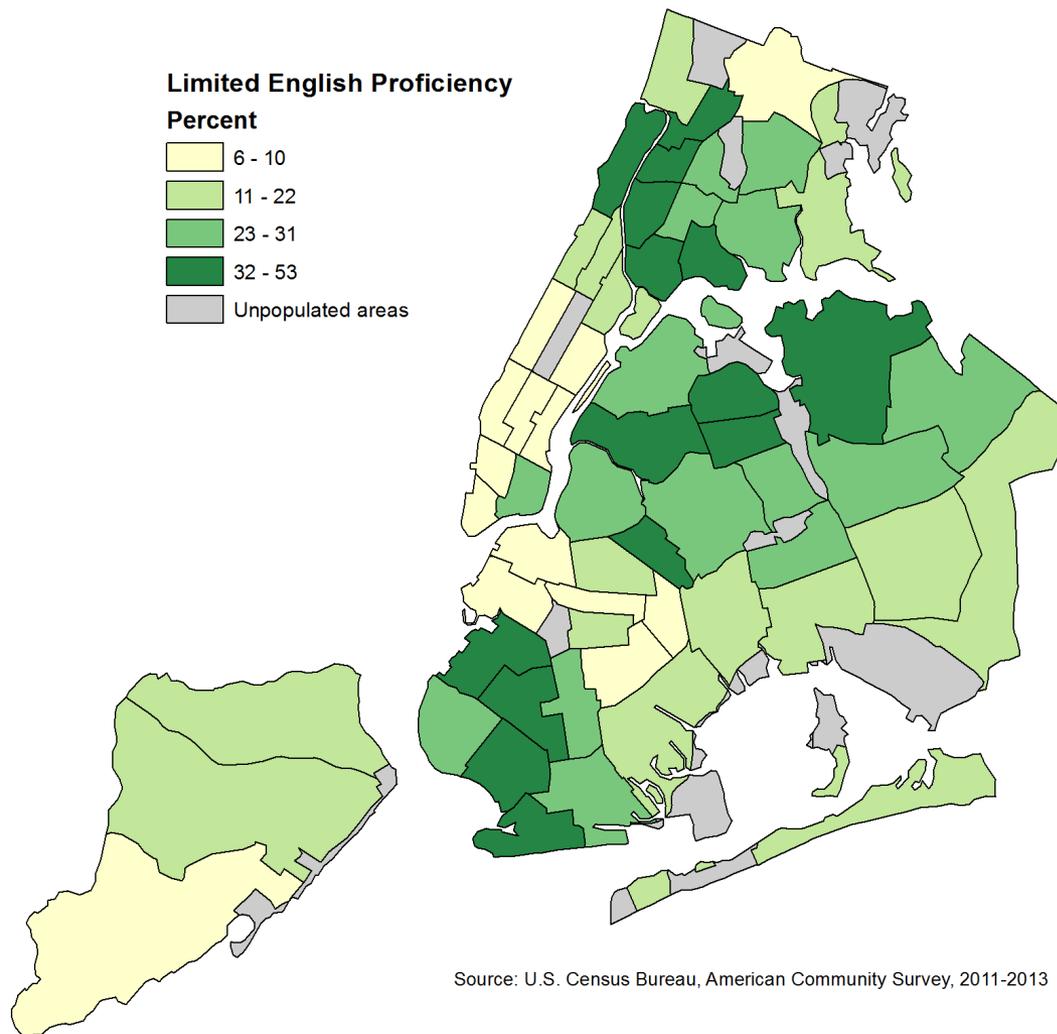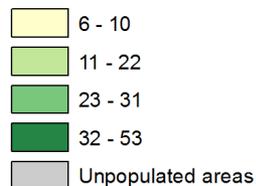
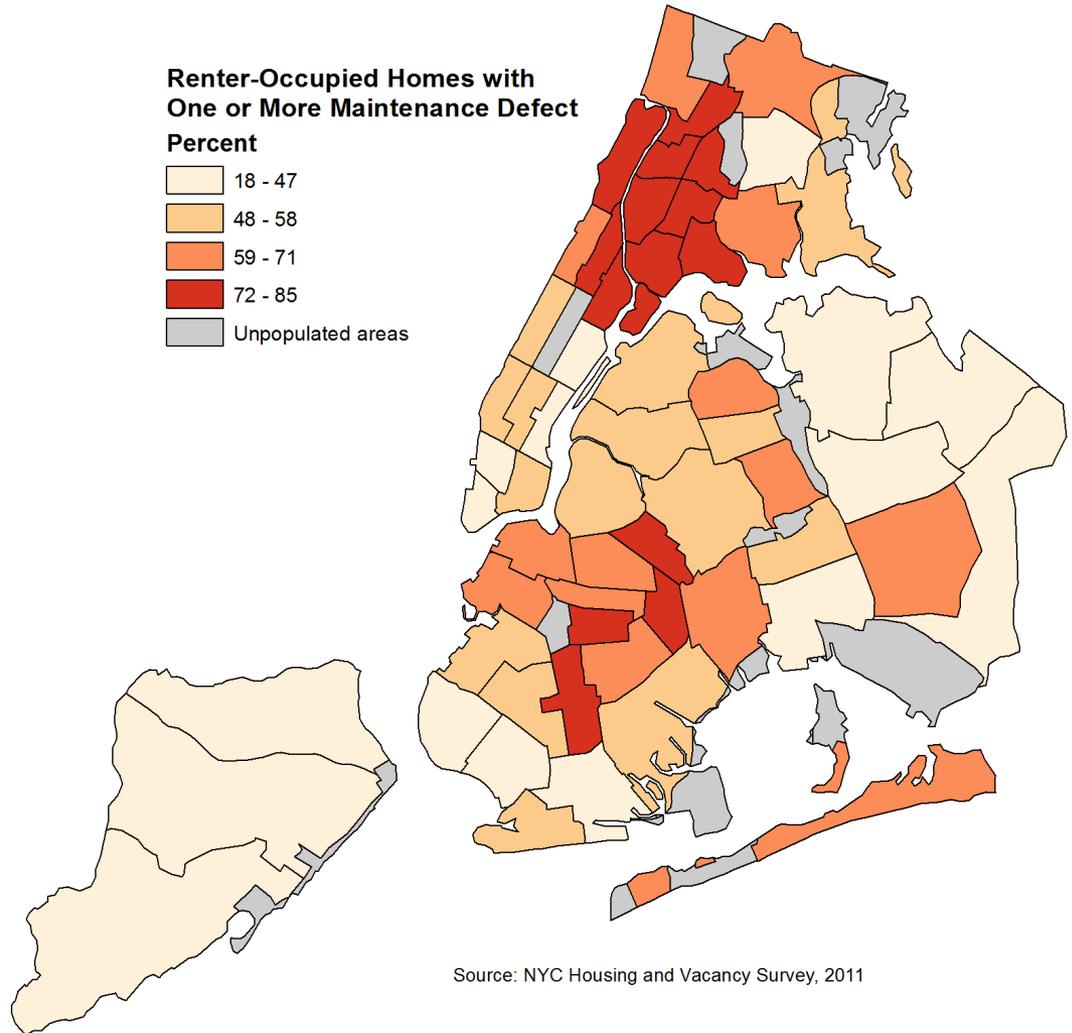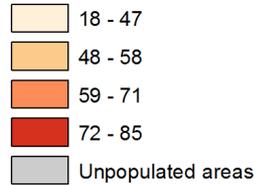Source: U.S. Census Bureau, American Community Survey, 2011-2013

Neighborhood Conditions

- ❖Renter-Occupied Homes with Maintenance Defects
- ❖Air Quality (Fine Particulate Matter)
- ❖Tobacco Retailer Density
- ❖Supermarket Square Footage

Renter-Occupied Homes with Maintenance Defects

Percent of renter-occupied homes with one or more maintenance defect (water leaks, cracks and holes, inadequate heating, presence of mice or rats, toilet breakdowns or peeling paint)

Highest		Percent
1	South Crown Heights and Lefferts Gardens	85
2	Mott Haven and Melrose	79
2	Hunts Point and Longwood	79
4	Fordham and University Heights	79
5	Highbridge and Concourse	78

Lowest		Percent
59	Tottenville and Great Kills	18
58	South Beach and Willowbrook	29
57	St. George and Stapleton	36
56	Bayside and Little Neck	38
55	Flushing and Whitestone	38

Borough	Percent
Bronx	69
Brooklyn	62
Manhattan	57
Queens	51
Staten Island	29

Renter-Occupied Homes with One or More Maintenance Defect Percent

- 18 - 47
- 48 - 58
- 59 - 71
- 72 - 85
- Unpopulated areas

Source: NYC Housing and Vacancy Survey, 2011

NYC Overall: 59%

Air Quality (Fine Particulate Matter)

Annual average of micrograms of fine particulate matter (PM$_{2.5}$) per cubic meter (mcg/m^3)

Highest		mcg/m^3
1	Midtown	14.3
2	Stuyvesant Town and Turtle Bay	12.3
3	Clinton and Chelsea	11.4
4	Financial District	11.1
4	Upper East Side	11.1

Lowest		mcg/m^3
59	Rockaway and Broad Channel	7.6
58	Tottenville and Great Kills	7.8
57	Queens Village	7.9
55	South Ozone Park and Howard Beach	8.0
55	Coney Island	8.0

Borough	mcg/m^3
Bronx	9.1
Brooklyn	8.7
Manhattan	10.7
Queens	8.4
Staten Island	8.0

NYC Overall: 8.6

Air Quality (Fine Particulate Matter)
Micrograms per cubic meter

- 7.6 - 8.4
- 8.5 - 8.8
- 8.9 - 9.8
- 9.9 - 14.3
- Unpopulated areas
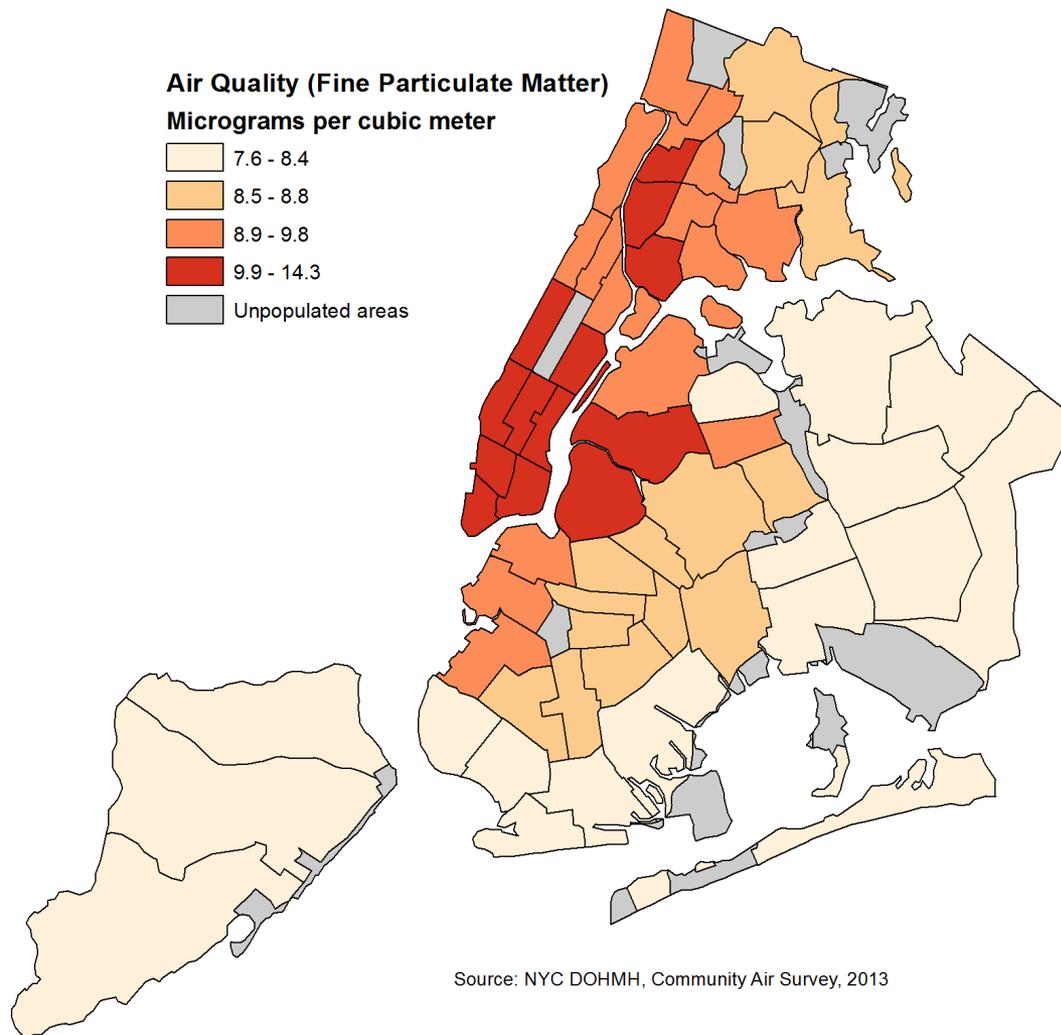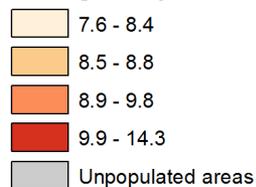
Source: NYC DOHMH, Community Air Survey, 2013

Tobacco Retailer Density

Rate of tobacco retailers per 10,000 population

Highest		Rate
1	Midtown	62
2	Financial District	25
3	Hunts Point and Longwood	17
4	Greenwich Village and Soho	17
5	Clinton and Chelsea	17

Lowest		Rate
59	Bayside and Little Neck	6
58	Tottenville and Great Kills	6
57	Upper West Side	6
56	Borough Park	6
55	Hillcrest and Fresh Meadows	6

Borough	Rate
Bronx	11
Brooklyn	11
Manhattan	13
Queens	9
Staten Island	9

NYC Overall: 11

Tobacco Retailers
Rate per 10,000 population
- 6 - 8
- 9 - 10
- 11 - 13
- 14 - 62
- Unpopulated areas
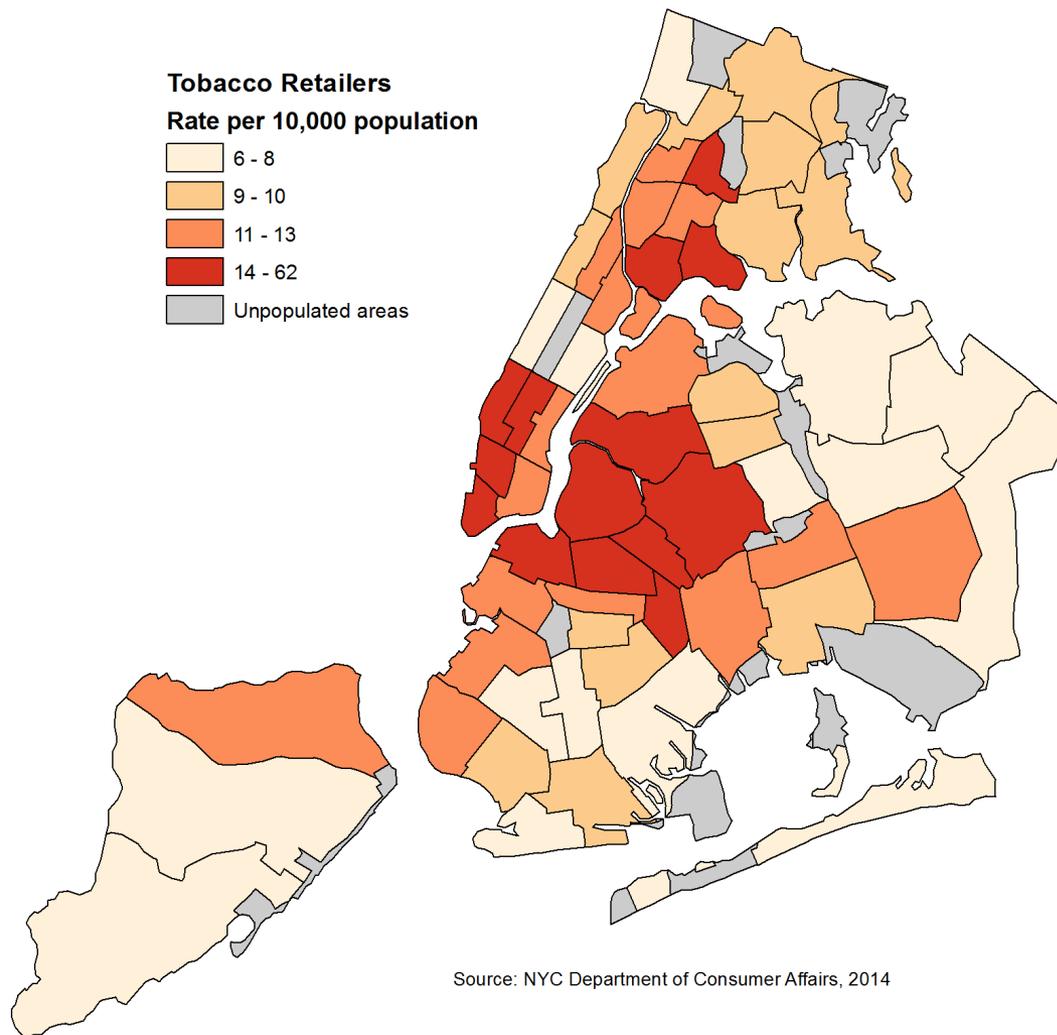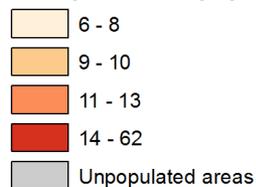
Source: NYC Department of Consumer Affairs, 2014

Supermarket Square Footage

Supermarket square footage per 100 residents

Highest		Rate
1	South Beach and Willowbrook	450
2	Flushing and Whitestone	342
3	East Harlem	336
4	Rego Park and Forest Hills	333
5	Morrisania and Crotona	327

Lowest		Rate
59	Belmont and East Tremont	69
58	Elmhurst and Corona	83
57	Bensonhurst	83
56	Bay Ridge and Dyker Heights	85
55	Queens Village	85

Borough	Rate
Bronx	155
Brooklyn	156
Manhattan	207
Queens	180
Staten Island	234

NYC Overall: 177

Supermarket Square Footage
Square feet per 100 population

- 69 - 117
- 118 - 164
- 165 - 229
- 230 - 450
- Unpopulated areas
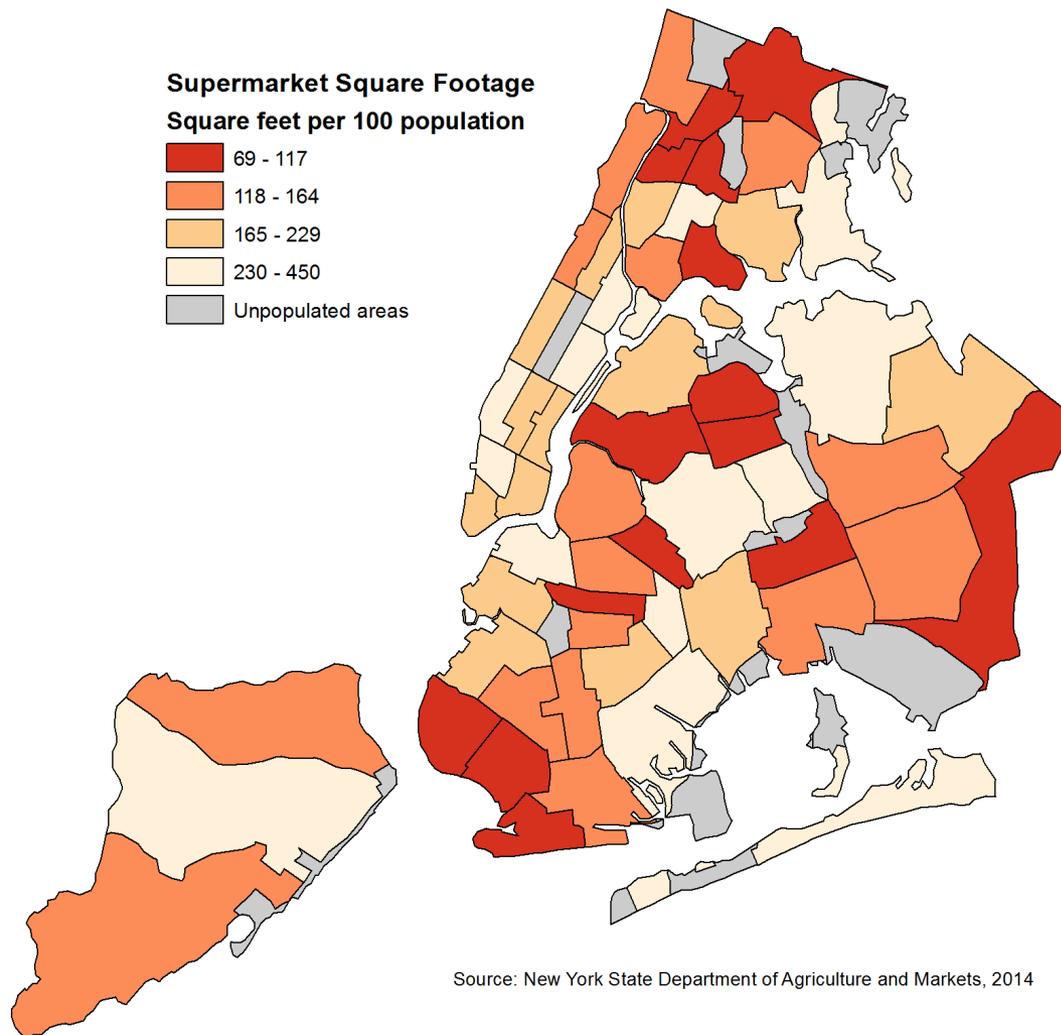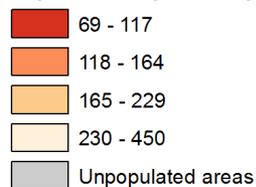
Source: New York State Department of Agriculture and Markets, 2014

Social and Economic Conditions

- ❖ Adult Educational Attainment
- ❖ Poverty
- ❖ Unemployment
- ❖ Rent Burden
- ❖ Preterm Births
- ❖ Teen Births
- ❖ Elementary School Absenteeism
- ❖ Jail Incarceration
- ❖ Non-Fatal Assault Hospitalizations

Adult Educational Attainment

Percent of adults (ages 25 and older) whose highest level of education is less than a high school diploma or GED.

Highest		Percent
1	Mott Haven and Melrose	45
1	Hunts Point and Longwood	45
3	Sunset Park	42
4	Bushwick	42
5	Morrisania and Crotona	38
5	Belmont and East Tremont	38

Lowest		Percent
59	Stuyvesant Town and Turtle Bay	3
58	Upper East Side	3
56	Financial District	4
56	Greenwich Village and Soho	4
54	Clinton and Chelsea	5
54	Midtown	5

Borough	Percent
Bronx	30
Brooklyn	21
Manhattan	14
Queens	20
Staten Island	12

NYC Overall: 20%

Did Not Complete High School
Percent of adults (ages 25+)
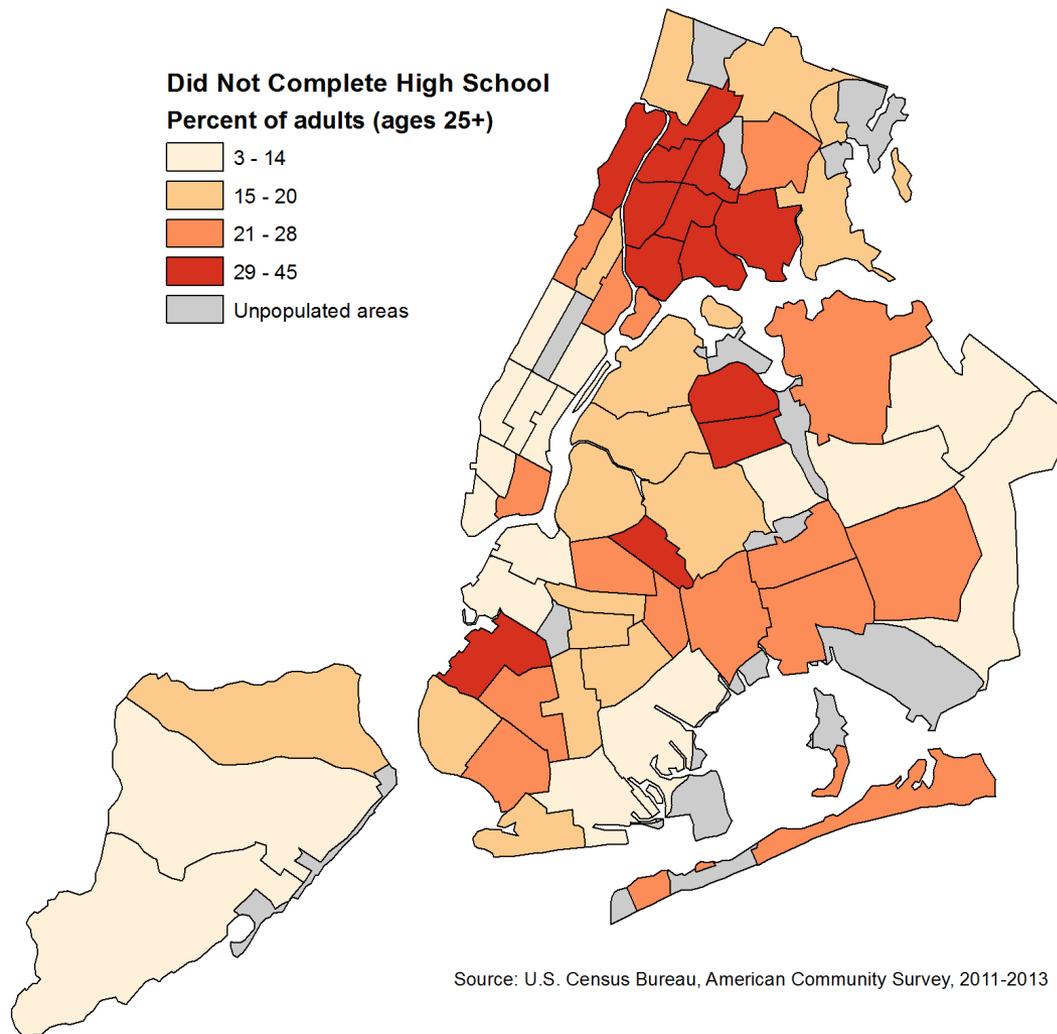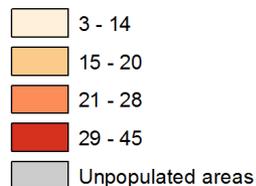
- 3 - 14
- 15 - 20
- 21 - 28
- 29 - 45
- Unpopulated areas

Source: U.S. Census Bureau, American Community Survey, 2011-2013

Poverty

Percent of individuals living below the federal poverty level. For more information on the poverty level, please visit the U.S. Census Bureau's website.
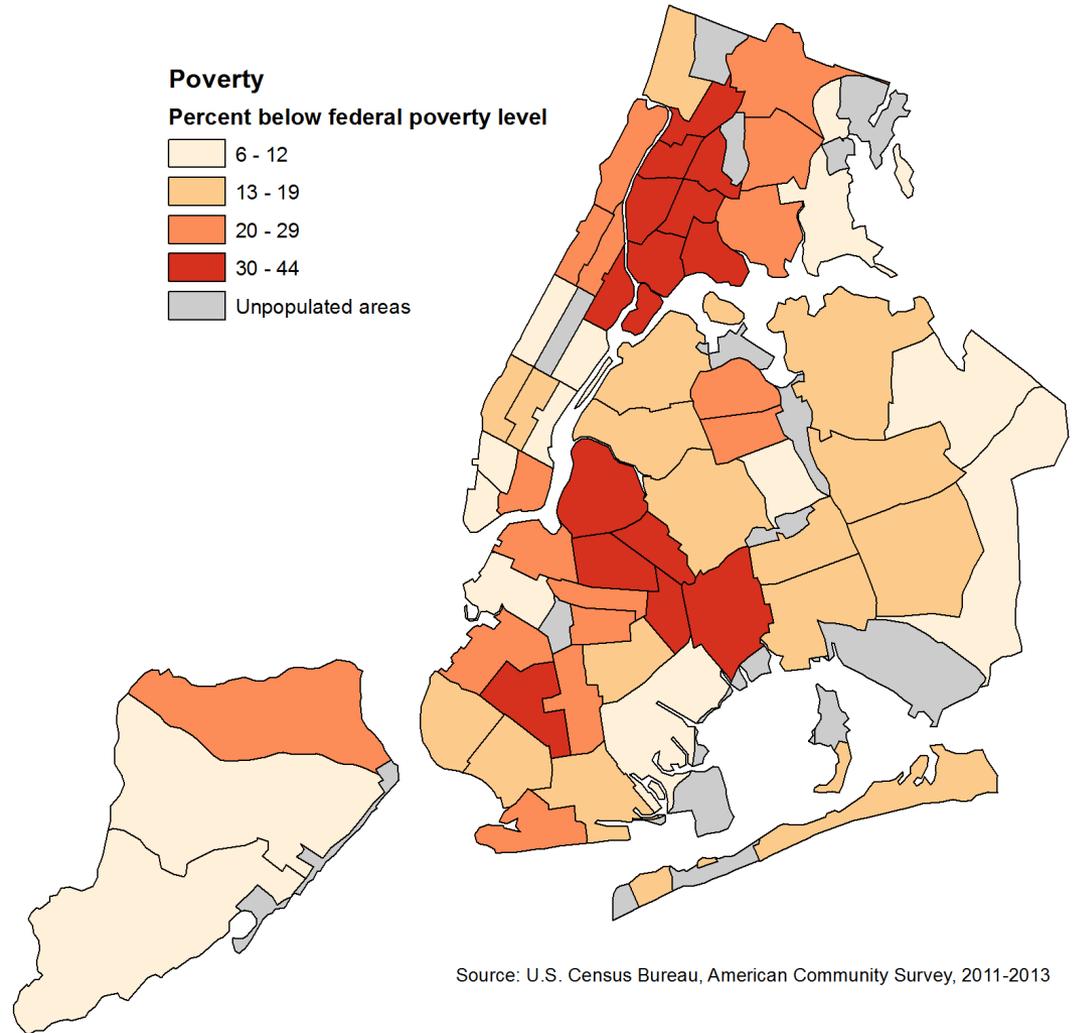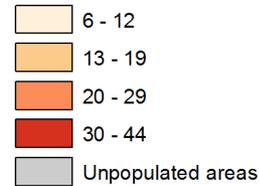
Highest		Percent
1	Morrisania and Crotona	44
1	Belmont and East Tremont	44
3	Mott Haven and Melrose	43
3	Hunts Point and Longwood	43
5	Fordham and University Heights	42

Lowest		Percent
59	Tottenville and Great Kills	6
58	Upper East Side	7
56	Financial District	8
56	Greenwich Village and Soho	8
55	Bayside and Little Neck	9

Borough	Percent
Bronx	31
Brooklyn	24
Manhattan	18
Queens	16
Staten Island	12

NYC Overall: 21%

Poverty

Percent below federal poverty level

- 6 - 12
- 13 - 19
- 20 - 29
- 30 - 44
- Unpopulated areas

Source: U.S. Census Bureau, American Community Survey, 2011-2013

Unemployment

Percent of the civilian (non-military) labor force ages 16 and older who are unemployed

Highest		Percent
1	Morrisania and Crotona	20
1	Belmont and East Tremont	20
3	Fordham and University Heights	18
4	Highbridge and Concourse	18
5	Bedford Stuyvesant	17

Lowest		Percent
58	Financial District	5
58	Greenwich Village and Soho	5
57	Upper East Side	5
56	Stuyvesant Town and Turtle Bay	5
55	Rego Park and Forest Hills	6

Borough	Percent
Bronx	16
Brooklyn	11
Manhattan	8
Queens	10
Staten Island	8
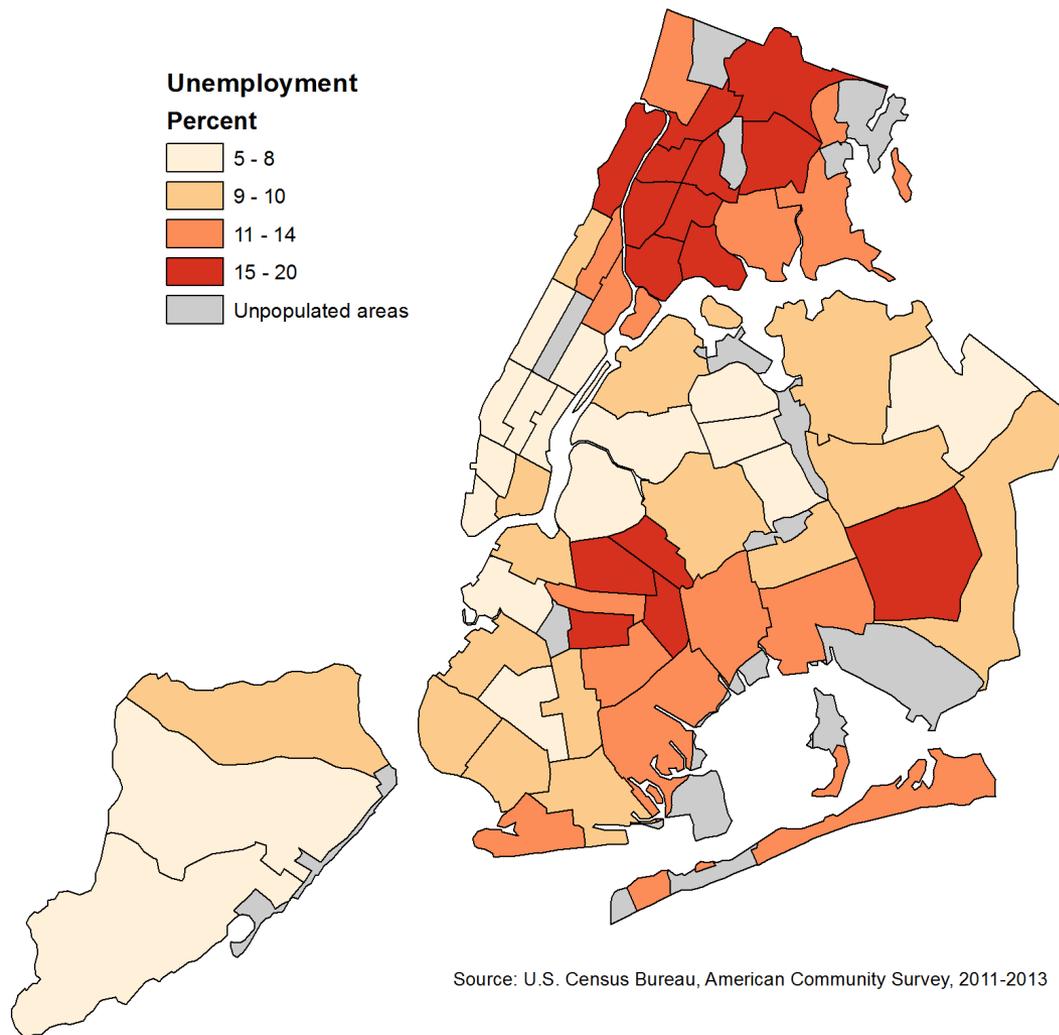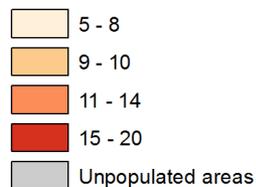
NYC Overall: 11%

Unemployment Percent
- 5 - 8
- 9 - 10
- 11 - 14
- 15 - 20
- Unpopulated areas

Source: U.S. Census Bureau, American Community Survey, 2011-2013

Rent Burden

Percent of renter households whose gross rent (rent plus electricity and heating fuel costs) is greater than 30 percent of their monthly pre-tax income

Highest		Percent
1	Fordham and University Heights	64
2	Kingsbridge Heights and Bedford	63
3	Borough Park	63
4	Highbridge and Concourse	63
5	Morrisania and Crotona	61
5	Belmont and East Tremont	61

Lowest		Percent
58	Financial District	37
58	Greenwich Village and Soho	37
57	Park Slope and Carroll Gardens	37
56	Tottenville and Great Kills	39
55	Stuyvesant Town and Turtle Bay	40

Borough	Percent
Bronx	58
Brooklyn	52
Manhattan	45
Queens	53
Staten Island	49

NYC Overall: 51%

Rent Burden (>30% of income)
Percent of renter households
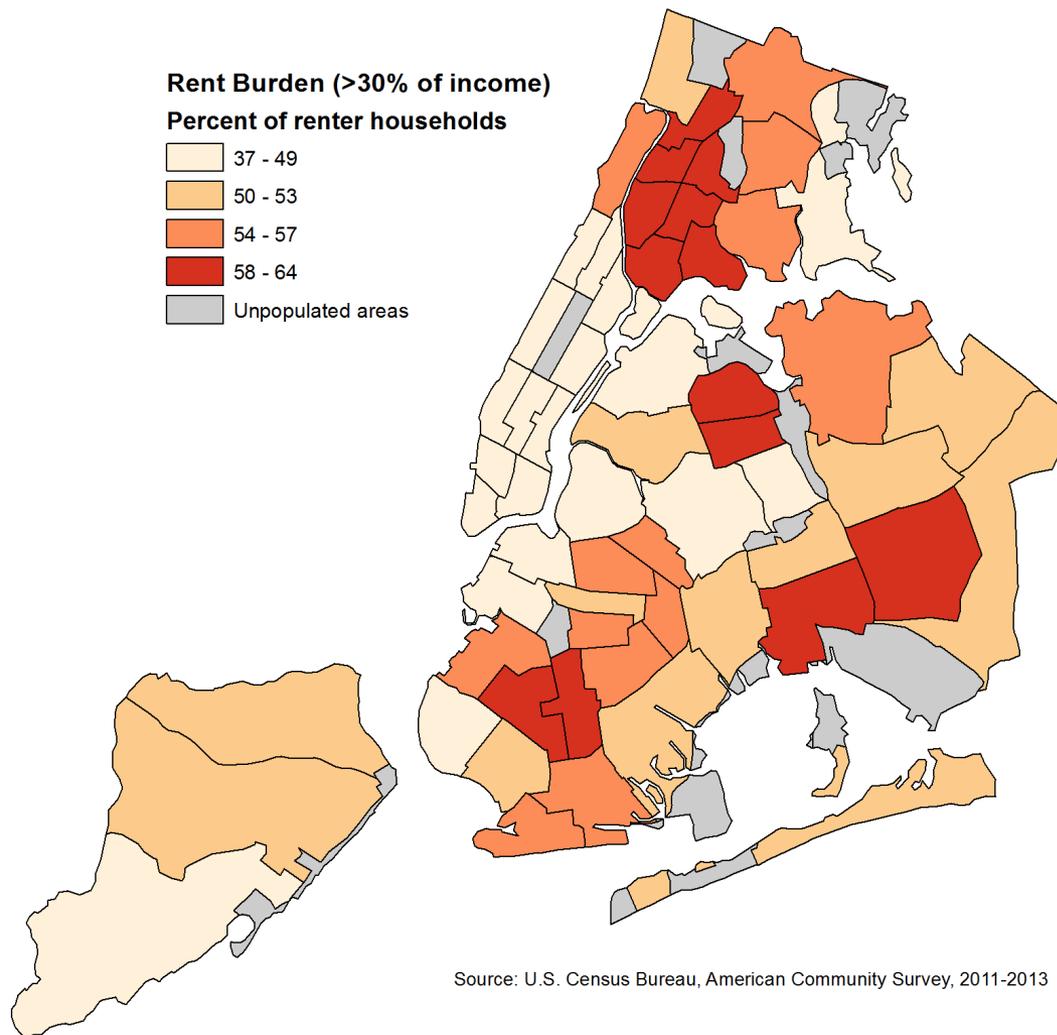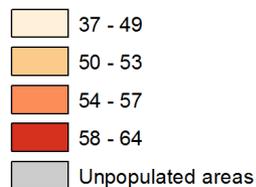
- 37 - 49
- 50 - 53
- 54 - 57
- 58 - 64
- Unpopulated areas

Source: U.S. Census Bureau, American Community Survey, 2011-2013

Preterm Births

Percent of preterm births (less than 37 weeks gestation) among all live births

Highest		Percent
1	East Flatbush	13.8
2	Brownsville	13.3
3	Belmont and East Tremont	12.3
4	Rockaway and Broad Channel	11.6
4	East New York and Starrett City	11.6

Lowest		Percent
59	Midtown	5.7
57	Greenpoint and Williamsburg	6.0
57	Flushing and Whitestone	6.0
56	Borough Park	6.4
55	Stuyvesant Town and Turtle Bay	6.9

Borough	Percent
Bronx	9.9
Brooklyn	8.8
Manhattan	8.1
Queens	8.4
Staten Island	9.8

NYC Overall: 9.0%

Preterm Births
Percent of all live births
- 5.7 - 7.4
- 7.5 - 8.9
- 9.0 - 10.3
- 10.4 - 13.8
- Unpopulated areas
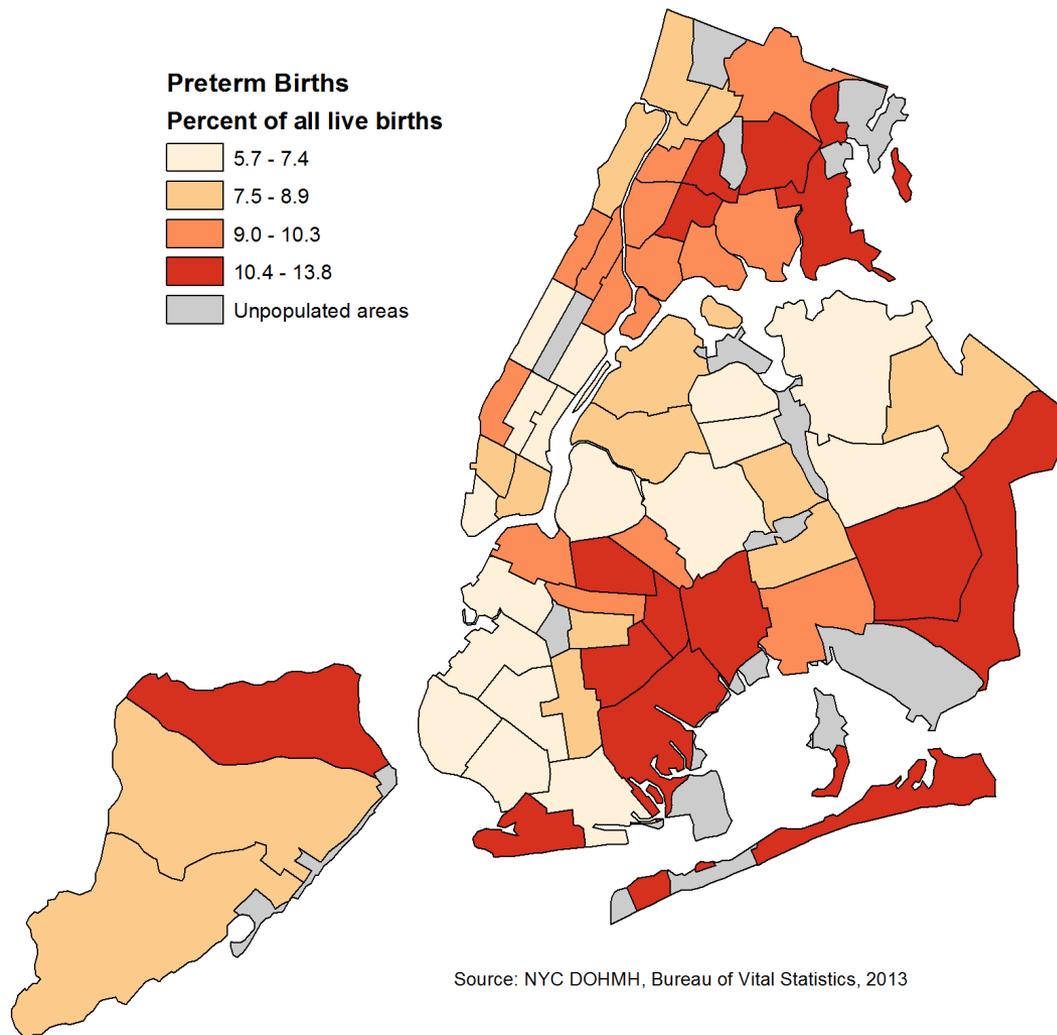
Source: NYC DOHMH, Bureau of Vital Statistics, 2013

Teen Births

Rate of births in which the mother was under 20 years old per 1,000 women ages 15 to 19

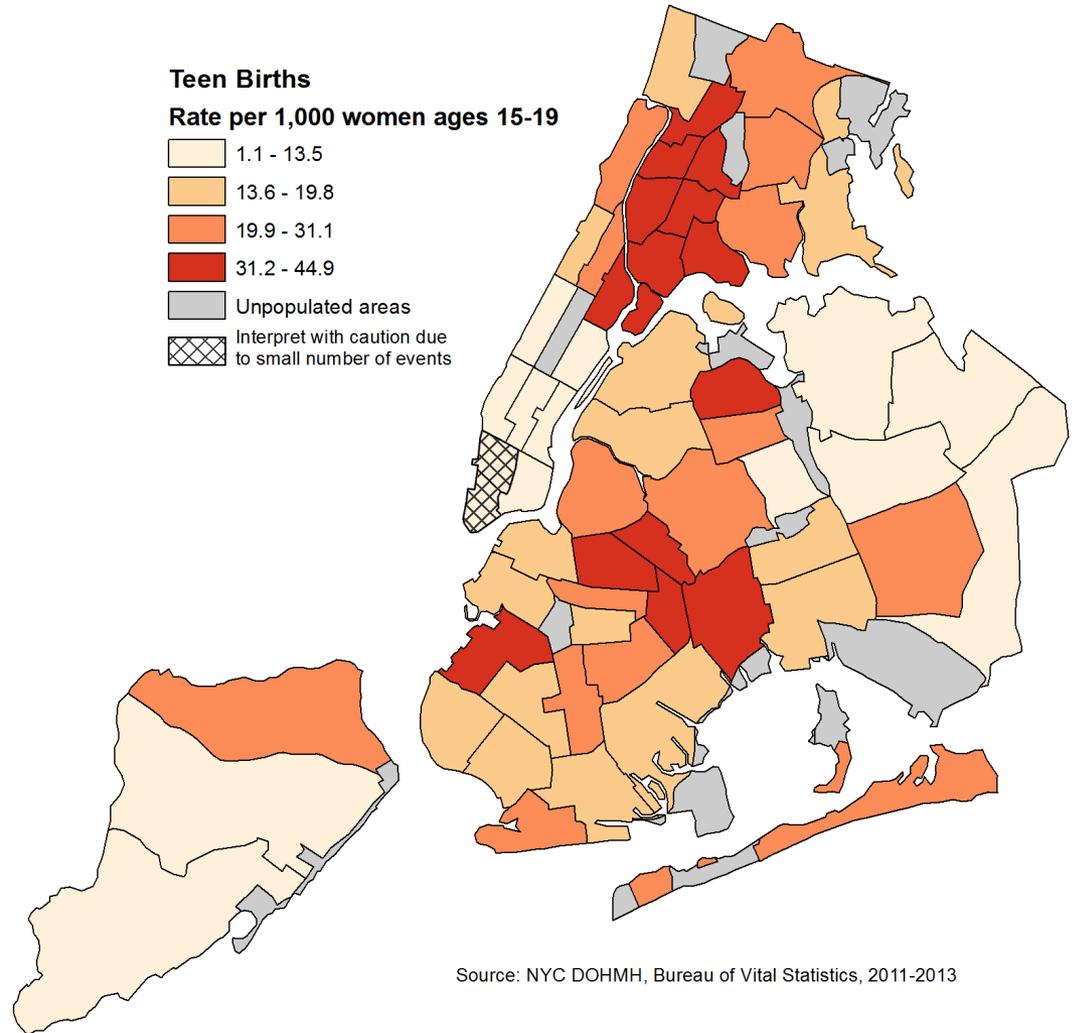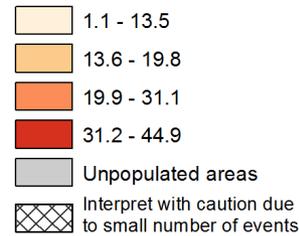| Highest		Rate
1	Hunts Point and Longwood	44.9
2	Highbridge and Concourse	43.6
3	Morrisania and Crotona	43.1
4	Fordham and University Heights	43.0
4	Mott Haven and Melrose	43.0

Lowest		Rate
59	Financial District	1.1*
58	Greenwich Village and Soho	1.3*
57	Stuyvesant Town and Turtle Bay	2.1
56	Bayside and Little Neck	3.5
55	Upper East Side	4.0

*Interpret with caution due to small number of events

Borough	Rate
Bronx	34.4
Brooklyn	24.0
Manhattan	16.0
Queens	18.7
Staten Island	14.3

NYC Overall: 23.6

Teen Births

Rate per 1,000 women ages 15-19

- 1.1 - 13.5
- 13.6 - 19.8
- 19.9 - 31.1
- 31.2 - 44.9
- Unpopulated areas
- Interpret with caution due to small number of events

Source: NYC DOHMH, Bureau of Vital Statistics, 2011-2013

Elementary School Absenteeism

The percent of public school students, grades K to 5, who were chronically absent during the 2013-14 school year. Chronically absent is defined as missing 20 or more school days per year.

Highest		Percent
1	Brownsville	40
2	Belmont and East Tremont	37
3	Hunts Point and Longwood	36
4	Morrisania and Crotona	32
5	Highbridge and Concourse	31

Lowest		Percent
59	Financial District	4
58	Bayside and Little Neck	5
57	Greenwich Village and Soho	6
56	Stuyvesant Town and Turtle Bay	7
55	Upper East Side	7

Borough	Percent
Bronx	29
Brooklyn	19
Manhattan	18
Queens	14
Staten Island	19

NYC Overall: 20%

Elementary School Absenteeism (Missing 20+ Days)
Percent of elementary students

- 4 - 10
- 11 - 16
- 17 - 27
- 28 - 40
- Unpopulated areas
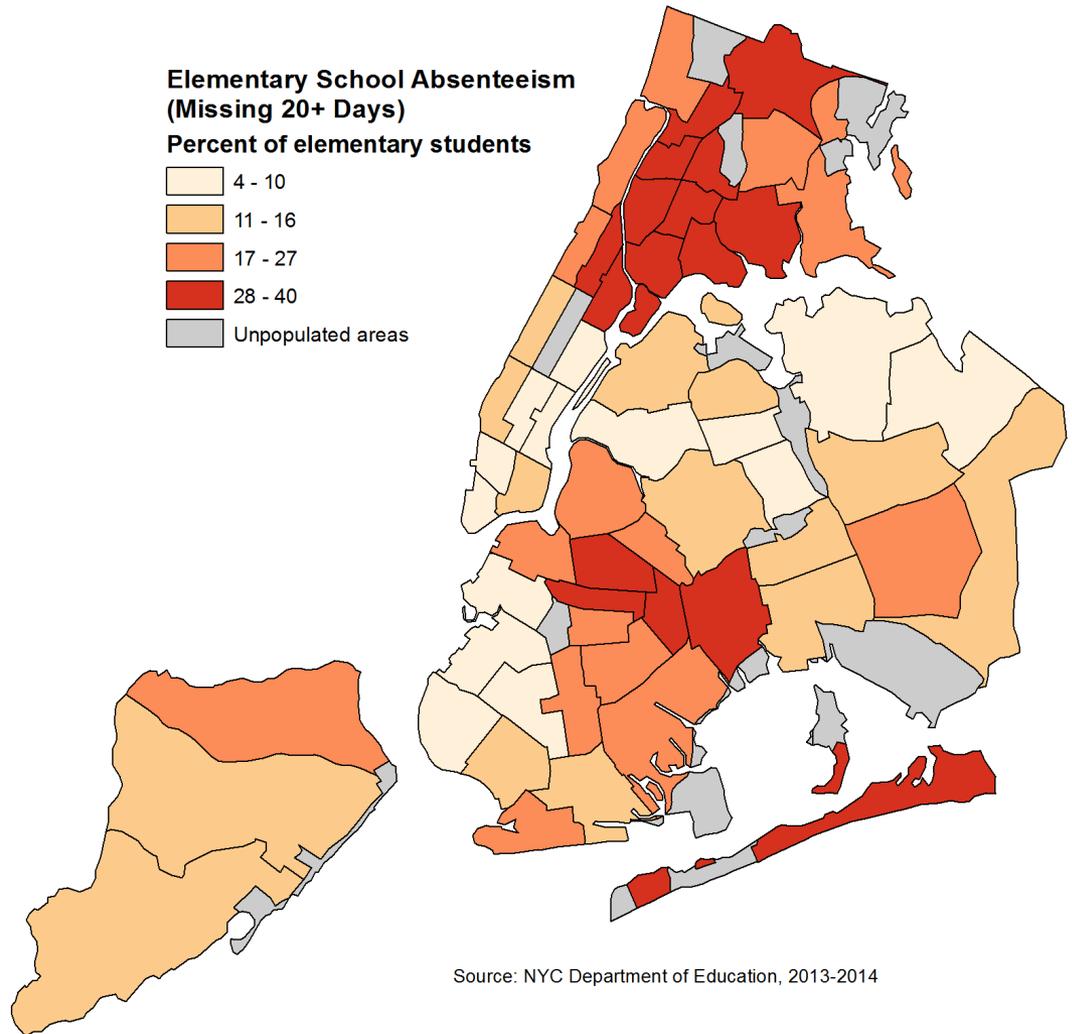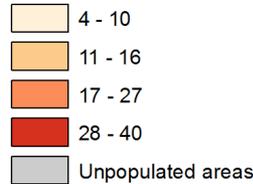
Source: NYC Department of Education, 2013-2014

Jail Incarceration

Rate of adults who were incarcerated in local jails (not including prisons), per 100,000 adults ages 16 and older. Rate is derived from bi-weekly in-custody files from July 1 to Oct 9, 2014.

Highest		Percent
1	Morrisania and Crotona	371
2	Brownsville	348
3	Central Harlem	336
4	Mott Haven and Melrose	305
5	East Harlem	302

Lowest		Percent
59	Queens Village	5*
58	Bayside and Little Neck	12
57	Rego Park and Forest Hills	12
56	Financial District	15*
55	Upper East Side	15

*Interpret with caution due to small number of events

Borough	Percent
Bronx	156
Brooklyn	96
Manhattan	103
Queens	52
Staten Island	61

NYC Overall: 93

Jail Incarceration
Rate per 100,000 adults (ages 16+)

- 5 - 32
- 33 - 70
- 71 - 142
- 143 - 371
- Unpopulated areas
- Interpret with caution due to small number of events
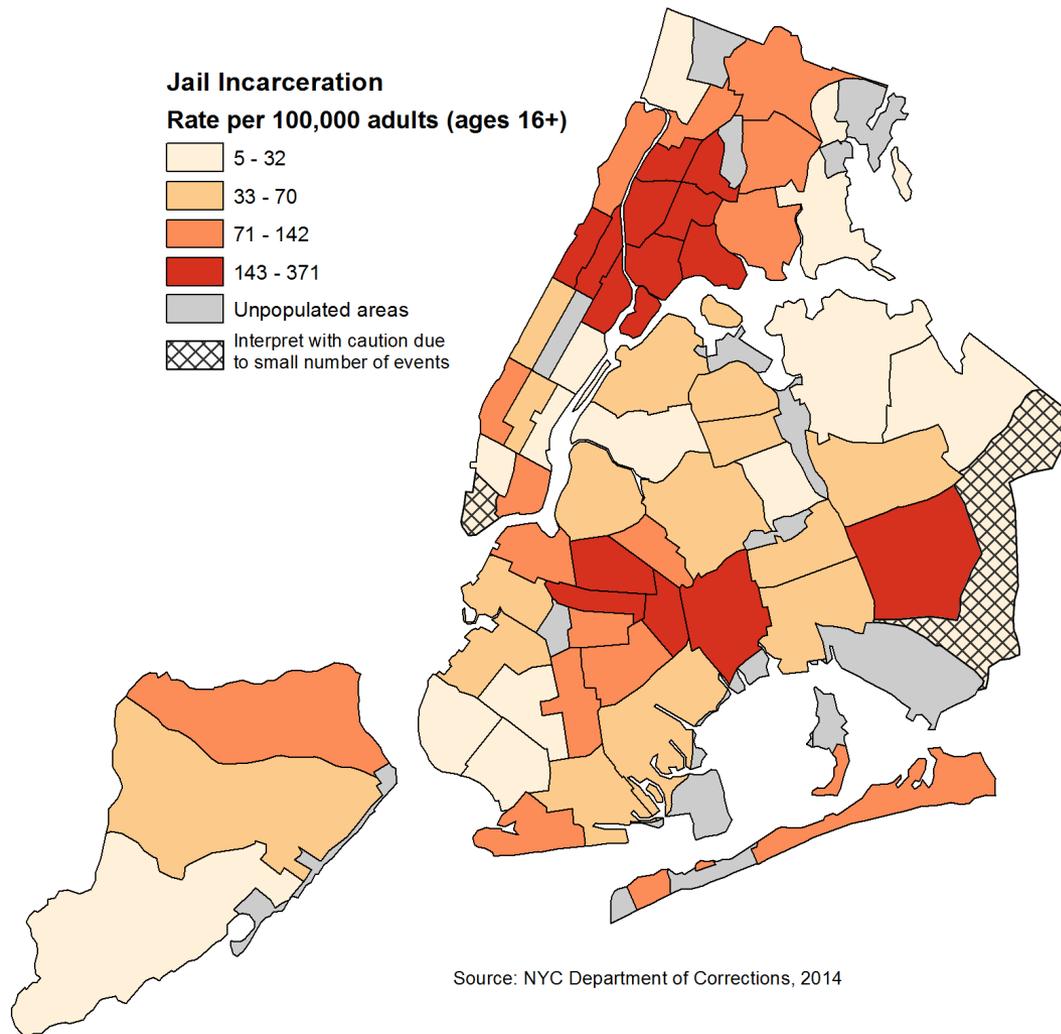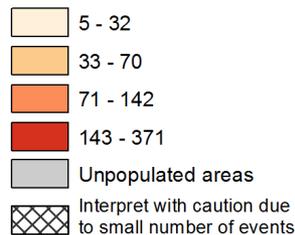
Source: NYC Department of Corrections, 2014

Note: DOC's total average daily population over this time period was approximately 10,800, but only about 60% of inmates provided the agency with addresses in NYC that could be geocoded to Community District. As a result, this rate of incarceration is underestimated.

Non-Fatal Assault Hospitalizations

Rate of non-fatal assault hospitalizations per 100,000 population

Highest		Rate
1	Brownsville	180
2	Mott Haven and Melrose	180
3	Morrisania and Crotona	166
4	East Harlem	143
5	Belmont and East Tremont	142

Lowest		Rate
59	Rego Park and Forest Hills	11
58	Greenwich Village and Soho	12
57	Bayside and Little Neck	12
56	Flushing and Whitestone	17
55	Upper East Side	17

Borough	Rate
Bronx	115
Brooklyn	66
Manhattan	51
Queens	41
Staten Island	57

NYC Overall: 64

Non-Fatal Assault Hospitalizations
Rate per 100,000 population
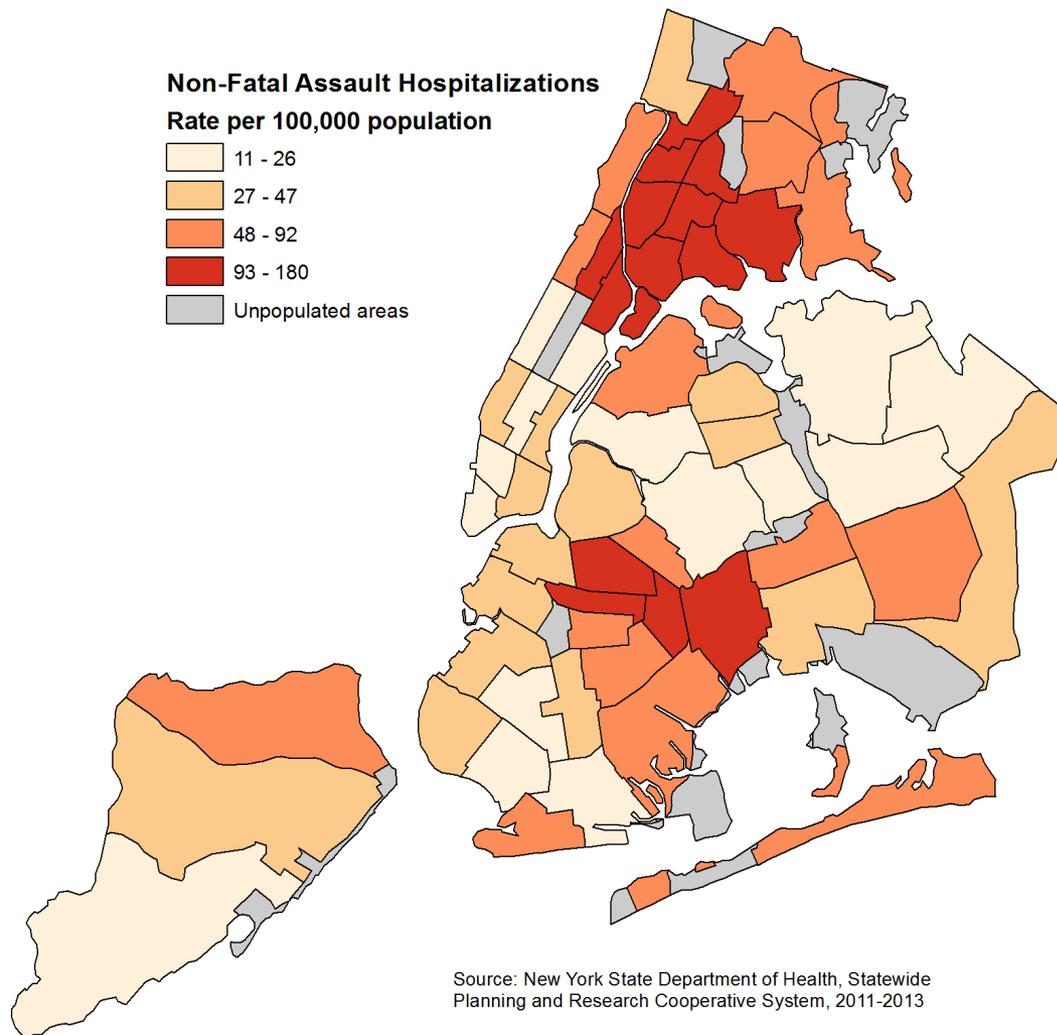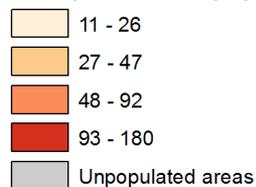
- 11 - 26
- 27 - 47
- 48 - 92
- 93 - 180
- Unpopulated areas

Source: New York State Department of Health, Statewide Planning and Research Cooperative System, 2011-2013

Healthy Living

❖ Self-Reported Health

❖ Smoking

❖ Sugary Drink Consumption

❖ Fruit and Vegetable Consumption

❖ Physical Activity

❖ Obesity

❖ Diabetes

❖ Alcohol-Related Hospitalizations

❖ Drug-Related Hospitalizations

Self-Reported Health

Percent of adults who report their overall health as "excellent," "very good" or "good" on a scale of one to five (excellent, very good, good, fair or poor)
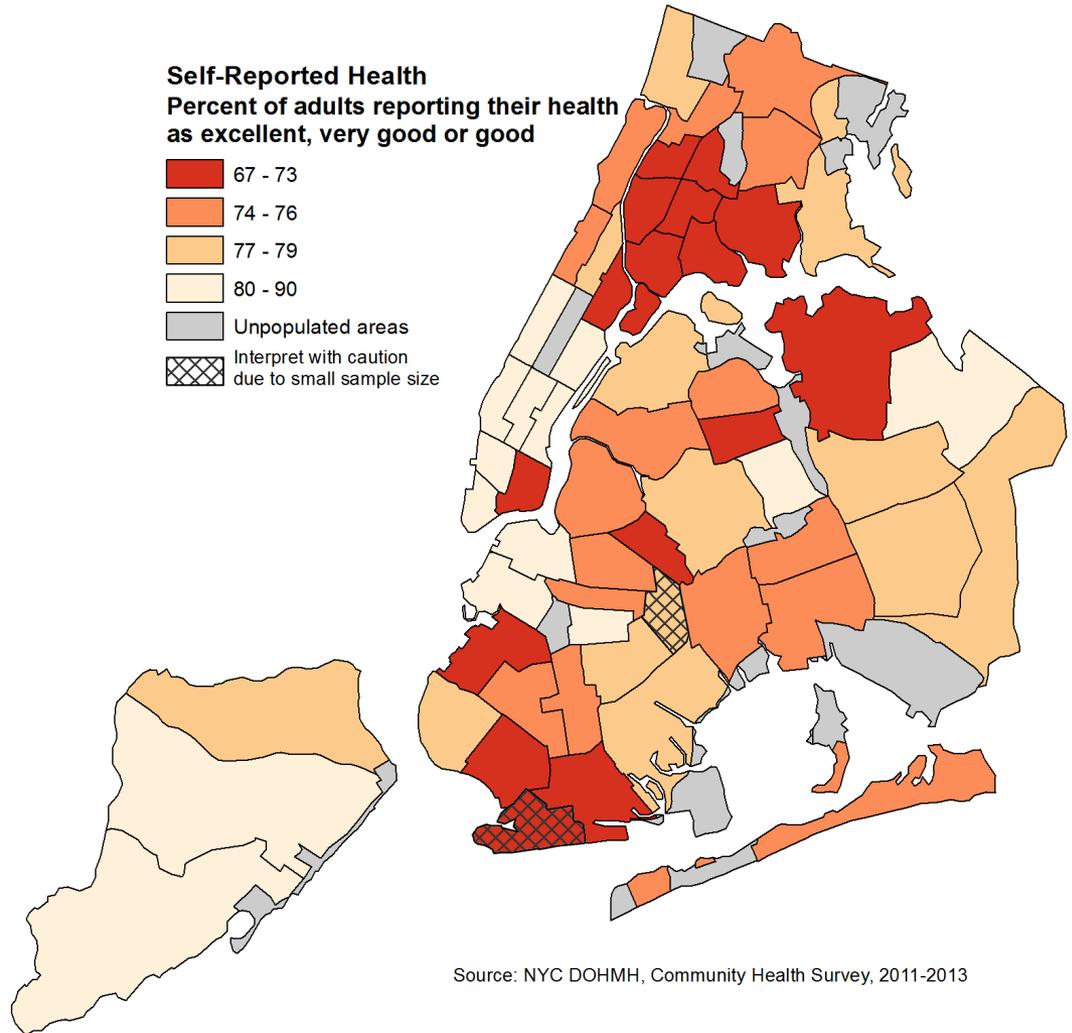
Highest		Percent
1	Upper East Side	92
2	Stuyvesant Town and Turtle Bay	90
3	Financial District	89
3	Greenwich Village and Soho	89
5	Upper West Side	89

Lowest		Percent
59	Sheepshead Bay	64
58	Coney Island	65*
56	Belmont and East Tremont	67
56	Morrisania and Crotona	67
55	Bushwick	68

*Interpret with caution due to small sample size

Borough	Percent
Bronx	73
Brooklyn	75
Manhattan	83
Queens	79
Staten Island	83

NYC Overall: 78%

Self-Reported Health
Percent of adults reporting their health as excellent, very good or good

- 67 - 73
- 74 - 76
- 77 - 79
- 80 - 90
- Unpopulated areas
- Interpret with caution due to small sample size
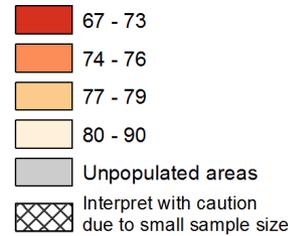
Source: NYC DOHMH, Community Health Survey, 2011-2013

Smoking

Percent of adults who report being current smokers

Highest		Percent
1	St. George and Stapleton	22
2	Long Island City and Astoria	21
3	South Beach and Willowbrook	21
4	Bedford Stuyvesant	20
5	Morrisania and Crotona	20
5	Belmont and East Tremont	20

Lowest		Percent
59	East Flatbush	10
58	Park Slope and Carroll Gardens	10*
57	Upper West Side	11
56	Elmhurst and Corona	11
55	Washington Heights and Inwood	12

*Interpret with caution due to small sample size

Borough	Percent
Bronx	16
Brooklyn	16
Manhattan	15
Queens	15
Staten Island	20

NYC Overall: 15%

Current Smokers
Percent of adults

- 10 -13
- 14 - 15
- 16 - 17
- 18 - 22
- Unpopulated areas
- Interpret with caution due to small sample size
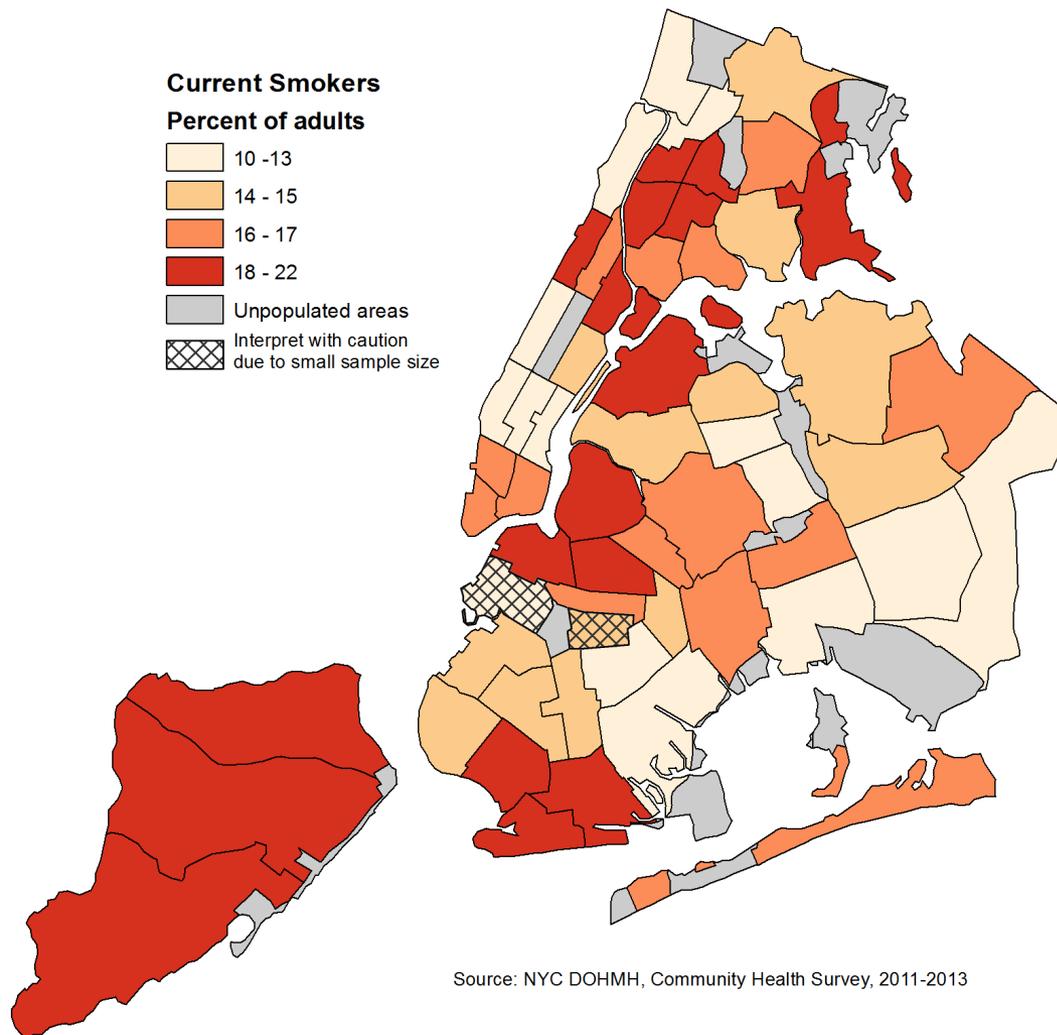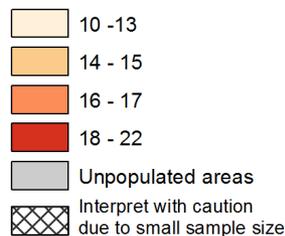
Source: NYC DOHMH, Community Health Survey, 2011-2013

Sugary Drink Consumption

Percent of adults who report drinking one or more 12 ounce sugar-sweetened beverage (sodas, iced tea, sports drinks, etc.) per day

Highest		Percent
1	Fordham and University Heights	42
2	Brownsville	40*
3	Morrisania and Crotona	39
3	Belmont and East Tremont	39
5	Mott Haven and Melrose	38
5	Hunts Point and Longwood	38

*Interpret with caution due to small sample size

Lowest		Percent
59	Stuyvesant Town and Turtle Bay	12
58	Upper West Side	12
57	Upper East Side	14
55	Greenwich Village and Soho	14
55	Financial District	14

Borough	Percent
Bronx	35
Brooklyn	27
Manhattan	20
Queens	28
Staten Island	28

NYC Overall: 27%

**Sugary Drink Consumption
(1+ per day)
Percent of adults**
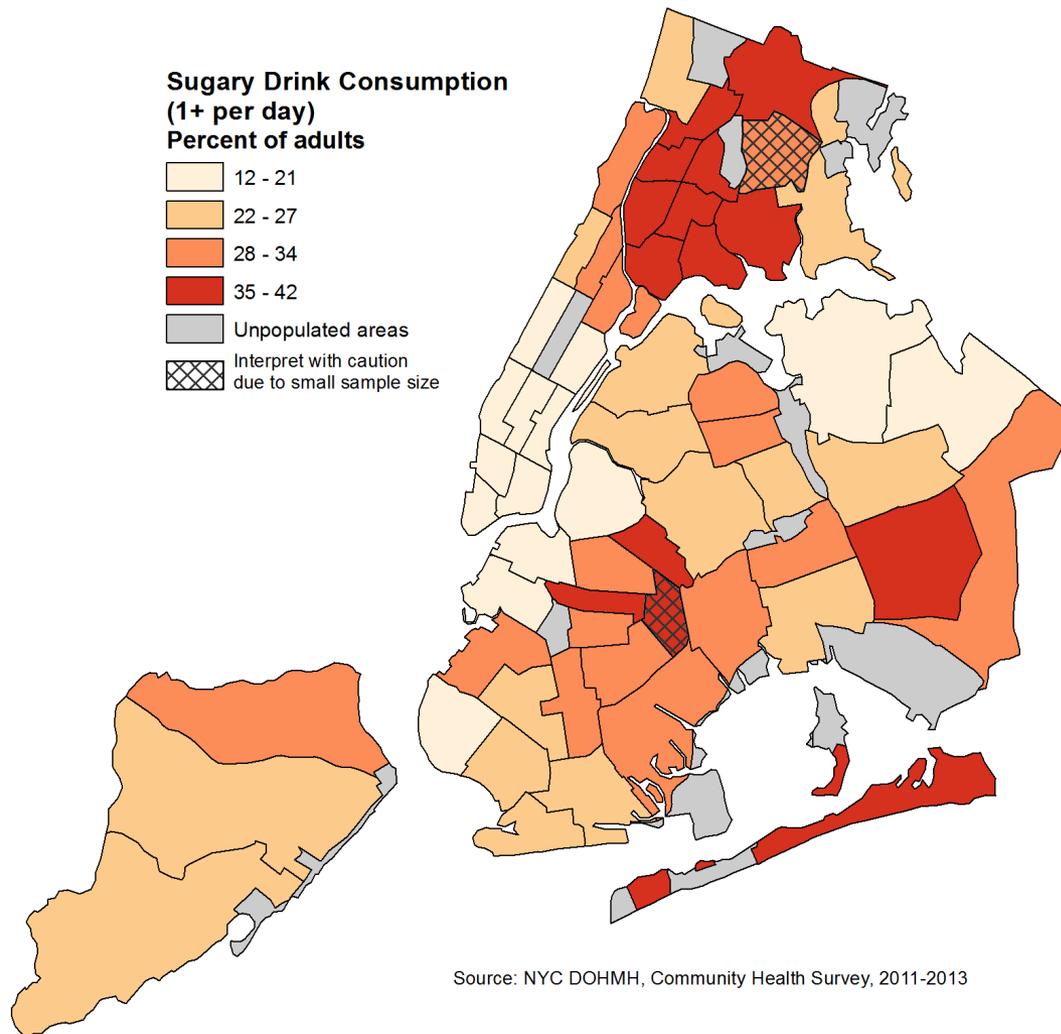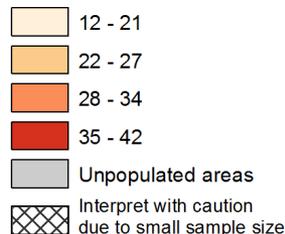
- 12 - 21
- 22 - 27
- 28 - 34
- 35 - 42
- Unpopulated areas
- Interpret with caution due to small sample size

Source: NYC DOHMH, Community Health Survey, 2011-2013

Fruit and Vegetable Consumption

Percent of adults who report eating at least one serving of fruits or vegetables in the last day

Highest		Percent
1	Bayside and Little Neck	95*
2	Financial District	95*
2	Greenwich Village and Soho	95*
4	Stuyvesant Town and Turtle Bay	93*
5	Upper East Side	93

*Interpret with caution due to small sample size

Lowest		Percent
58	Hunts Point and Longwood	77
58	Mott Haven and Melrose	77
57	Parkchester and Soundview	79
56	Highbridge and Concourse	80
55	Fordham and University Heights	80

Borough	Percent
Bronx	82
Brooklyn	87
Manhattan	91
Queens	89
Staten Island	89

NYC Overall: 88%

Fruit or Vegetable Consumption in the Past Day (1+ serving)
Percent of adults

- 77 - 82
- 83 - 87
- 88 - 91
- 92 - 95
- Unpopulated areas
- Interpret with caution due to small sample size
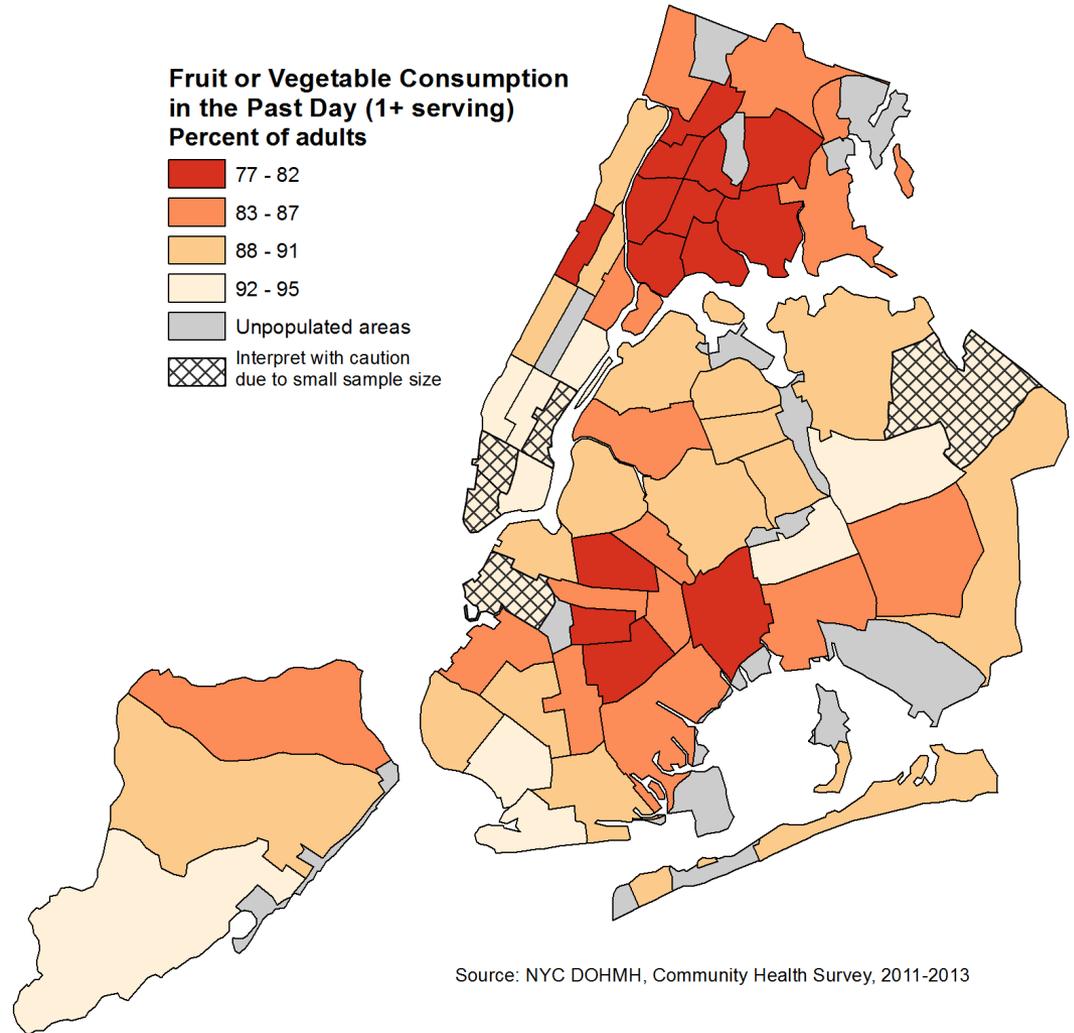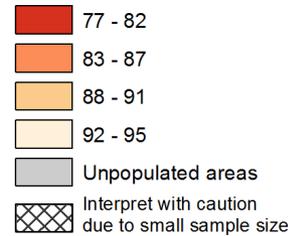
Source: NYC DOHMH, Community Health Survey, 2011-2013

Physical Activity

Percent of adults who report getting any physical activity in the last 30 days

Highest		Percent
1	Clinton and Chelsea	90
1	Midtown	90
3	Park Slope and Carroll Gardens	89
4	Upper West Side	87
5	Upper East Side	87

Lowest		Percent
59	Sunset Park	67
58	Bensonhurst	69
56	Hunts Point and Longwood	70
56	Mott Haven and Melrose	70
55	Rego Park and Forest Hills	70

Borough	Percent
Bronx	74
Brooklyn	75
Manhattan	84
Queens	76
Staten Island	78

NYC Overall: 77%

Any Physical Activity in the Last 30 Days
Percent of adults
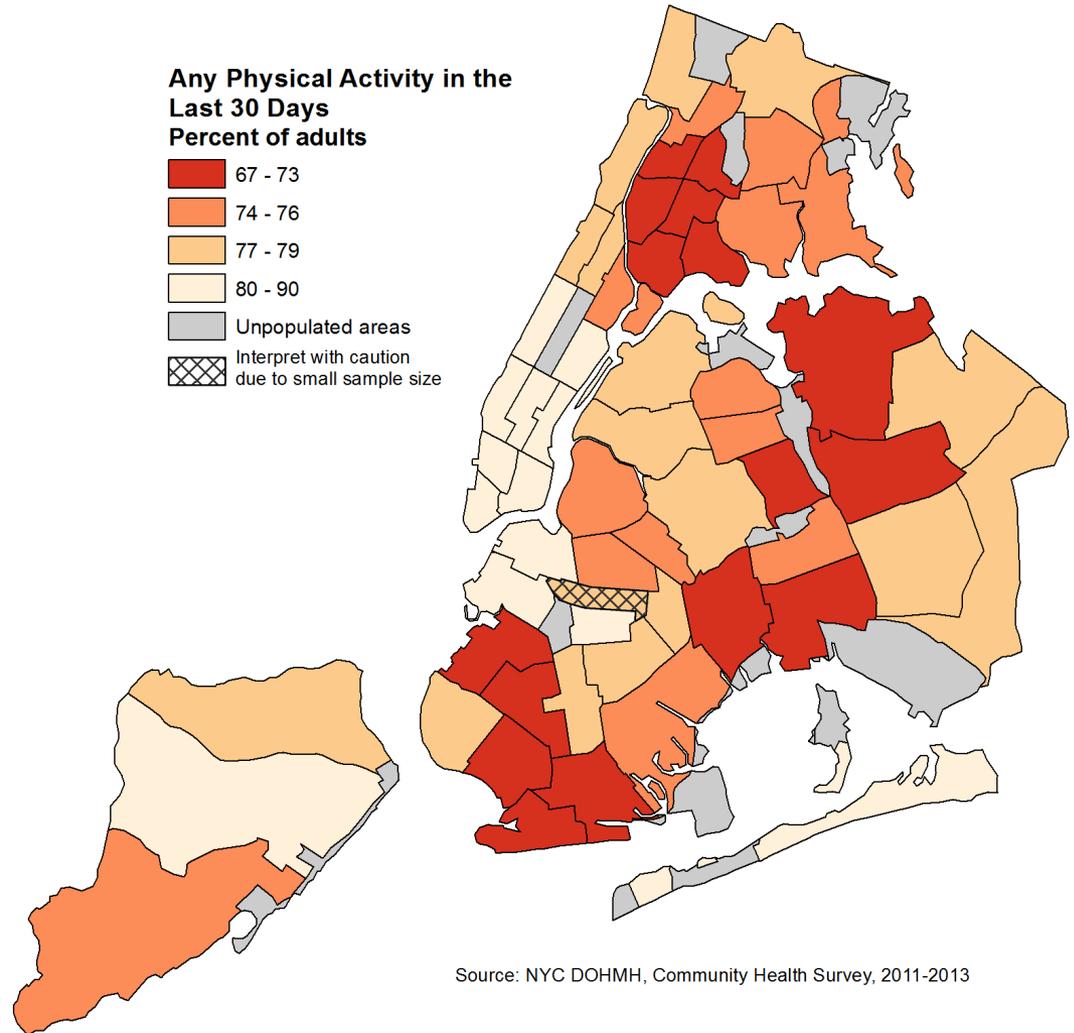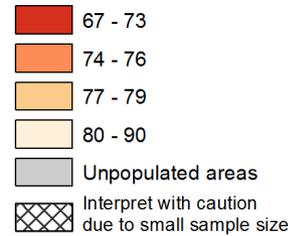
- 67 - 73
- 74 - 76
- 77 - 79
- 80 - 90
- Unpopulated areas
- Interpret with caution due to small sample size

Source: NYC DOHMH, Community Health Survey, 2011-2013

Obesity

Percent of adults who are obese (Body Mass Index of 30 or greater) based on self-reported height and weight

Highest		Percent
1	Morrisania and Crotona	35
1	Belmont and East Tremont	35
3	Williamsbridge and Baychester	35
4	Throgs Neck and Co-op City	34
5	East Harlem	33

Lowest		Percent
59	Stuyvesant Town and Turtle Bay	8
57	Greenwich Village and Soho	9
57	Financial District	9
55	Midtown	10
55	Clinton and Chelsea	10

Borough	Percent
Bronx	31
Brooklyn	27
Manhattan	16
Queens	21
Staten Island	29
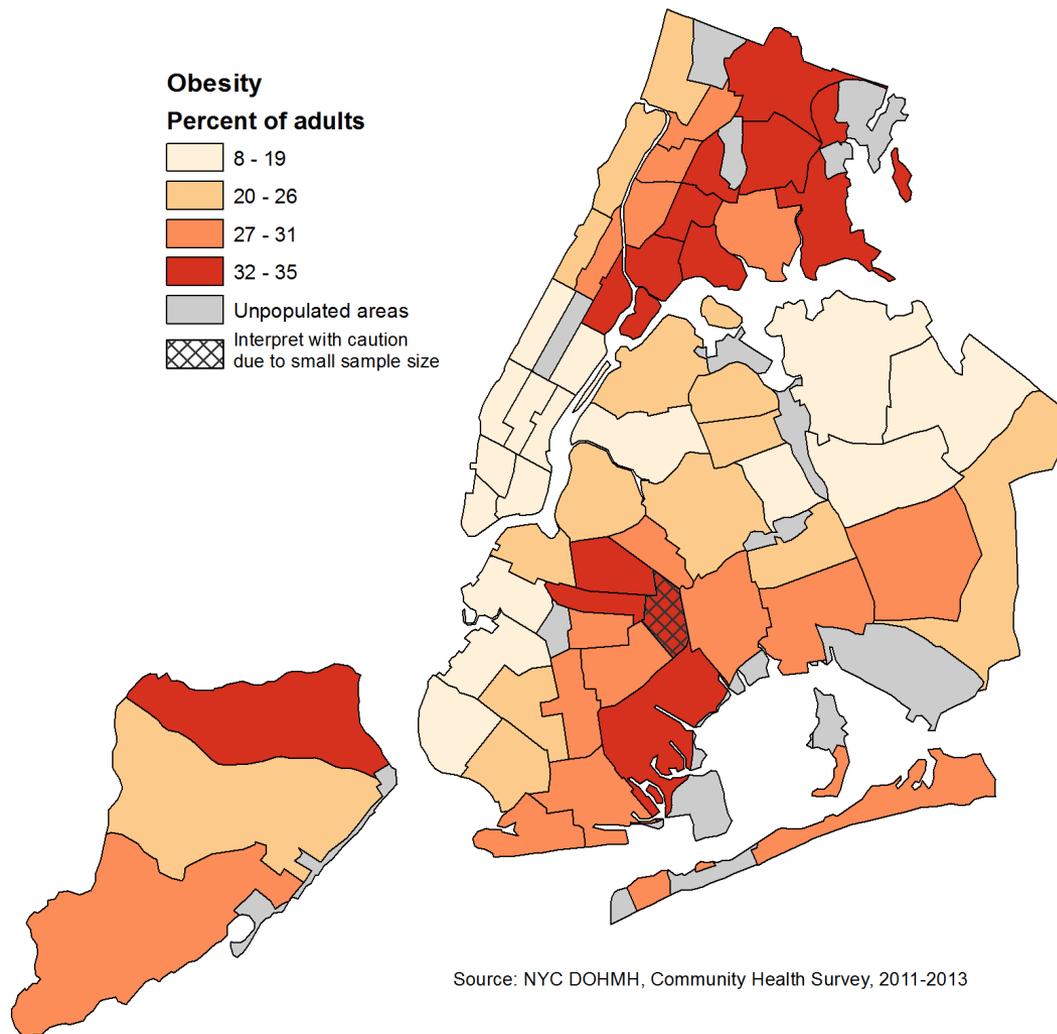
NYC Overall: 24%

Obesity
Percent of adults
- 8 - 19
- 20 - 26
- 27 - 31
- 32 - 35
- Unpopulated areas
- Interpret with caution due to small sample size

Source: NYC DOHMH, Community Health Survey, 2011-2013

Diabetes

Percent of adults who report ever being told by a healthcare professional that they have diabetes

Highest		Percent
1	East New York and Starrett City	18
2	Crown Hts and Prospect Hts	16
3	Morrisania and Crotona	16
3	Belmont and East Tremont	16
5	Bedford Stuyvesant	15

Lowest		Percent
59	Stuyvesant Town and Turtle Bay	3
57	Greenwich Village and Soho	3
57	Financial District	3
55	Midtown	4
55	Clinton and Chelsea	4

Borough	Percent
Bronx	14
Brooklyn	11
Manhattan	7
Queens	10
Staten Island	10
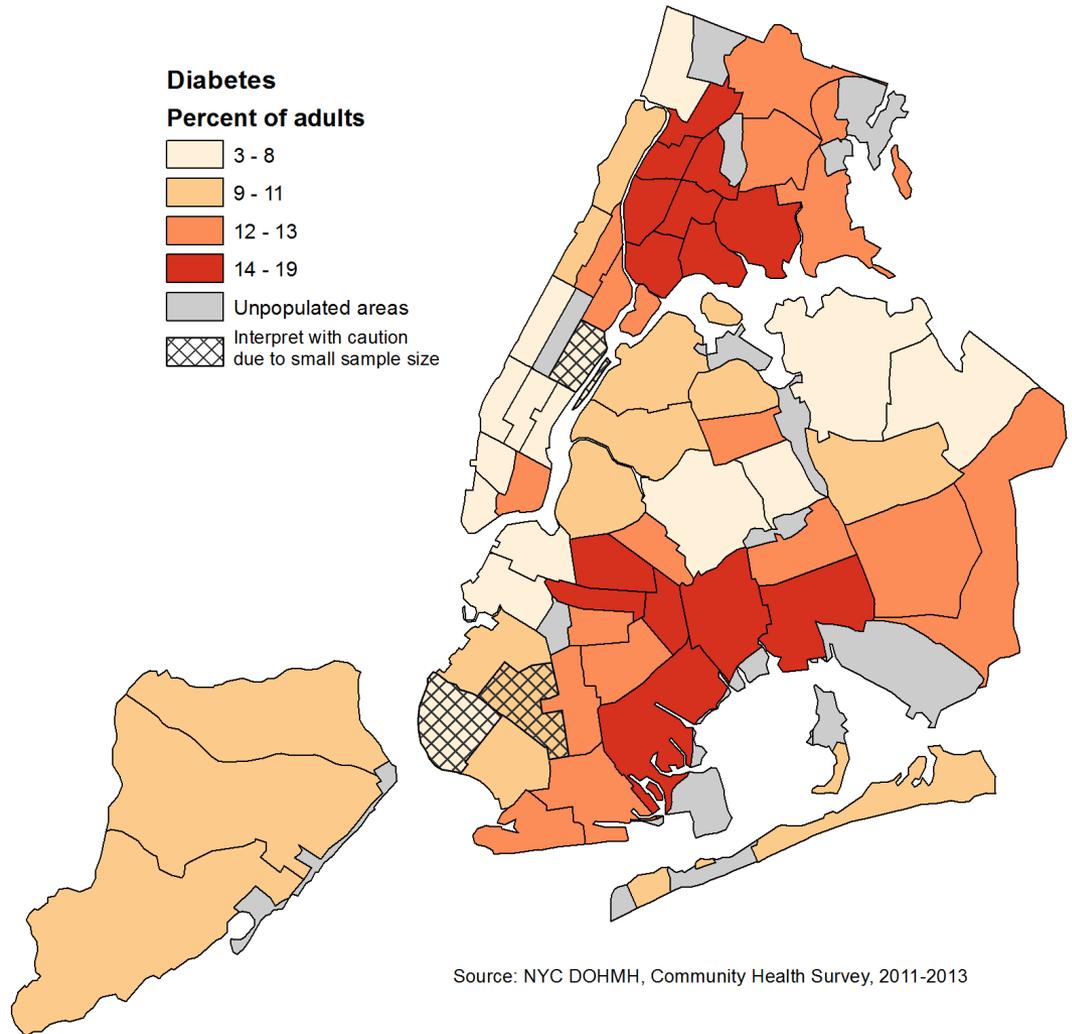
NYC Overall: 10%

Diabetes
Percent of adults

- 3 - 8
- 9 - 11
- 12 - 13
- 14 - 19
- Unpopulated areas
- Interpret with caution due to small sample size

Source: NYC DOHMH, Community Health Survey, 2011-2013

Alcohol-Related Hospitalizations

Rate of alcohol-related hospitalizations
per 100,000 adults

Highest		Rate
1	Morrisania and Crotona	2,367
2	Mott Haven and Melrose	2,333
3	East Harlem	2,333
4	Brownsville	2,285
5	Belmont and East Tremont	2,163

Lowest		Rate
59	Bayside and Little Neck	233
58	Flushing and Whitestone	357
57	Rego Park and Forest Hills	374
56	Queens Village	458
55	Bensonhurst	463

Borough	Rate
Bronx	1,633
Brooklyn	1,041
Manhattan	1,084
Queens	638
Staten Island	934
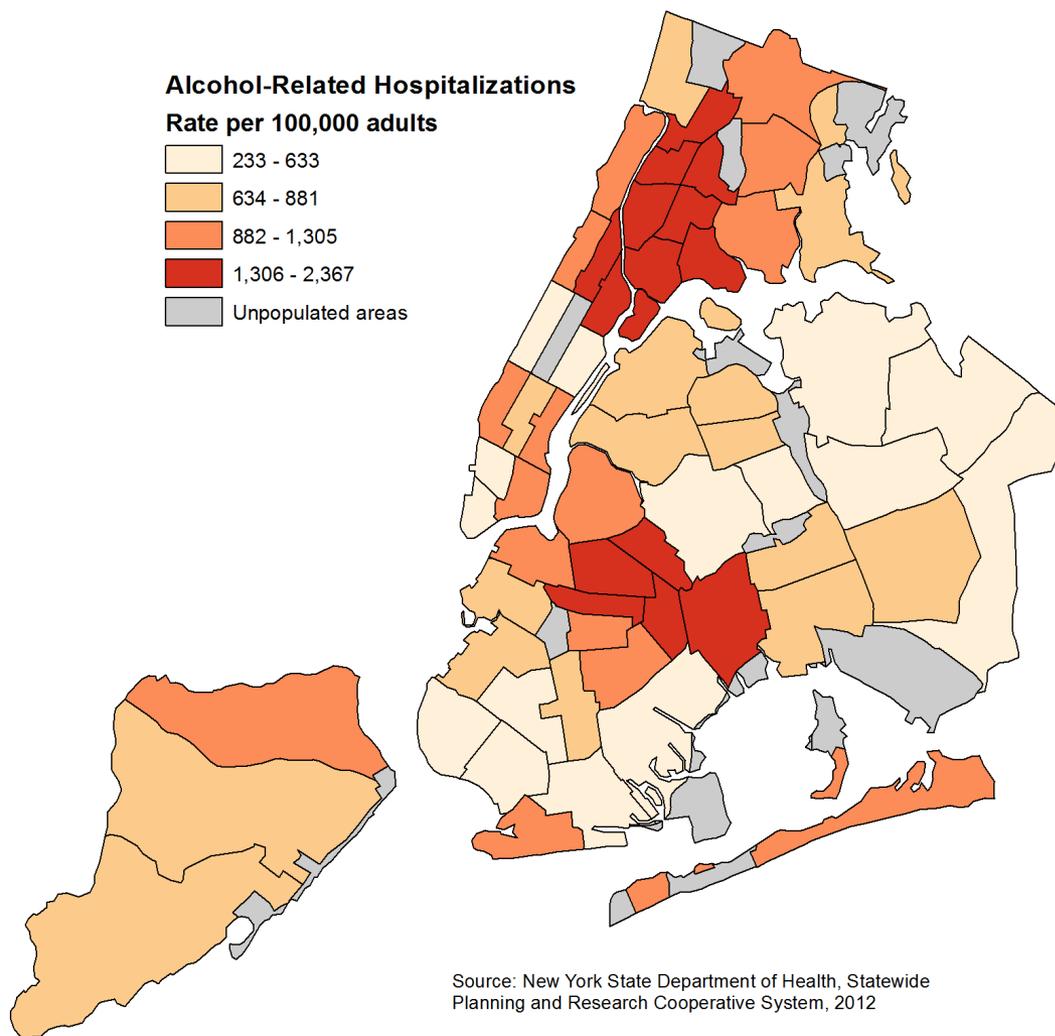
Alcohol-Related Hospitalizations
Rate per 100,000 adults
- 233 - 633
- 634 - 881
- 882 - 1,305
- 1,306 - 2,367
- Unpopulated areas

Source: New York State Department of Health, Statewide
Planning and Research Cooperative System, 2012

NYC Overall: 1,019
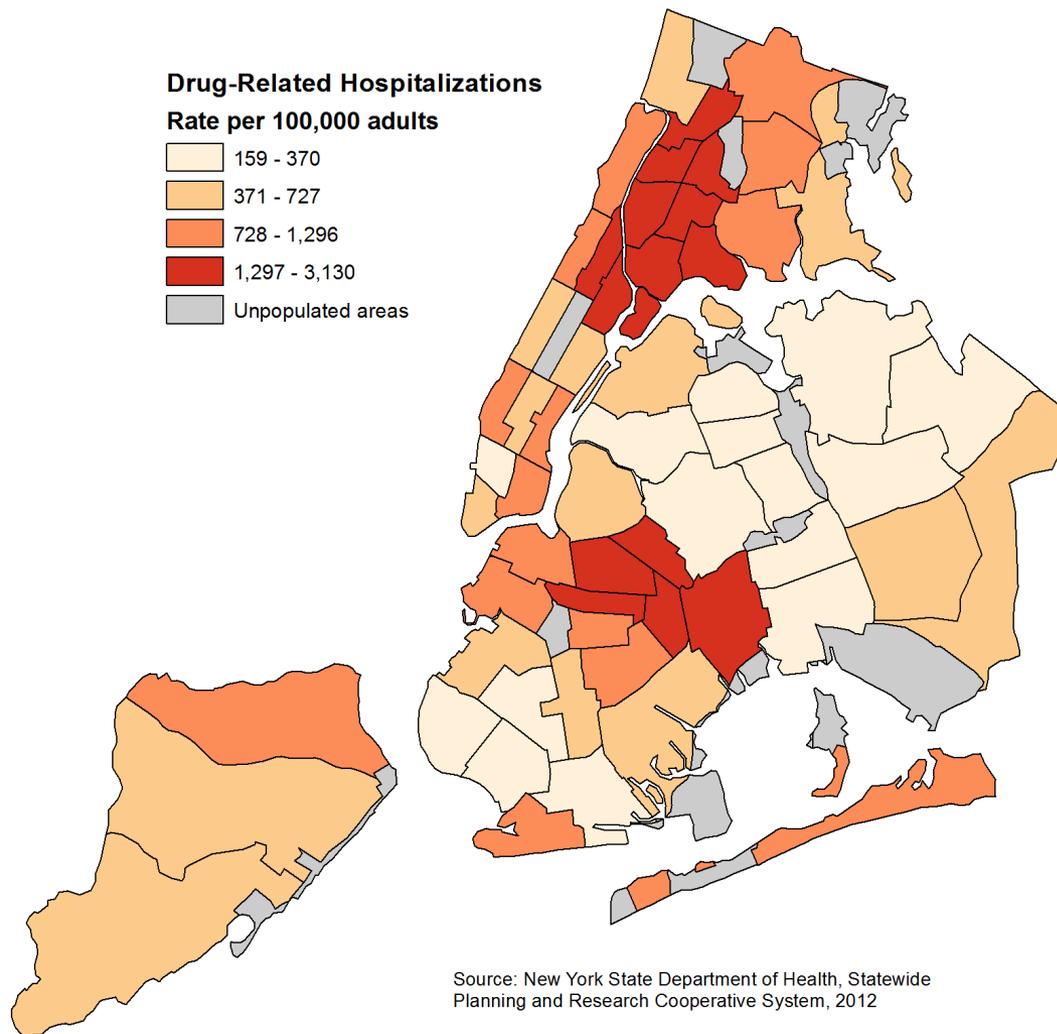
Drug-Related Hospitalizations

Rate of drug-related hospitalizations per
100,000 adults

Highest		Rate
1	Morrisania and Crotona	3,130
2	East Harlem	2,822
3	Belmont and East Tremont	2,760
4	Brownsville	2,682
5	Mott Haven and Melrose	2,669

Lowest		Rate
59	Rego Park and Forest Hills	159
58	Flushing and Whitestone	166
57	Bayside and Little Neck	168
56	Elmhurst and Corona	216
55	Woodside and Sunnyside	222

Borough	Rate
Bronx	1,761
Brooklyn	921
Manhattan	1,025
Queens	357
Staten Island	830

NYC Overall: 907

Drug-Related Hospitalizations
Rate per 100,000 adults

- 159 - 370
- 371 - 727
- 728 - 1,296
- 1,297 - 3,130
- Unpopulated areas

Source: New York State Department of Health, Statewide
Planning and Research Cooperative System, 2012

Health Care

❖ Health Insurance

❖ Didn't Get Needed Medical Care

❖ Prenatal Care

❖ HPV Vaccination
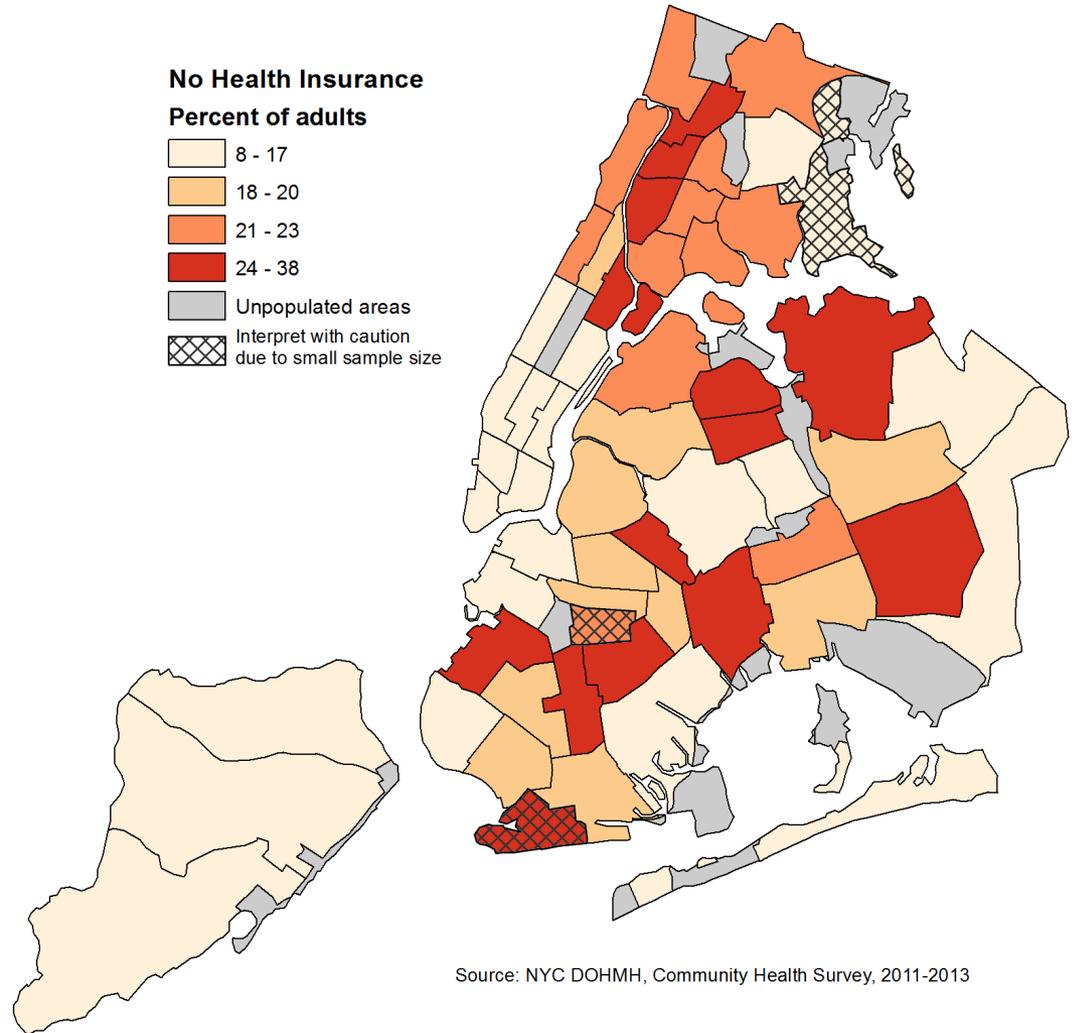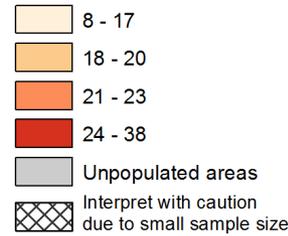
❖ Flu Vaccination

❖ HIV Testing

Health Insurance

Percent of adults who report not having health insurance. With the implementation of the Affordable Care Act, the percentages of adults without insurance shown here are expected to decrease.

Highest		Percent
1	Jackson Heights	38
2	Elmhurst and Corona	36
3	Bushwick	29
4	Kingsbridge Heights and Bedford	28
5	Sunset Park	27

Lowest		Percent
59	Tottenville and Great Kills	8
57	Greenwich Village and Soho	10
57	Financial District	10
56	Stuyvesant Town and Turtle Bay	10
55	Fort Greene and Brooklyn Heights	11

Borough	Percent
Bronx	22
Brooklyn	20
Manhattan	15
Queens	22
Staten Island	12

NYC Overall: 20%

No Health Insurance
Percent of adults

- 8 - 17
- 18 - 20
- 21 - 23
- 24 - 38
- Unpopulated areas
- Interpret with caution due to small sample size

Source: NYC DOHMH, Community Health Survey, 2011-2013

Went Without Needed Medical Care

Percent of adults who report they needed medical care in the past 12 months but did not receive it

Highest		Percent
1	Mott Haven and Melrose	17
1	Hunts Point and Longwood	17
3	Morningside Heights and Hamilton Heights	17
4	Washington Heights and Inwood	16
5	East New York and Starrett City	15

Lowest		Percent
59	Upper East Side	5
58	South Beach and Willowbrook	6
57	Bay Ridge and Dyker Heights	6*
56	Bayside and Little Neck	6
55	Tottenville and Great Kills	7

*Interpret with caution due to small sample size

Borough	Percent
Bronx	12
Brooklyn	12
Manhattan	10
Queens	11
Staten Island	8
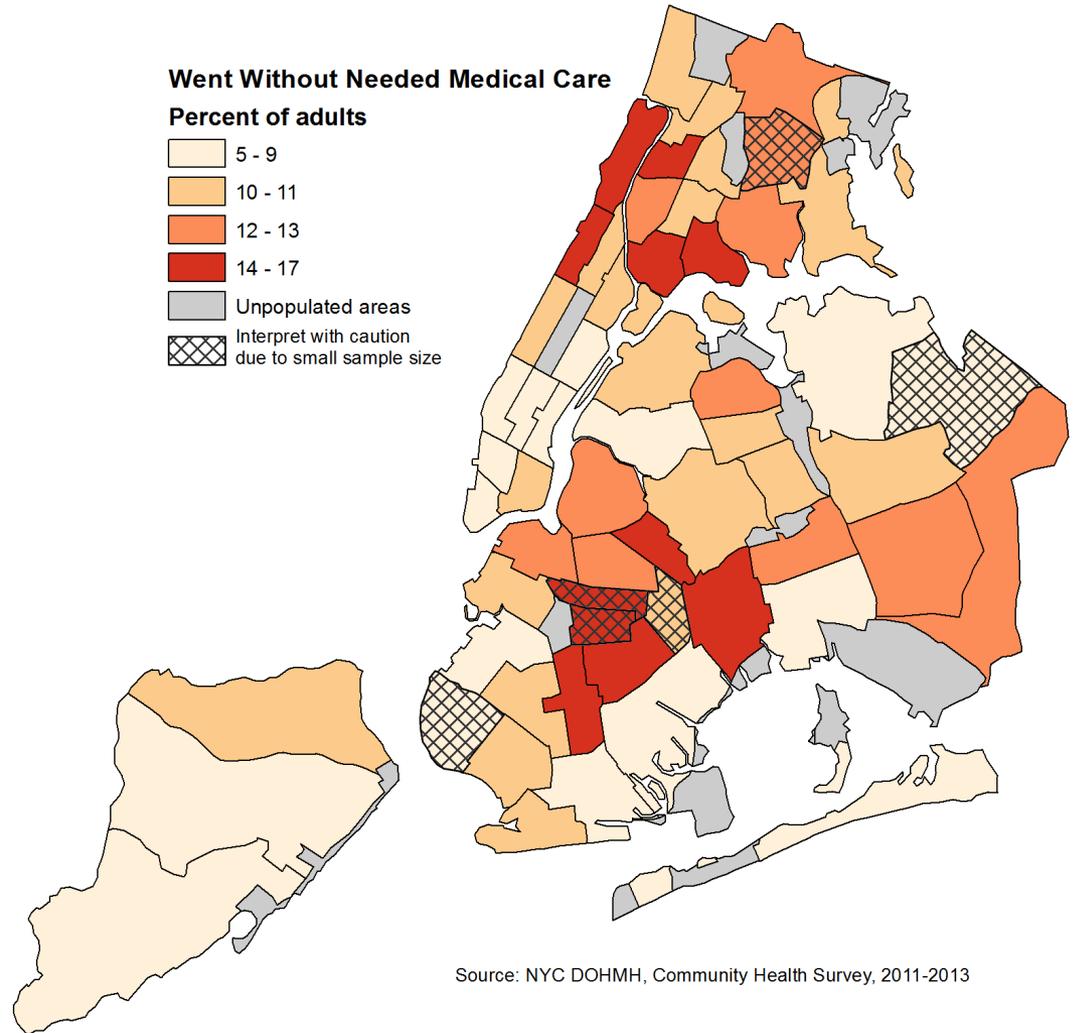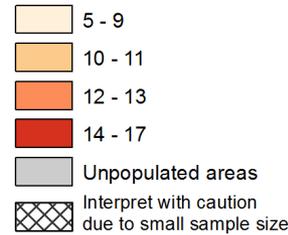
NYC Overall: 11%

Went Without Needed Medical Care
Percent of adults

- 5 - 9
- 10 - 11
- 12 - 13
- 14 - 17
- Unpopulated areas
- Interpret with caution due to small sample size

Source: NYC DOHMH, Community Health Survey, 2011-2013

Late or No Prenatal Care

Among all live births, percent of infants receiving late prenatal care (i.e., after the first and second trimesters) or no prenatal care at all

Highest		Percent
1	Morrisania and Crotona	15.6
2	East Flatbush	14.9
3	Hunts Point and Longwood	14.7
4	Williamsbridge and Baychester	13.9
5	Highbridge and Concourse	13.6

Lowest		Percent
59	Tottenville and Great Kills	1.3
58	Financial District	1.5
57	Park Slope and Carroll Gardens	1.6
54	Upper East Side	2.2
54	Greenwich Village and Soho	2.2
54	Fort Greene and Brooklyn Heights	2.2

Borough	Percent
Bronx	12.3
Brooklyn	6.4
Manhattan	5.3
Queens	9.0
Staten Island	2.3

NYC Overall: 7.4%

Late or No Prenatal Care
Rate per 1,000 live births
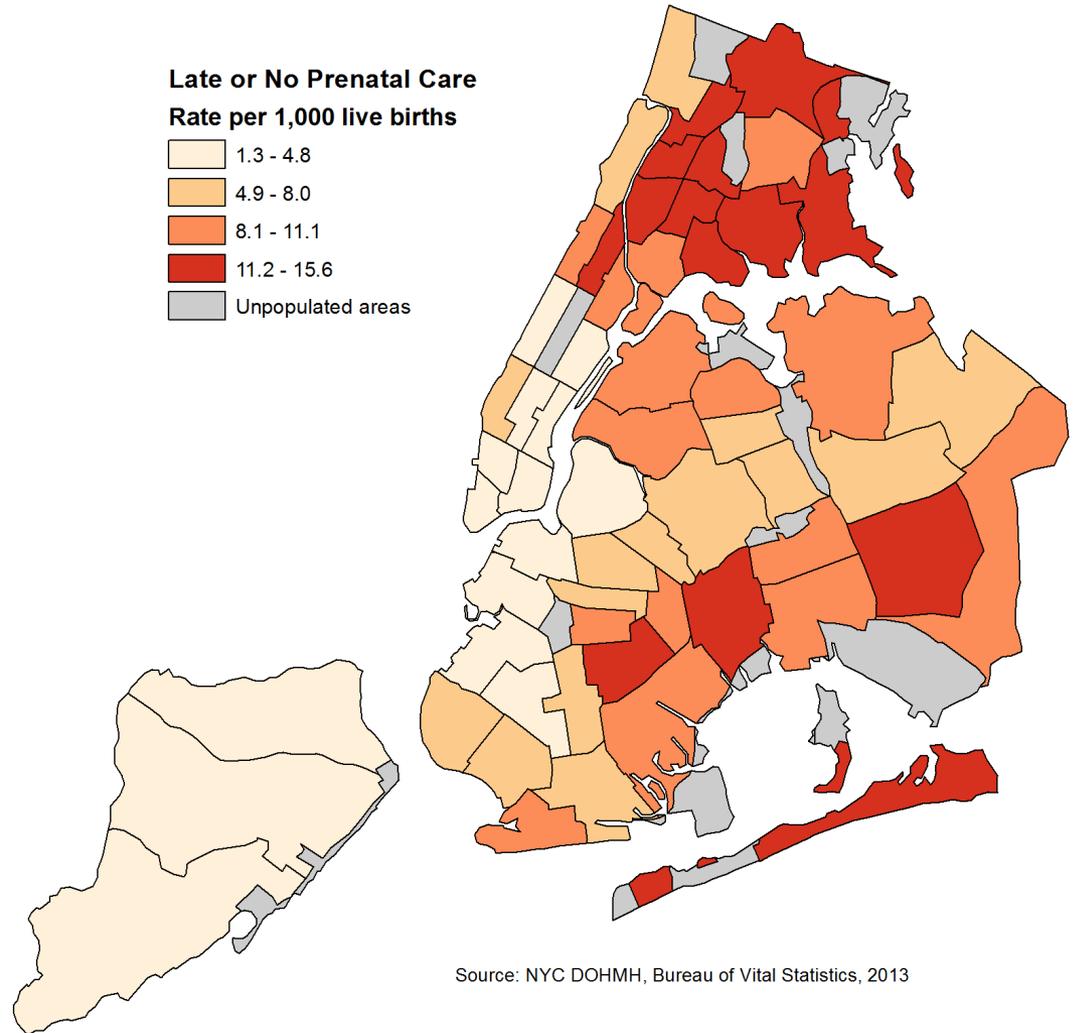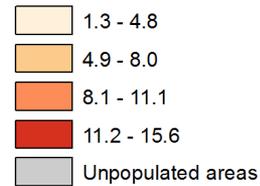
- 1.3 - 4.8
- 4.9 - 8.0
- 8.1 - 11.1
- 11.2 - 15.6
- Unpopulated areas

Source: NYC DOHMH, Bureau of Vital Statistics, 2013

HPV Vaccination
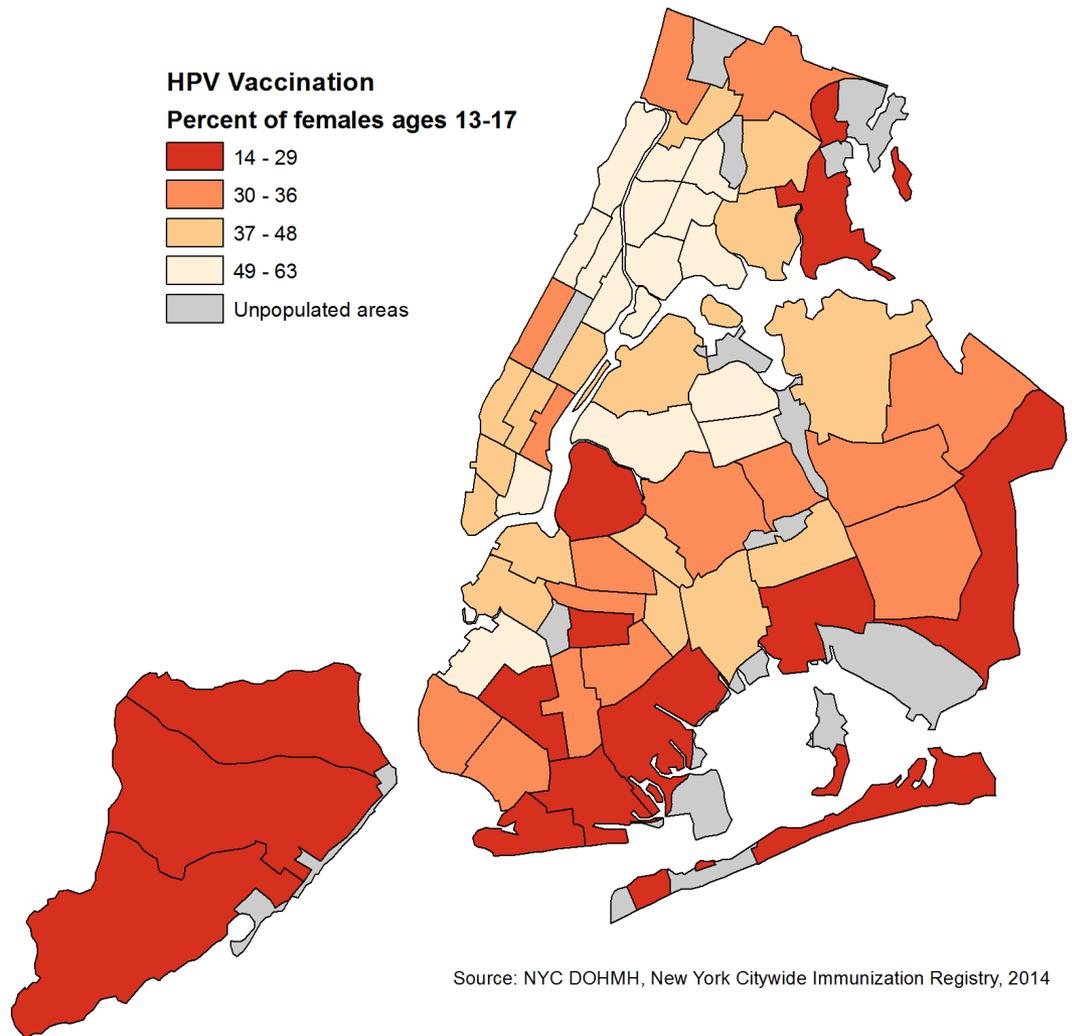
Percent of females ages 13 to 17 who received all three doses of the human papillomavirus (HPV) vaccine

Highest		Percent
1	Hunts Point and Longwood	63
2	Morrisania and Crotona	61
3	Lower East Side and Chinatown	60
4	Washington Heights and Inwood	59
5	Mott Haven and Melrose	57

Lowest		Percent
59	Tottenville and Great Kills	14
58	South Beach and Willowbrook	17
57	Queens Village	20
56	Borough Park	20
55	Greenpoint and Williamsburg	20

Borough	Percent
Bronx	53
Brooklyn	36
Manhattan	54
Queens	41
Staten Island	22

NYC Overall: 43%

HPV Vaccination
Percent of females ages 13-17

- 14 - 29
- 30 - 36
- 37 - 48
- 49 - 63
- Unpopulated areas

Source: NYC DOHMH, New York Citywide Immunization Registry, 2014

Flu Vaccination

Percent of adults who report receiving a
flu vaccination in the last 12 months

Highest		Percent
1	Mott Haven and Melrose	50
1	Hunts Point and Longwood	50
3	Highbridge and Concourse	49
4	Riverdale and Fieldston	49
5	Upper West Side	49

Lowest		Percent
59	Coney Island	31
58	Greenpoint and Williamsburg	32
57	Ridgewood and Maspeth	33
56	Borough Park	33
55	Bensonhurst	34

Borough	Percent
Bronx	46
Brooklyn	36
Manhattan	43
Queens	39
Staten Island	39
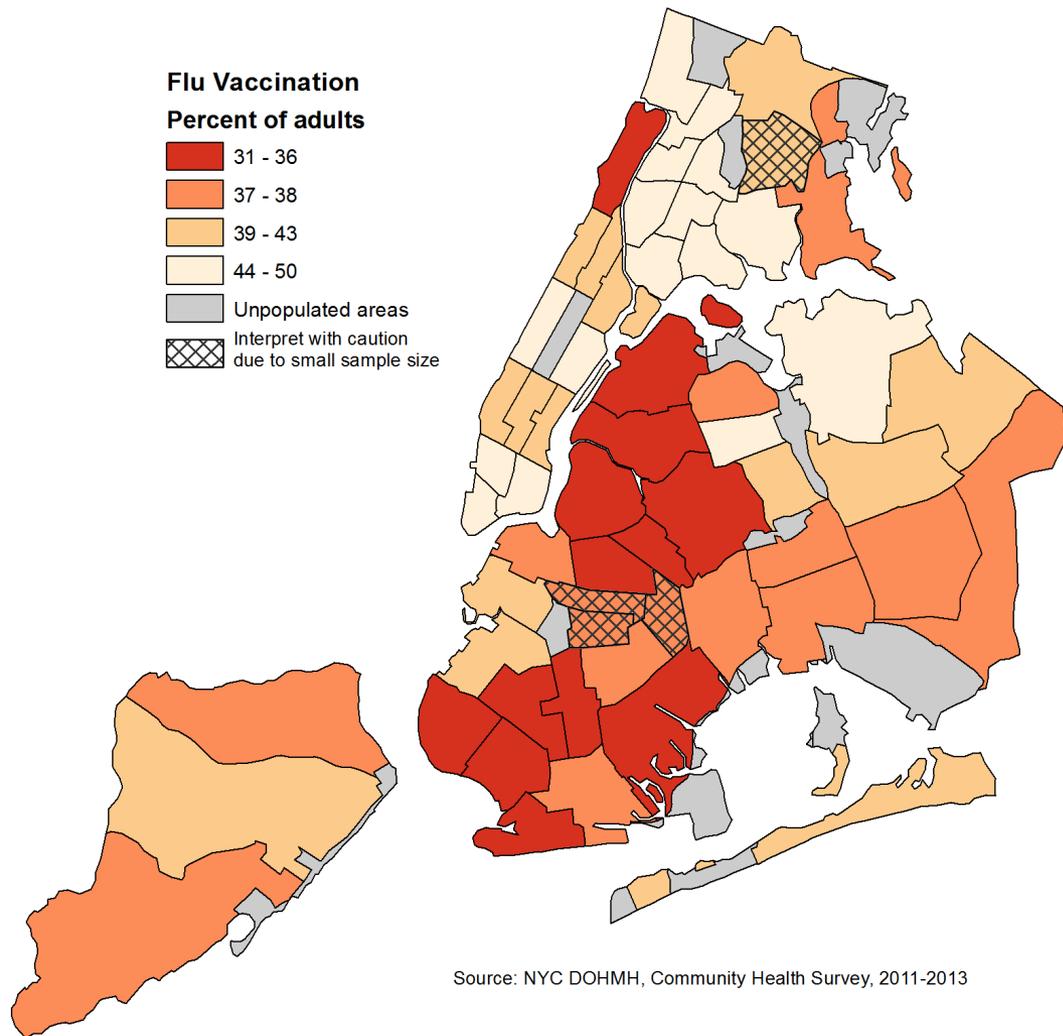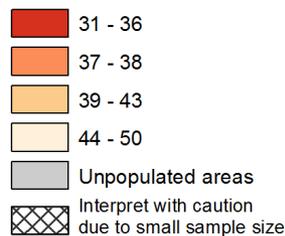
NYC Overall: 40%

Flu Vaccination
Percent of adults

- 31 - 36
- 37 - 38
- 39 - 43
- 44 - 50
- Unpopulated areas
- Interpret with caution due to small sample size

Source: NYC DOHMH, Community Health Survey, 2011-2013

HIV Testing

Percent of adults who report ever getting tested for HIV
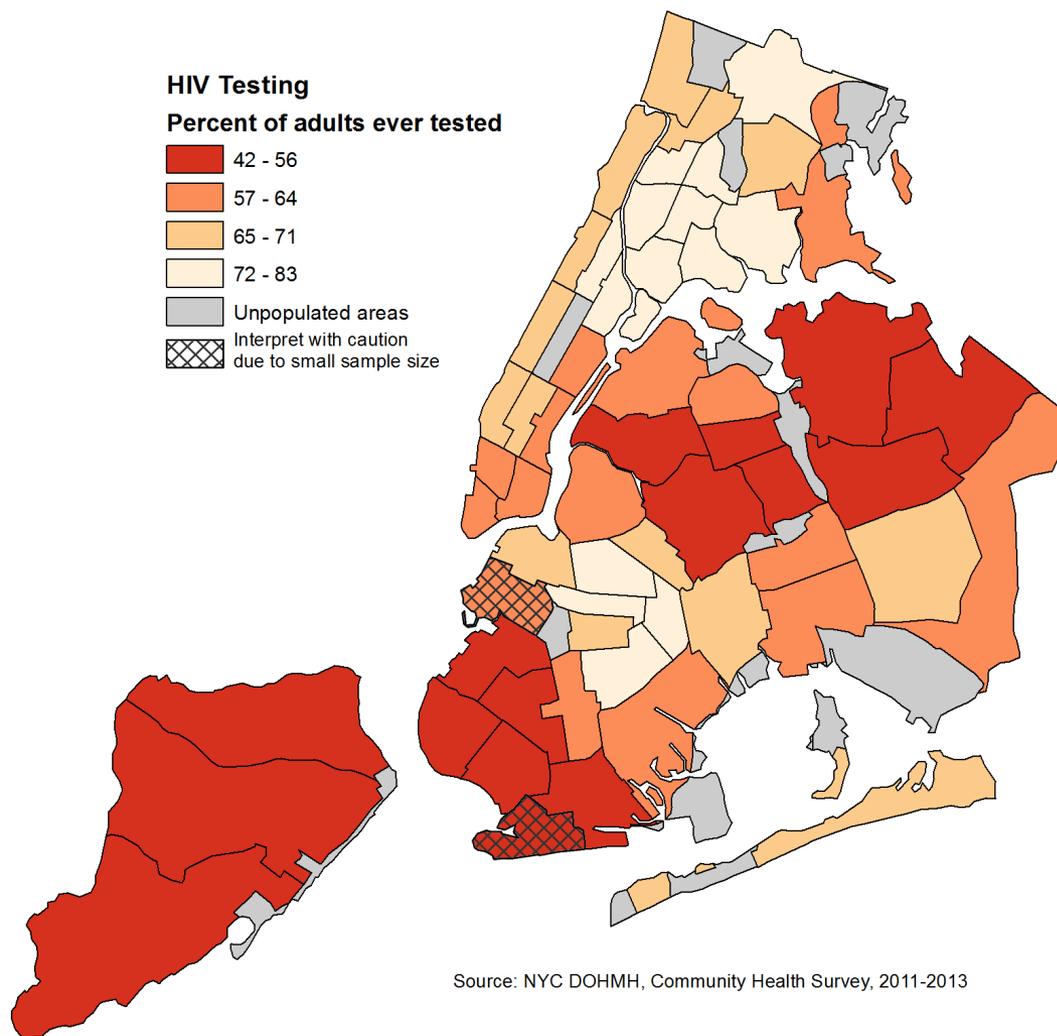
Highest		Percent
1	Fordham and University Heights	83
2	Highbridge and Concourse	82
3	Morrisania and Crotona	81
3	Belmont and East Tremont	81
5	Hunts Point and Longwood	80
5	Mott Haven and Melrose	80

Lowest		Percent
59	Tottenville and Great Kills	42
58	Borough Park	42
57	Rego Park and Forest Hills	42
56	Bensonhurst	43
55	South Beach and Willowbrook	43

Borough	Percent
Bronx	75
Brooklyn	61
Manhattan	66
Queens	56
Staten Island	48

NYC Overall: 62%

HIV Testing
Percent of adults ever tested

- 42 - 56
- 57 - 64
- 65 - 71
- 72 - 83
- Unpopulated areas
- Interpret with caution due to small sample size

Source: NYC DOHMH, Community Health Survey, 2011-2013

Health Outcomes

- ❖ New HIV Diagnoses
- ❖ Psychiatric Hospitalizations
- ❖ Stroke Hospitalizations
- ❖ Childhood Asthma Hospitalizations
- ❖ Adult Avoidable Asthma Hospitalizations
- ❖ Adult Avoidable Diabetes Hospitalizations
- ❖ Infant Mortality
- ❖ Premature Mortality
- ❖ Life Expectancy

New HIV Diagnoses

New HIV diagnoses per 100,000 population

Highest		Rate
1	Clinton and Chelsea	116.8
2	Central Harlem	89.0
3	Midtown	68.4
4	Brownsville	66.0
5	Bedford Stuyvesant	64.1

Lowest		Rate
59	Tottenville and Great Kills	4.4*
58	Bensonhurst	4.5*
57	Borough Park	5.0*
56	Bayside and Little Neck	5.9*
55	South Beach and Willowbrook	6.8*

*Interpret with caution due to small number of events

Borough	Rate
Bronx	39.8
Brooklyn	27.9
Manhattan	45.6
Queens	20.5
Staten Island	11.8

NYC Overall: 30.4

New HIV Diagnoses
Rate per 100,000 population
- 4.4 - 16.9
- 17.0 - 26.9
- 27.0 - 42.4
- 42.5 - 116.8
- Unpopulated areas
- Interpret with caution due to small number of events
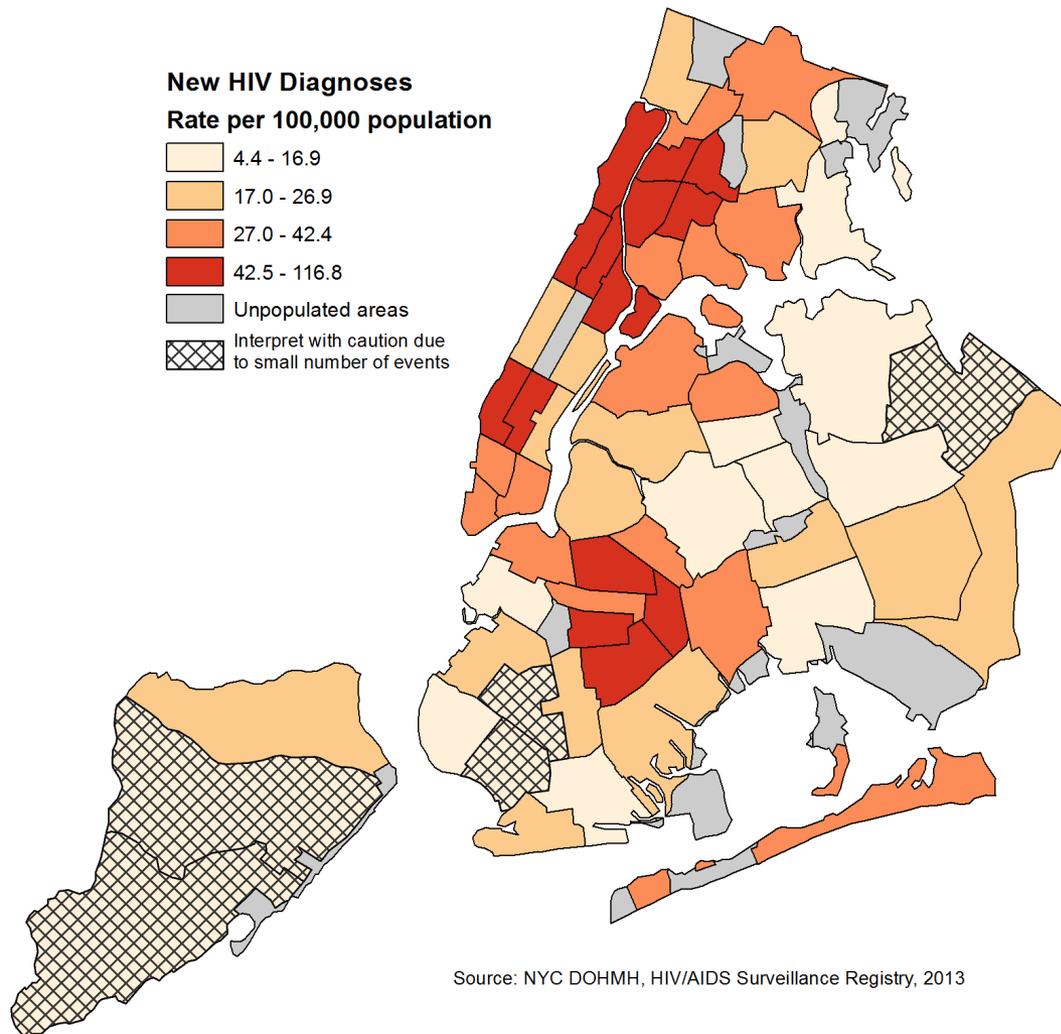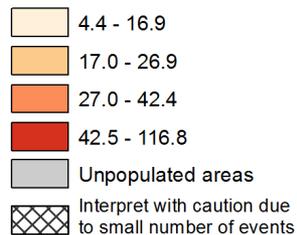
Source: NYC DOHMH, HIV/AIDS Surveillance Registry, 2013

Psychiatric Hospitalizations
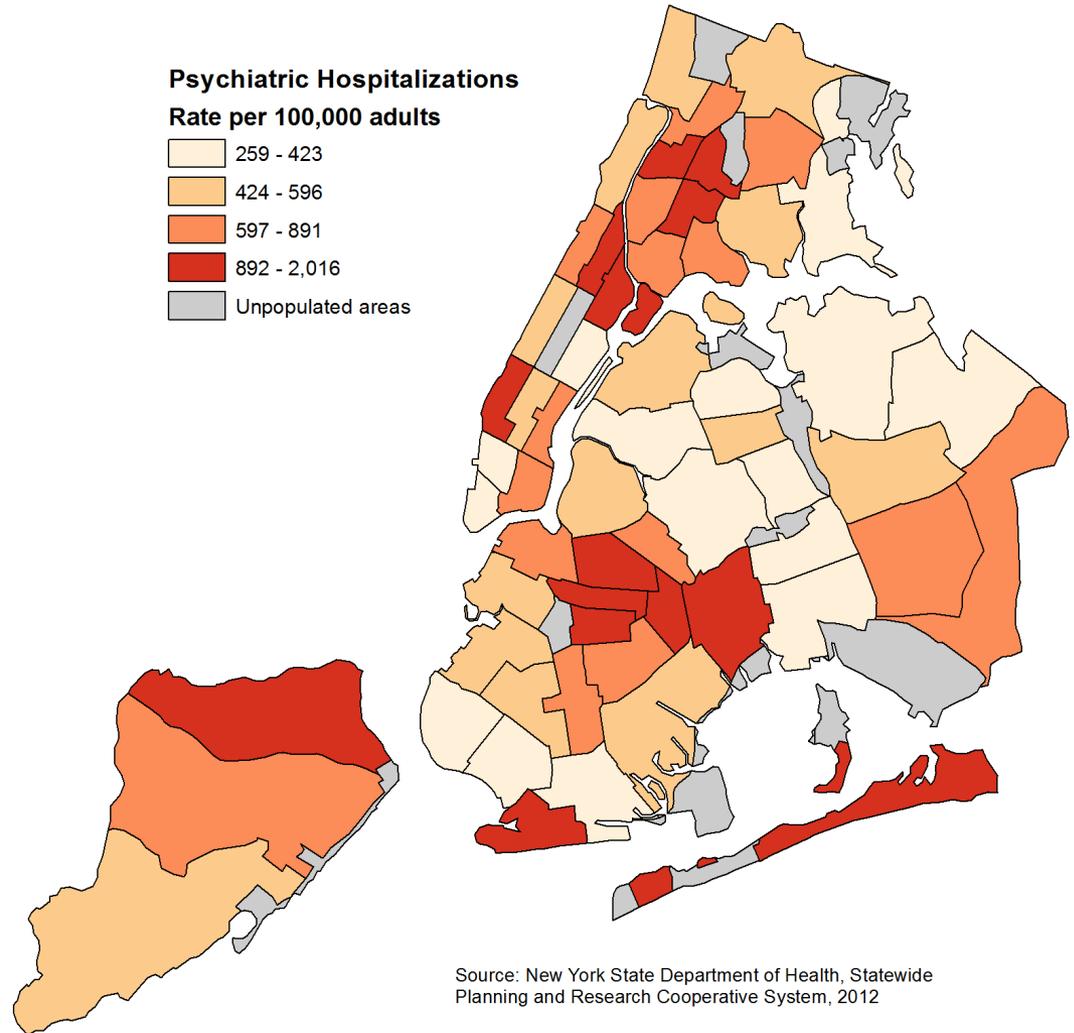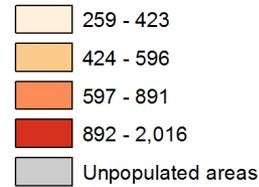
Rate of psychiatric hospitalizations per 100,000 adults

Highest		Rate
1	East Harlem	2,016
2	Brownsville	1,727
3	Crown Heights and Prospect Heights	1,252
4	Morrisania and Crotona	1,220
5	Rockaway and Broad Channel	1,197

Lowest		Rate
59	Financial District	259
58	Bayside and Little Neck	275
57	Greenwich Village and Soho	300
56	Ridgewood and Maspeth	302
55	Woodside and Sunnyside	313

Borough	Rate
Bronx	797
Brooklyn	734
Manhattan	755
Queens	500
Staten Island	773

NYC Overall: 684

Psychiatric Hospitalizations
Rate per 100,000 adults
- 259 - 423
- 424 - 596
- 597 - 891
- 892 - 2,016
- Unpopulated areas

Source: New York State Department of Health, Statewide Planning and Research Cooperative System, 2012
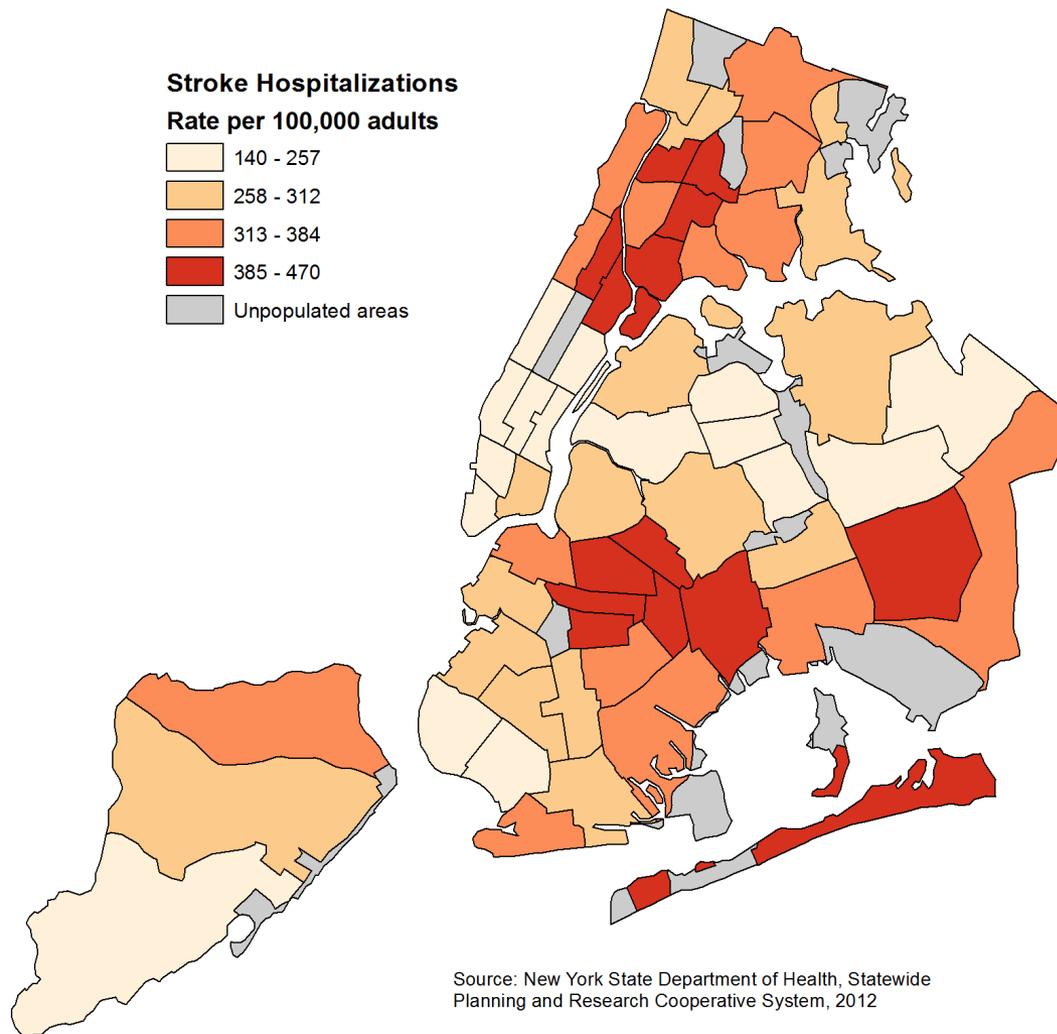
Stroke Hospitalizations

Rate of hospitalizations due to stroke per 100,000 adults

Highest		Rate
1	Bushwick	470
2	Morrisania and Crotona	467
3	Rockaway and Broad Channel	467
4	Central Harlem	466
5	Mott Haven and Melrose	443

Lowest		Rate
59	Greenwich Village and Soho	140
58	Midtown	147
57	Upper East Side	181
56	Stuyvesant Town and Turtle Bay	190
55	Elmhurst and Corona	190

Borough	Rate
Bronx	375
Brooklyn	344
Manhattan	264
Queens	305
Staten Island	311

NYC Overall: 319

Stroke Hospitalizations
Rate per 100,000 adults
- 140 - 257
- 258 - 312
- 313 - 384
- 385 - 470
- Unpopulated areas

Source: New York State Department of Health, Statewide Planning and Research Cooperative System, 2012

Childhood Asthma Hospitalizations

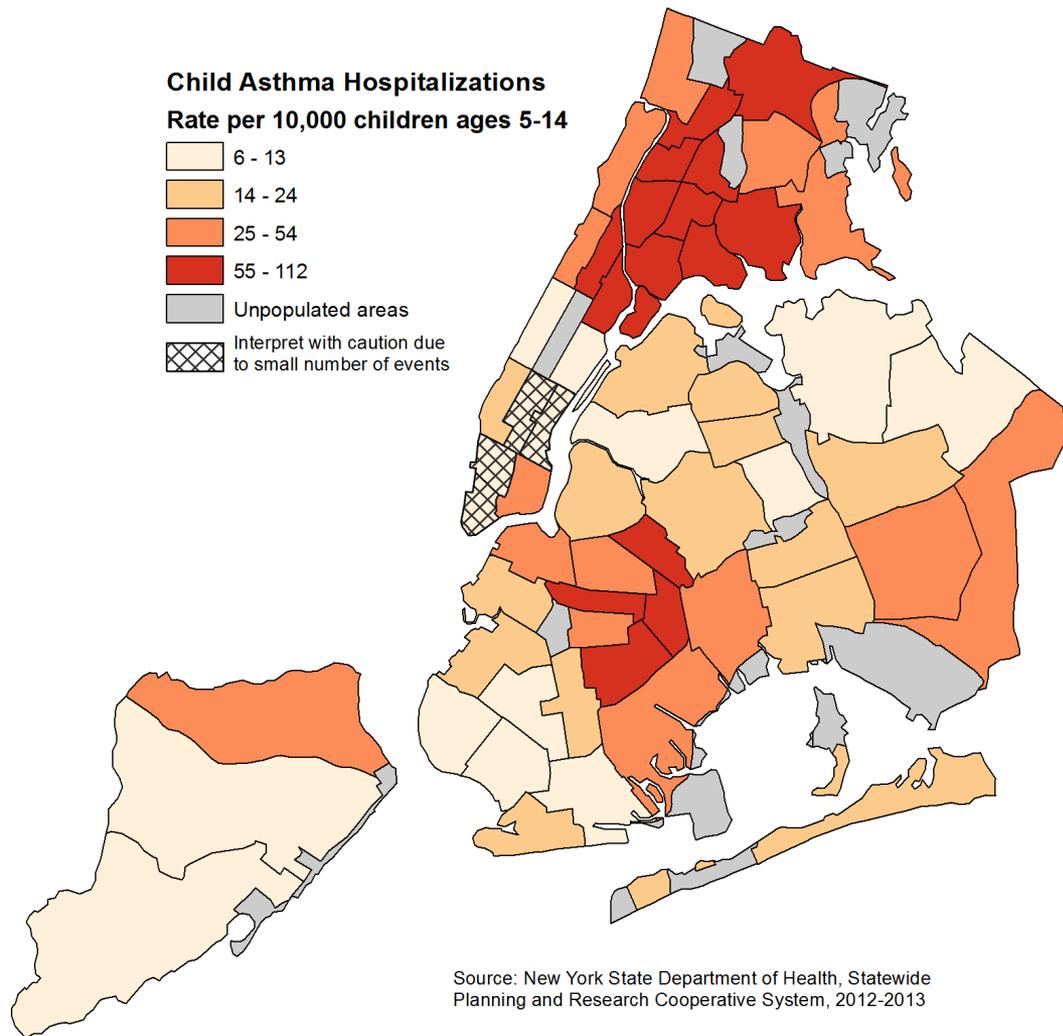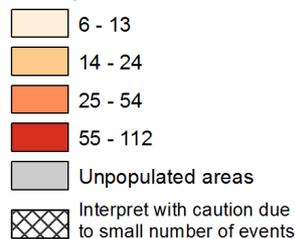Rate of asthma hospitalizations among children ages 5 to 14 per 10,000 children

Highest		Rate
1	Mott Haven and Melrose	112
2	Morrisania and Crotona	89
3	Hunts Point and Longwood	88
4	Belmont and East Tremont	87
5	Crown Heights and Prospect Heights	76

Lowest		Rate
59	Borough Park	6
58	Sheepshead Bay	6
57	South Beach and Willowbrook	6
56	Greenwich Village and Soho	7*
55	Bensonhurst	7

*Interpret with caution due to small number of events

Borough	Rate
Bronx	72
Brooklyn	32
Manhattan	33
Queens	21
Staten Island	15

Child Asthma Hospitalizations
Rate per 10,000 children ages 5-14

- 6 - 13
- 14 - 24
- 25 - 54
- 55 - 112
- Unpopulated areas
- Interpret with caution due to small number of events

Source: New York State Department of Health, Statewide Planning and Research Cooperative System, 2012-2013

NYC Overall: 36
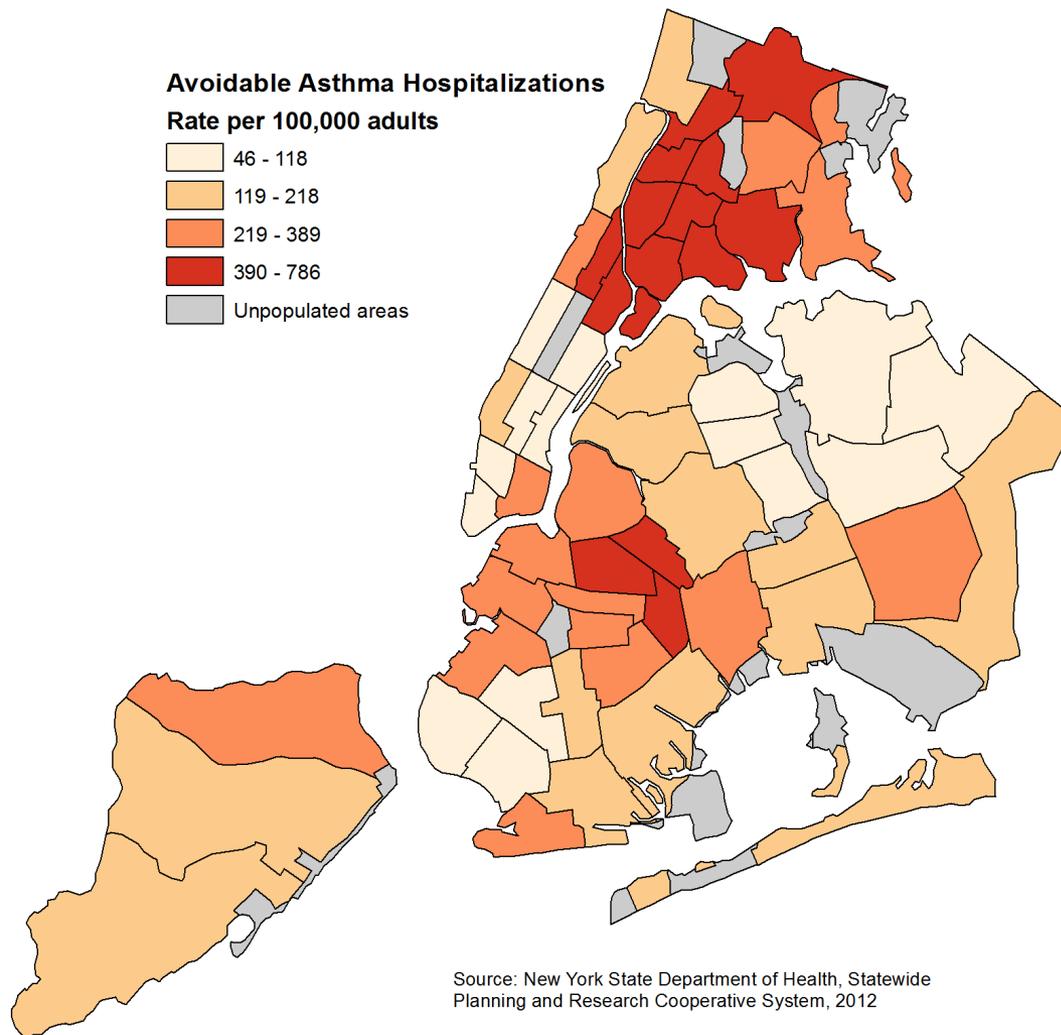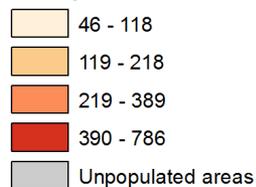
Adult Avoidable Asthma Hospitalizations

Rate of avoidable adult hospitalizations
for asthma per 100,000 adults

Highest		Rate
1	Belmont and East Tremont	786
2	Morrisania and Crotona	769
3	Mott Haven and Melrose	749
4	Bushwick	740
5	East Harlem	648

Lowest		Rate
59	Greenwich Village and Soho	46
58	Upper East Side	46
57	Stuyvesant Town and Turtle Bay	52
56	Bayside and Little Neck	54
55	Midtown	61

Borough	Rate
Bronx	508
Brooklyn	263
Manhattan	196
Queens	141
Staten Island	209

NYC Overall: 249

Avoidable Asthma Hospitalizations
Rate per 100,000 adults

- 46 - 118
- 119 - 218
- 219 - 389
- 390 - 786
- Unpopulated areas

Source: New York State Department of Health, Statewide
Planning and Research Cooperative System, 2012
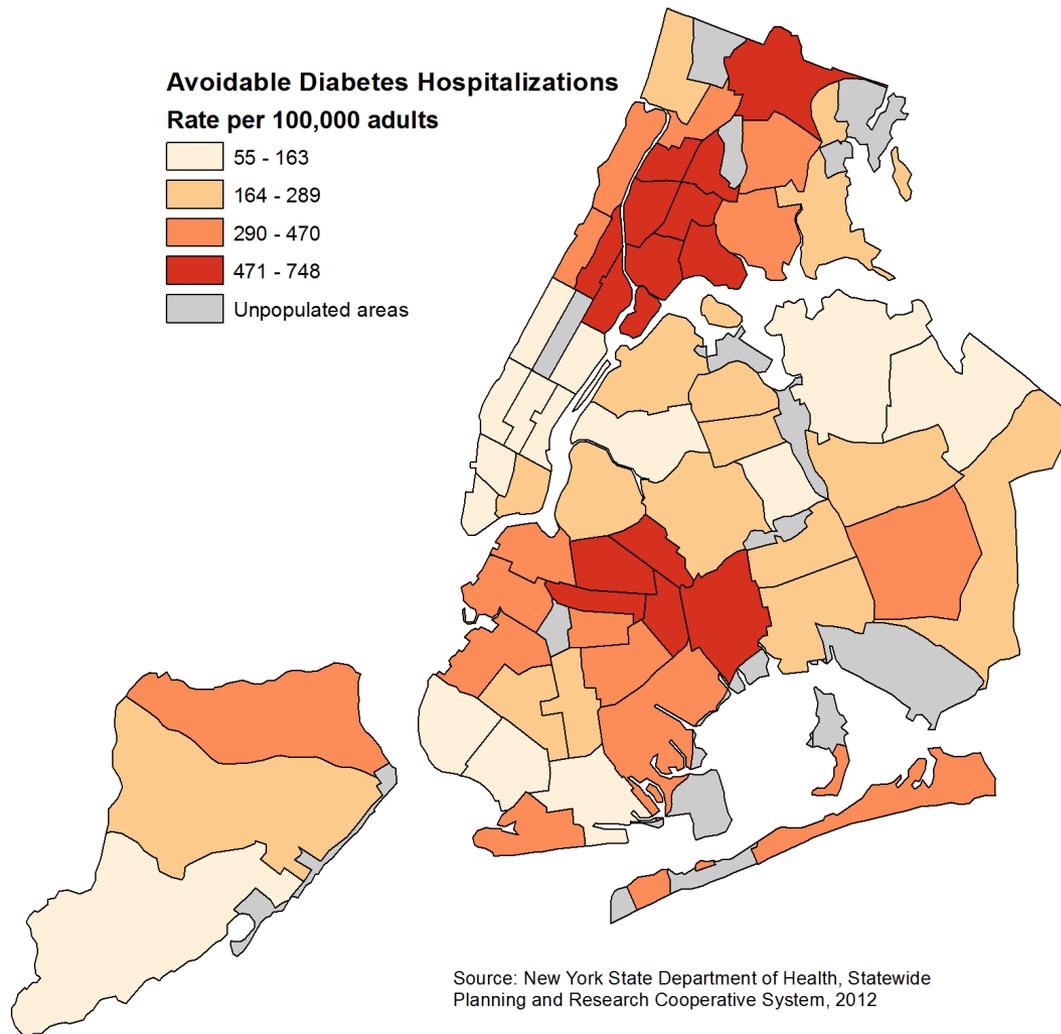
Adult Avoidable Diabetes Hospitalizations

Rate of avoidable adult hospitalizations
for diabetes per 100,000 adults

Highest		Rate
1	Brownsville	748
2	Mott Haven and Melrose	740
3	Morrisania and Crotona	689
4	Belmont and East Tremont	687
5	East Harlem	642

Lowest		Rate
59	Greenwich Village and Soho	54
58	Midtown	72
57	Stuyvesant Town and Turtle Bay	78
56	Upper East Side	82
55	Financial District	98

Borough	Rate
Bronx	508
Brooklyn	263
Manhattan	196
Queens	141
Staten Island	209

NYC Overall: 312

Avoidable Diabetes Hospitalizations
Rate per 100,000 adults

- 55 - 163
- 164 - 289
- 290 - 470
- 471 - 748
- Unpopulated areas

Source: New York State Department of Health, Statewide
Planning and Research Cooperative System, 2012

Infant Mortality

Rate of infant deaths (under one year old) per 1,000 live births

Highest		Rate
1	Jamaica and Hollis	9.0
2	Belmont and East Tremont	8.7
3	Central Harlem	8.1
4	Brownsville	8.0
5	Hunts Point and Longwood	7.8
5	East New York and Starrett City	7.8
5	Williamsbridge and Baychester	7.8

Lowest		Rate
59	Upper East Side	1.0*
58	Financial District	1.5*
57	Sunset Park	1.6
56	Borough Park	1.8
55	Greenwich Village and Soho	2.0*

Interpret with caution due to small number of events

Borough	Rate
Bronx	5.7
Brooklyn	3.9
Manhattan	3.4
Queens	4.7
Staten Island	4.7

NYC Overall: 4.7

Infant Mortality
Rate per 1,000 live births

- 1.0 - 2.8
- 2.9 - 4.4
- 4.5 - 6.0
- 6.1 - 9.0
- Unpopulated areas
- Interpret with caution due to small number of events
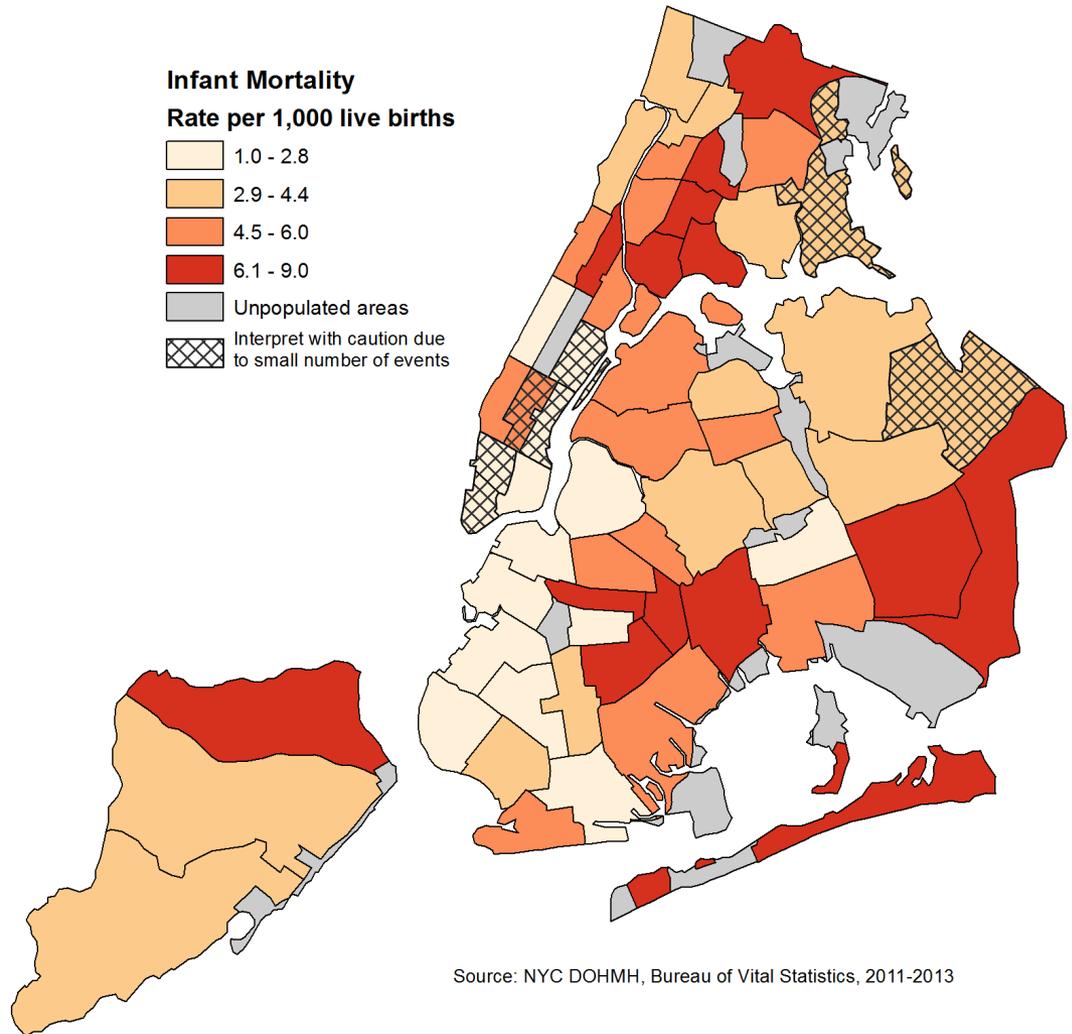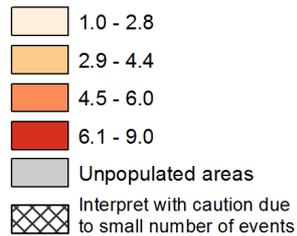
Source: NYC DOHMH, Bureau of Vital Statistics, 2011-2013

Premature Mortality

Rate of premature deaths (death before the age of 65) per 100,000 population

Highest		Rate
1	Brownsville	367.1
2	Morrisania and Crotona	346.3
3	Bedford Stuyvesant	309.2
4	Mott Haven and Melrose	305.7
5	East Harlem	301.0

Lowest		Rate
59	Financial District	75.6
58	Bayside and Little Neck	84.9
57	Greenwich Village and Soho	93.3
56	Upper East Side	97.4
55	Stuyvesant Town and Turtle Bay	98.5

Borough	Rate
Bronx	238.9
Brooklyn	194.5
Manhattan	152.7
Queens	140.8
Staten Island	184.7

NYC Overall: 198.4

Premature Mortality (death before age 65) Rate per 100,000 population

- 75.6 - 137.8
- 137.9 - 171.7
- 171.8 - 226.5
- 226.6 - 367.1
- Unpopulated areas
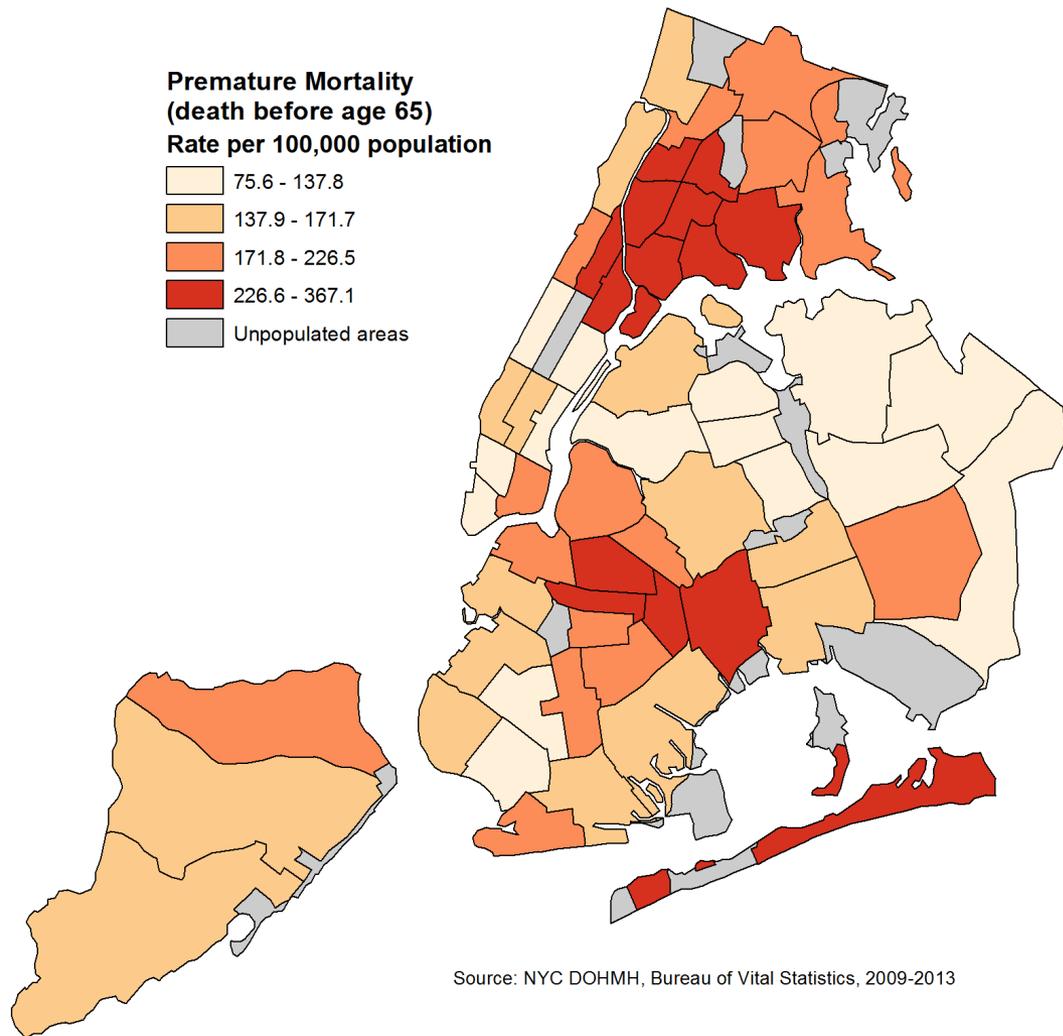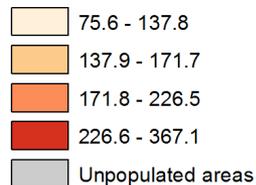
Source: NYC DOHMH, Bureau of Vital Statistics, 2009-2013

Life Expectancy

Life expectancy at birth

Highest		Years
1	Financial District	84.5
2	Stuyvesant Town and Turtle Bay	85.3
3	Upper East Side	85.0
4	Greenwich Village and Soho	84.3
5	Elmhurst and Corona	84.1

Lowest		Years
59	Brownsville	74.1
58	Bedford Stuyvesant	75.1
57	Central Harlem	75.1
56	Morrisania and Crotona	75.3
55	Rockaway and Broad Channel	75.9

Life Expectancy

Years

- 74.1 - 78.7
- 78.8 - 80.9
- 81.0 - 82.9
- 83.0 - 85.4
- Unpopulated areas
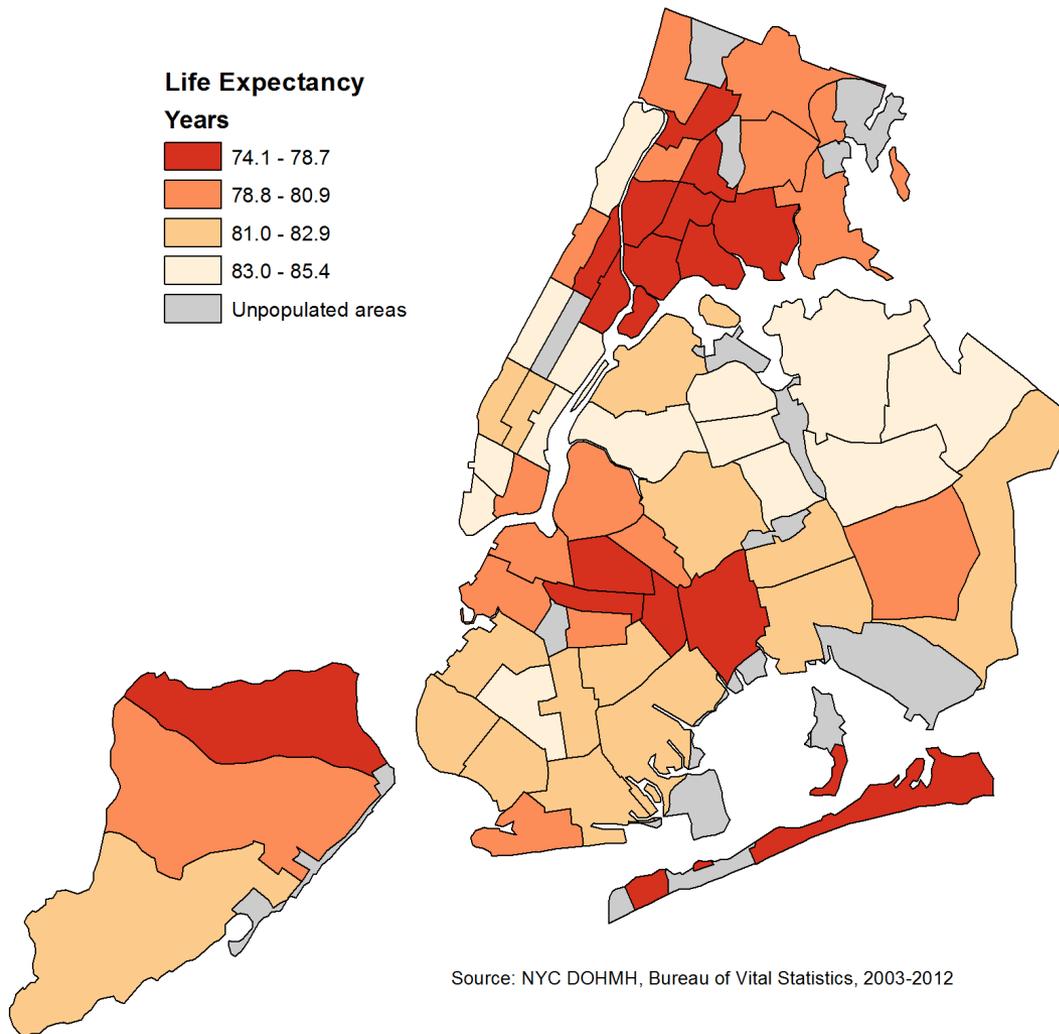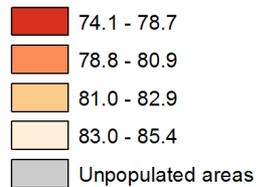
Source: NYC DOHMH, Bureau of Vital Statistics, 2003-2012

NYC
Health

To view the Community Health Profiles for each of the 59 NYC Community Districts or to access the technical notes or complete dataset for this document, please visit http://www.nyc.gov/html/doh/html/data/nyc-health-profiles.shtml or email profiles@health.nyc.gov.

Suggested citation: Dragan KL, King L, Hinterland K, Gwynn RC. Community Health Profiles Atlas 2015; The New York City Department of Health and Mental Hygiene, 2015.

Acknowledgements: Gretchen Culp, Cynthia Driver, Hetali Jokhakar, Susan Resnick and Catherine Wang

Ten Steps to Excellence: Contraceptive Access in Primary Care, Post-abortion, and Postpartum Settings

Steps	Contraception in Primary Care	Post-Abortion Contraception	Postpartum Contraception
Step 1	Have a written policy on contraception assessment and provision in primary care that is routinely communicated to all staff.	Have a written post-abortion contraception policy that is routinely communicated to all staff.	Have a written postpartum contraception policy that is routinely communicated to all staff.
Step 2	Train all staff in the skills necessary to implement this policy and to provide evidence-based contraceptive care.	Train all staff in the skills necessary to implement this policy and to provide evidence-based contraceptive care.	Train all staff in the skills necessary to implement this policy and to provide evidence-based contraceptive care.
Step 3	Assess patients' pregnancy plans. Provide evidence-informed counseling to patients on the full range of contraceptive methods, (including IUDs and implants) if they do not desire pregnancy presently.	Provide evidence-informed counseling to patients during abortion care on the full range of contraceptive methods, (including IUDs and implants), prior to the procedure.	Provide evidence-informed counseling to patients beginning during prenatal care about the full range of contraceptive methods for postpartum use, (including IUDs and implants) and prioritizing breastfeeding needs.
Step 4	Train all staff to ensure reproductive decisions are made free of coercion.	Train all staff to ensure reproductive decisions are made free of coercion.	Train all staff to ensure reproductive decisions are made free of coercion.
Step 5	Have all FDA-approved contraceptive methods offered and available, including IUDs and implants.	Have all FDA-approved contraceptive methods offered and available, including IUDs and implants.	Have all FDA-approved contraceptive methods offered and available, including IUDs and implants.
Step 6	Do not require pelvic exams, cervical cancer screening, or sexually transmitted infection screening before providing contraception, unless medically indicated.	Do not require cervical cancer screening or sexually transmitted infection screening before providing contraception, unless medically indicated.	Do not require cervical cancer screening or sexually transmitted infection screening prior to providing contraception, unless medically indicated.
Step 7	Offer immediate initiation of contraception during same visit if need is identified, including injectables, IUDs, and implants if you can be reasonably certain patient is not pregnant.	Offer immediate initiation of contraception post-procedure, including injectables, IUDs, and implants.	Offer immediate initiation of contraception after delivery, including injectables, IUDs, and implants.
Step 8	Utilize diverse payment options to reduce cost as a barrier, both for the facility and for the patient. This includes informing patients about self-pay options, government programs, and insurance enrollment options.	Utilize diverse payment options to reduce cost as a barrier, both for the facility and for the patient. This includes informing patients about self-pay options, government programs, and insurance enrollment options.	Utilize diverse payment options to reduce cost as a barrier, both for the facility and for the patient. This includes informing patients about self-pay options, government programs and insurance enrollment options.
Step 9	Provide STI prevention information and promote the use of condoms as dual method to prevent STIs, including HIV. Provide condoms at no cost to patients.	Provide STI prevention information and promote the use of condoms as dual method to prevent STIs, including HIV. Provide condoms at no cost to patients.	Provide STI prevention information and promote the use of condoms as dual method to prevent STIs, including HIV. Provide condoms at no cost to patients.
Step 10	Develop and implement plans for patients' ongoing sexual and reproductive health needs.	Develop and implement plans for patients' ongoing reproductive health needs.	Develop and implement plans for patients' ongoing reproductive health needs.

New York City, 2008–2012

Severe
Maternal
Morbidity

NYC
Health

New York City Department of Health and Mental Hygiene
Bureau of Maternal, Infant and Reproductive Health

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Suggested citation: New York City Department of Health and Mental Hygiene (2016). Severe Maternal Morbidity in New York City, 2008–2012. New York, NY.

Table of Contents

List of Figures and Tables

Appendix B Tables

Executive Summary

Despite a century of significant improvements in maternal health, pregnancy-related deaths in the United States continue to rise. Similarly, severe maternal morbidity (SMM)—life-threatening complications during delivery—has increased steadily in recent years. To date, much of the national conversation on maternal health has focused on maternal mortality, although it represents a small proportion of the total burden of maternal morbidity.[1] This report focuses on SMM in New York City from 2008 to 2012.

Key Findings

- The rate of SMM in New York City increased 28.2% from 2008 to 2012 (197.2 per 10,000 deliveries in 2008 to 252.9 per 10,000 deliveries in 2012).

- New York City's rate of SMM was 1.6 times the national rate from 2008 to 2009.

- Black non-Latina women had the highest SMM rate—three times that of White non-Latina women. This rate remained high even after stratifying by other known risk factors such as low education, neighborhood poverty level and pre-pregnancy obesity. Rates were also high among Puerto Rican and other Latina women compared to White non-Latina women.

- SMM rates were highest among women living in high-poverty neighborhoods.

- The leading indicators of SMM included blood transfusion, disseminated intravascular coagulation, hysterectomy, ventilation and adult respiratory distress syndrome. These indicators reflect the management of, and the end-organ failure associated with, many of the leading causes of pregnancy-related mortality, including hemorrhage, pregnancy-induced hypertension and embolism.

- Women with an underlying chronic condition such as hypertension, diabetes or heart disease were three times as likely to have SMM as women with no chronic conditions.

- The economic burden of SMM was high, with SMM deliveries costing, on average, $15,714 compared to $9,357 for deliveries without SMM (after adjusting for other drivers of cost). From 2008 to 2012, the total excess costs related to SMM in New York City exceeded $85 million, an extra $17 million each year.

Key Recommendations

- Implement programmatic and policy interventions aimed at improving women's overall health and directed at populations disproportionately burdened by SMM

- Document costs and cost savings of interventions

- Conduct ongoing surveillance to measure the impact of interventions and track progress in reducing SMM in New York City

- Research the conditions and modifiable risk factors that contribute to SMM disparities, including qualitative research on the experiences of women and families impacted by SMM

Background

Maternal morbidity is a continuum from mild adverse effects to life-threatening events or death (Figure 1). SMM events are 100 times more common than maternal deaths. They affect approximately 52,000 women in the U.S. each year.[1] Rates of maternal mortality and morbidity have steadily increased over the last decade. From 1998 to 2009, the U.S. pregnancy-related mortality rate increased from 12.0 to 17.8 deaths per 100,000 live births, and the SMM rate increased from 73.8 to 129.1 per 10,000 live births.[1,2] Improved documentation and surveillance may have contributed to these increases.[3] Other potential drivers include delayed childbearing, increased cesarean delivery, emerging infections and increasing prevalence of pre-pregnancy obesity and underlying chronic conditions.[4,5]

Maternal Death

Severe Maternal Morbidity

Maternal Morbidity

Uncomplicated Deliveries

Increasing severity
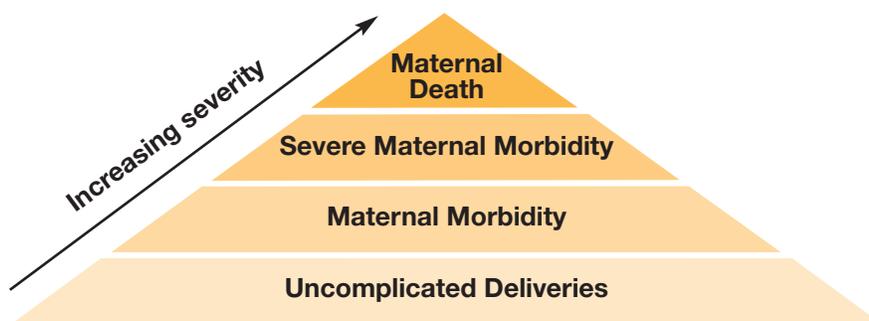
Figure 1. **Continuum of Maternal Morbidity Showing Variation in Severity**

There are also persistent disparities by race and ethnicity, particularly between Black and White non-Latina women. Nationally, Black non-Latina women are three times as likely to die during pregnancy or childbirth and twice as likely as White non-Latina women to experience SMM.[5,6] A recent report on New York City pregnancy-associated mortality found that Black non-Latina women were 12 times as likely as White non-Latina women to die from pregnancy-related causes.[7]

There are likely many contributors to these disparities, including pre-conception health status, prevalence of obesity and other co-morbidities and access to care.[8] Factors associated with poverty, such as inadequate housing, residential segregation and lower educational attainment, which disproportionately impact Black women, also increase risk for SMM.[8,9] And racism and its attendant stresses, too, likely contribute to adverse maternal health outcomes.[9] It is important to note that while research has primarily focused on the Black-White disparity, emerging data shows that other demographic groups, such as recent immigrants, have similar poor maternal health outcomes.[6,10]

Little is known about the costs of SMM, particularly to the health care system. Childbirth is one of the most frequent and expensive reasons for hospitalization. The roughly 3.8 million childbirth admissions in 2011 cost $12.4 billion, accounting for 10% of all U.S. hospitalizations and 3% of all health care costs.[11] Although SMM is estimated to occur in less than 2% of all deliveries, these events likely increase the average cost of medical care due to the need for additional procedures and longer hospital stays.[1] Documenting the health care cost of SMM is necessary to calculate the costs and benefits of interventions.

The New York City Health Department, in partnership with the Fund for Public Health in New York, embarked on a two-year project in 2013 to design the first citywide SMM surveillance system. With its racially and economically diverse population, roughly 120,000 deliveries per year and a pregnancy-related mortality ratio higher than that of the U.S., New York City was uniquely suited for the development of an SMM surveillance system.[7]

Data Sources

Birth Certificates: The Health Department's Bureau of Vital Statistics collects information on all live births in the city and issues birth certificates. In addition to registering the birth, the birth certificate contains a confidential medical report: demographic information—including the mother's age, race, nativity and borough of residence—and information about the pregnancy, such as parity, prenatal care and method of delivery. A copy of the confidential medical report of birth and the data elements it contains is available in the Technical Appendix in the Annual Summary of Vital Statistics at nyc.gov/html/doh/html/data/vs-summary.shtml.

Inpatient Hospital Discharge Data: The New York State Department of Health Statewide Planning and Research Cooperative System (SPARCS) tracks all inpatient hospital discharges. The hospital discharge records contain length of stay, International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis and procedure codes, hospital charges and additional services provided. The vast majority (99%) of New York City deliveries occur in hospitals and therefore have associated hospital discharge records. SPARCS data elements can be found at www.health.ny.gov/statistics/sparcs/sysdoc/iptable.htm.

Data Matching

The New York State Department of Health matched New York City birth certificates with the mother's delivery hospitalization record from SPARCS. Multiple births (e.g., twins, triplets) were counted as one delivery. Approximately 96% of all live deliveries were matched with a hospital discharge record. More information on the method of identifying deliveries and match quality is available in **Appendix A** and **Appendix B**, **Table 1**.

Figure 2. Data Matching Process for Birth Certificates and SPARCS Records, New York City, 2008–2012

| All live birth certificates in New York City 2008–2012 N=625,505 | → | All deliveries in New York City 2008–2012 N=613,314 | Data matching | SPARCS hospital discharge records New York City 2008–2012 |

Matched birth-SPARCS records 2008–2012 N=588,232 95.9% of all deliveries
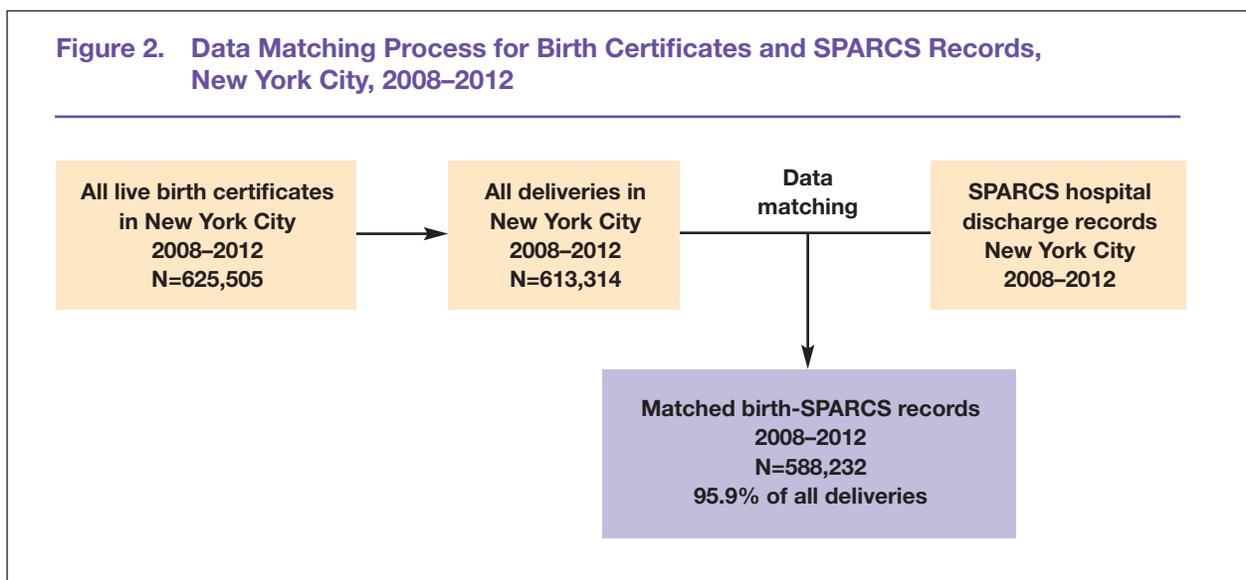
Identification of Severe Maternal Morbidity

SMM events were identified during delivery hospitalizations using an algorithm developed by researchers at the Centers for Disease Control and Prevention (CDC).[1] The algorithm identifies 25 indicators of SMM that represent either serious complications of pregnancy or delivery—such as eclampsia or acute renal failure—or procedures used to manage serious conditions—such as blood transfusion, ventilation or hysterectomy. Of the 25 indicators, 18 were identified using ICD-9-CM diagnosis codes. Seven indicators used procedure codes from the hospital discharge record. A complete list of conditions and codes is available in Appendix D. Compared to a review of clinical indicators in medical records, the CDC algorithm has a 77% sensitivity.[12]

To ensure that only the most severe cases of these 25 indicators during delivery hospitalizations were captured, these indicators were classified as SMM only if they additionally met one of the following criteria:

- The mother's length of stay was equal to or greater than the 90th percentile by delivery method.
- The mother was transferred before or after delivery to a different facility.
- The mother died during delivery hospitalization.
- At least one of the seven procedure indicators was present.

Analysis

All SMM rates in this report were calculated per 10,000 live deliveries that successfully matched with a SPARCS record. Throughout the report, the unit will be referred to as "per 10,000 deliveries." Chi-square tests and bivariate logistic regression were used to test the significance of the association between maternal characteristics and SMM. Two-sided Cochran-Armitage tests were used to examine the significance of SMM trends. All associations and trends presented in this report are statistically significant (p<0.05) unless otherwise noted.

Total charges reported in SPARCS were used to estimate the total health care costs related to SMM. Because charges reflect the amount the hospital billed for services (not the cost for the hospital to provide those services), three adjustments converted charges to estimated costs, using a methodology used by the Healthcare Cost and Utilization Project at the National Agency for Healthcare Research and Quality (see Appendix A):

1. Adjustment for hospital-specific markup using cost-to-charge ratios[13]
2. Adjustment for department-specific markup (e.g., higher markup on surgery)[14]
3. Adjustment for inflation over time[15]

The formula for calculating SMM costs is: Total cost = total charges * hospital-specific cost-to-charge ratio * diagnosis-related group-specific adjustment factor * inflation multiplier.

The report authors calculated unadjusted mean costs and 95% confidence intervals (CI) for deliveries with and without SMM and constructed a multivariable regression model to control for other demographic, clinical and hospital-level cost factors. The model included age, race/ethnicity, insurance status, plurality, delivery method and presence of a comorbidity. Finally, using the adjusted mean difference and prevalence of SMM, the report authors estimated the total excess costs related to SMM from 2008 to 2012. All analyses, apart from mapping, were conducted using SAS 9.2. Mapping was performed using ArcGIS 10.2.1.

Figure 3. **Severe Maternal Morbidity Rate per 10,000 Deliveries and Number of Cases, New York City, 2008–2012**
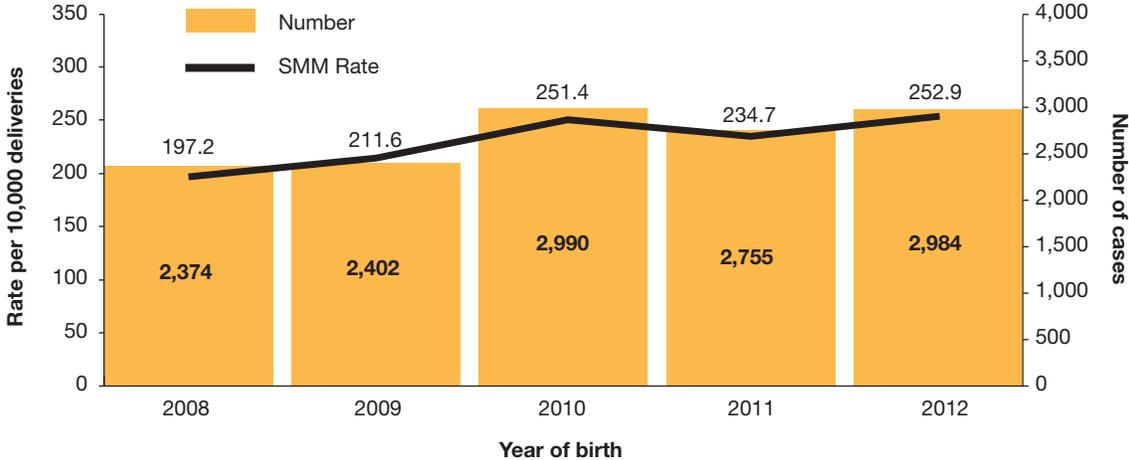
- In 2012, there were 2,984 cases of SMM in New York City with a rate of 252.9 per 10,000 deliveries. This represented a 28.2% (p<0.001) increase from 2008, when the SMM rate was 197.2.

- The U.S. SMM rate in 2008-2009 was 129.1 per 10,000 deliveries.[1] During that same period, the rate of SMM in New York City was 1.6 times the national rate, with 204.2 per 10,000 deliveries.

Figure 4. **Distribution of Severe Maternal Morbidity Indicators, New York City, 2008–2012**
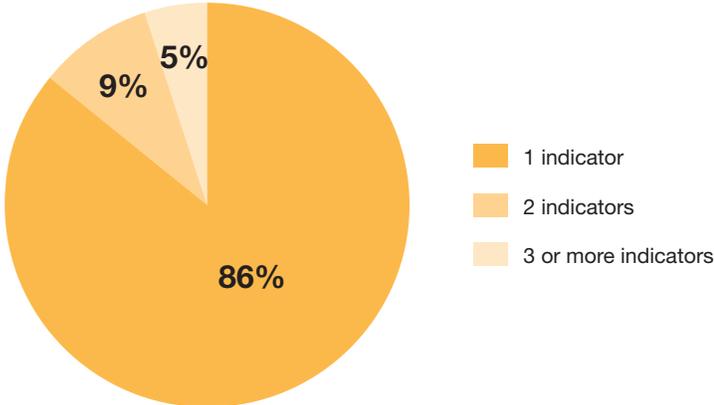
- The majority of deliveries with SMM (86%) had one indicator (out of a total of 25 SMM indicators), 9% of deliveries had two indicators and 5% had three or more indicators present.

Leading Indicators

Figure 5. Leading Diagnosis-Based Indicators of Severe Maternal Morbidity, New York City, 2008–2012
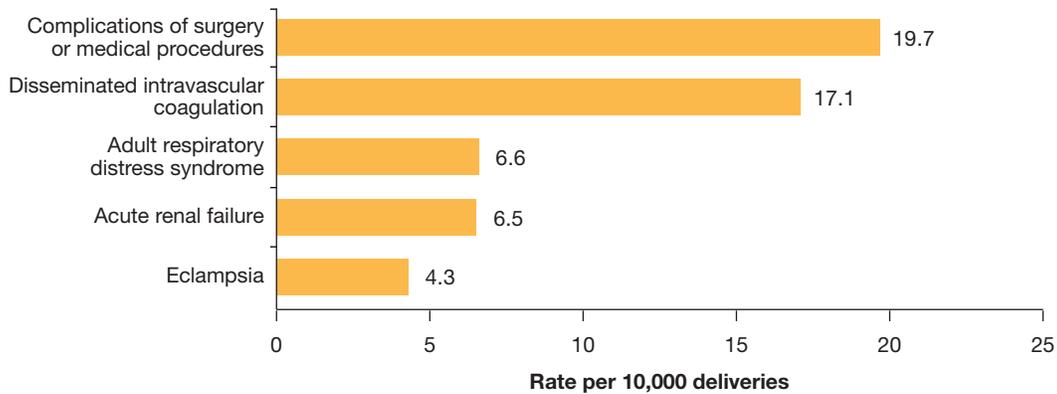
- The leading diagnosis-based indicators of SMM were complications of surgery or medical procedures (19.7 per 10,000 deliveries), disseminated intravascular coagulation (17.1 per 10,000 deliveries), adult respiratory distress syndrome (6.6 per 10,000 deliveries), acute renal failure (6.5 per 10,000 deliveries) and eclampsia (4.3 per 10,000 deliveries); see Appendix D for a complete list and description of SMM indicators.

- The ICD-9-CM codes used to identify complications of surgery or medical procedures (669.4x, 997.1) indicated a broad range of diagnoses, from anemia to heart failure, making interpretation difficult.

- The other leading indicators reflect the end-organ failure associated with many of the leading causes of pregnancy-related mortality reported in the latest New York City report, including hemorrhage, pregnancy-induced hypertension and embolism.[16]

Figure 6. Leading Procedure-Based Indicators of Severe Maternal Morbidity, New York City, 2008–2012
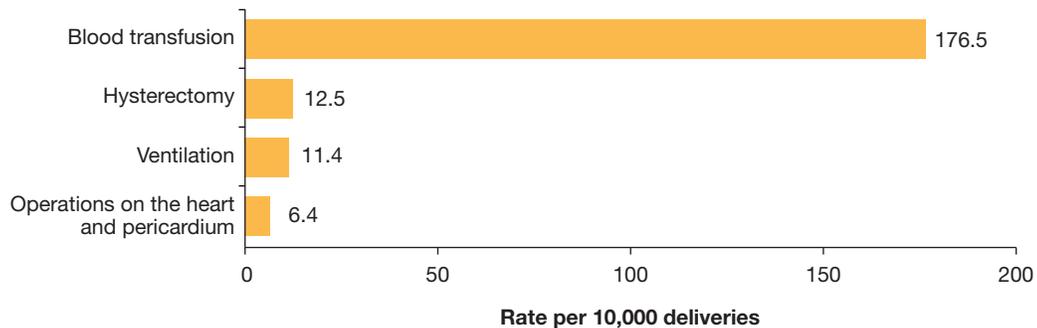
- Blood transfusion (176.5 per 10,000 deliveries) accounted for roughly 65% of all SMM cases. However, procedure codes indicating transfusions do not specify the amount of blood transfused; therefore, it was impossible to distinguish minor versus massive transfusions. The SMM rate without including blood transfusion as an indicator was 80.0 per 10,000 deliveries [data not shown].

- Other leading procedure-based indicators included hysterectomy (12.5 per 10,000 deliveries), ventilation (11.4 per 10,000 deliveries) and operations on the heart and pericardium (6.4 per 10,000 deliveries).

Figure 7.   Severe Maternal Morbidity Indicator Rates in New York City and the U.S., 2008-2009
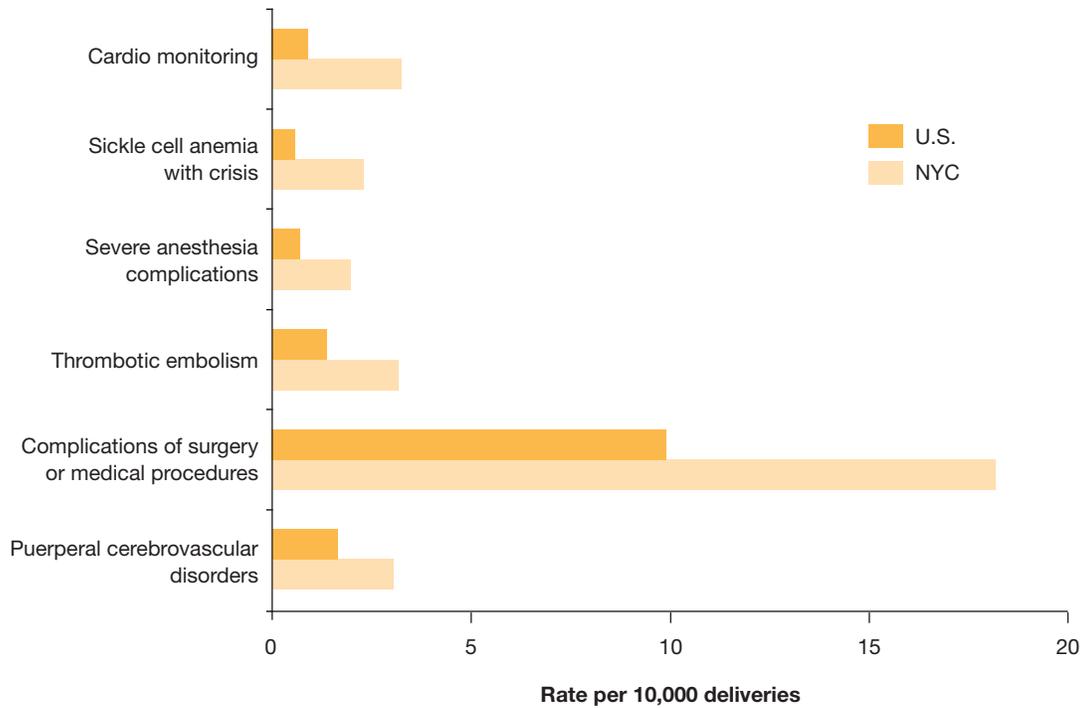
- There were six indicators of SMM in New York City with rates approximately two or more times as high as rates in the U.S.[1] These are puerperal cerebrovascular disorders, complications of surgery or medical procedures, thrombotic embolism, severe anesthesia complications, sickle cell anemia with acute crisis and cardio monitoring.

Maternal Demographic Characteristics

Figure 8. Severe Maternal Morbidity by Maternal Age, New York City, 2008–2012

Rate per 10,000 deliveries (y-axis)

Maternal age	Rate per 10,000 deliveries
≤19	292.2
20-24	237.8
25-29	198.6
30-34	205.0
35-39	248.8
≥40	358.9
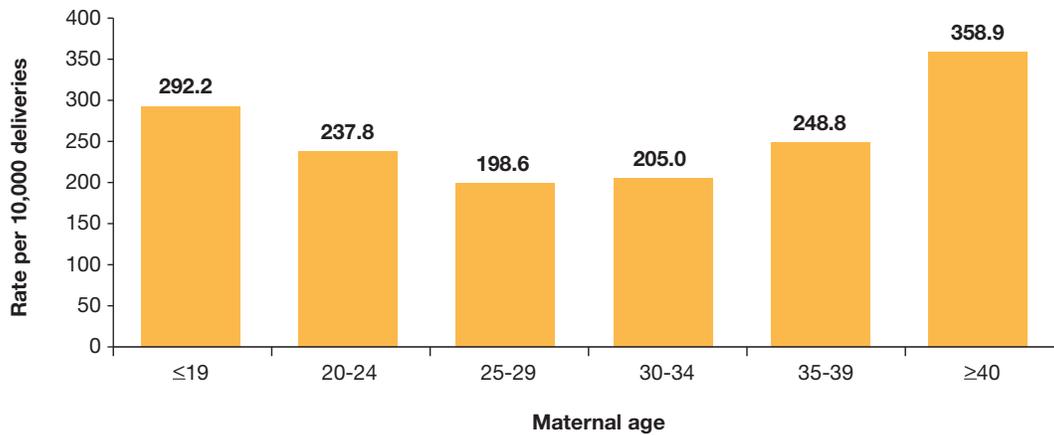
Figure 9. Distribution of Live Births and Severe Maternal Morbidity by Maternal Age, New York City, 2008–2012

	≤19	20-24	25-29	30-34	35-39	≥40
Live births	5.8	19.3	25.8	27.6	16.6	4.9
SMM	7.4	20.0	22.3	24.6	18.0	7.7
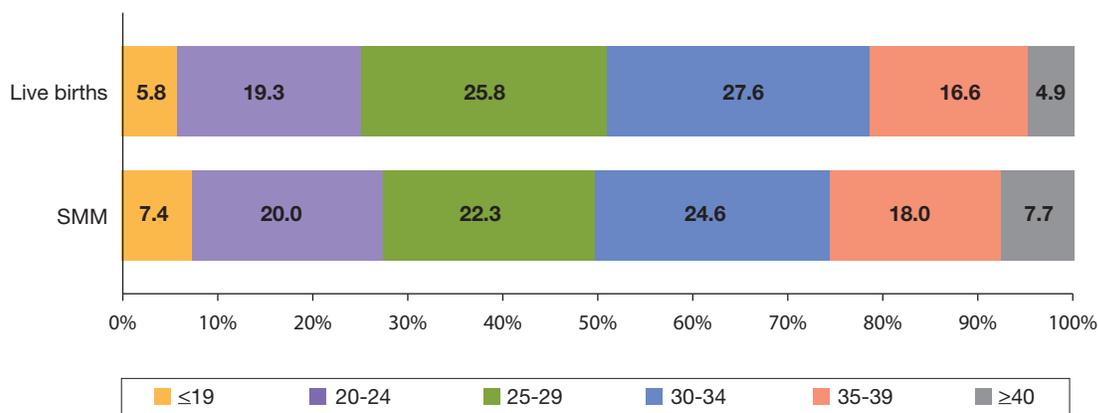
- The greatest proportion of SMM cases occurred among women aged 25 to 29 (22.3%) and 30 to 34 (24.6%). These same age groups, though, had the two lowest rates of SMM (198.6 and 205.0 per 10,000 deliveries, respectively), as shown above in Figure 8. This is because the majority of all deliveries (53.4%) occurred among women 25 to 34, as shown in Figure 9.

- While women 40 and older giving birth represented less than 5% of all deliveries, they made up close to 8% of all SMM cases. Of all women giving birth from 2008–2012, those 40 and older had the highest rate of SMM (358.9 per 10,000 deliveries).

- Adolescents (≤19 years of age) had the second highest SMM rate at 292.2 per 10,000 deliveries.

Figure 10. Severe Maternal Morbidity by Maternal Race/Ethnicity, New York City, 2008–2012
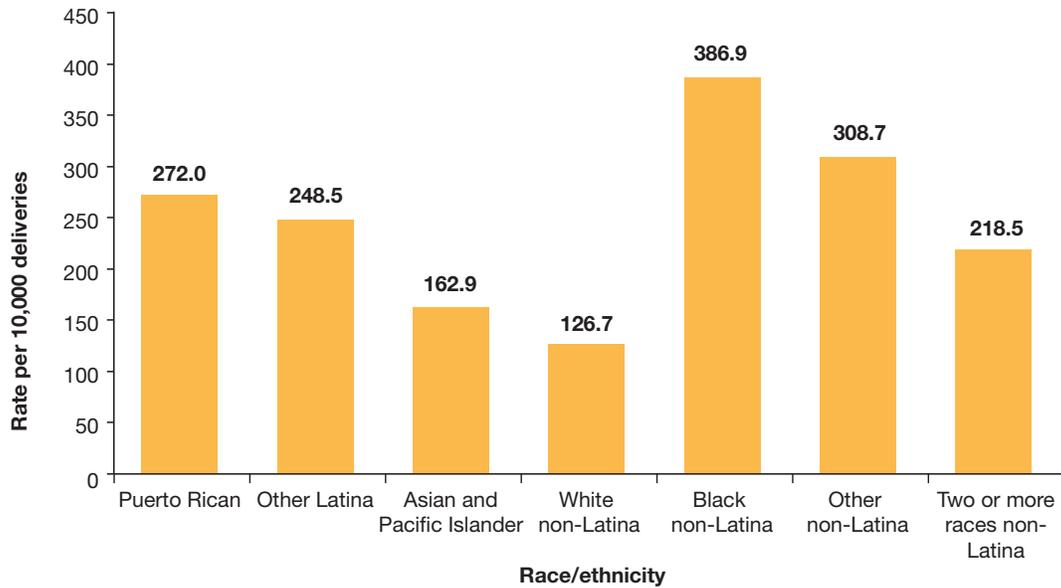
Figure 11. Distribution of Live Births and Severe Maternal Morbidity Cases by Race/Ethnicity, New York City, 2008–2012
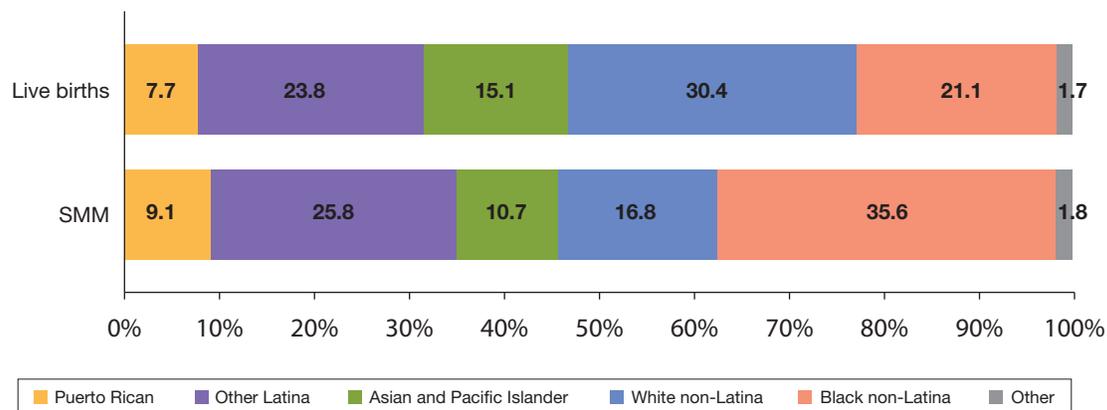
- The SMM rate among Black non-Latina women (386.9 per 10,000 deliveries) was three times that of White non-Latina women (126.7 per 10,000 deliveries).

- The disparity between Black non-Latina and White non-Latina women can also be seen in the disproportionately higher percentage of SMM cases (35.6%) relative to live births (21.1%) for Black non-Latina women. By contrast, White non-Latina women comprised 16.8% of SMM cases but 30.4% of live births.

- The SMM rate was high among women who were Puerto Rican (272.0 per 10,000 deliveries) or of other Latina origin (248.5 per 10,000 deliveries). The majority of other Latina women were of Dominican or Mexican ancestry.

Figure 12. Severe Maternal Morbidity by Maternal Region of Birth,* New York City, 2008–2012
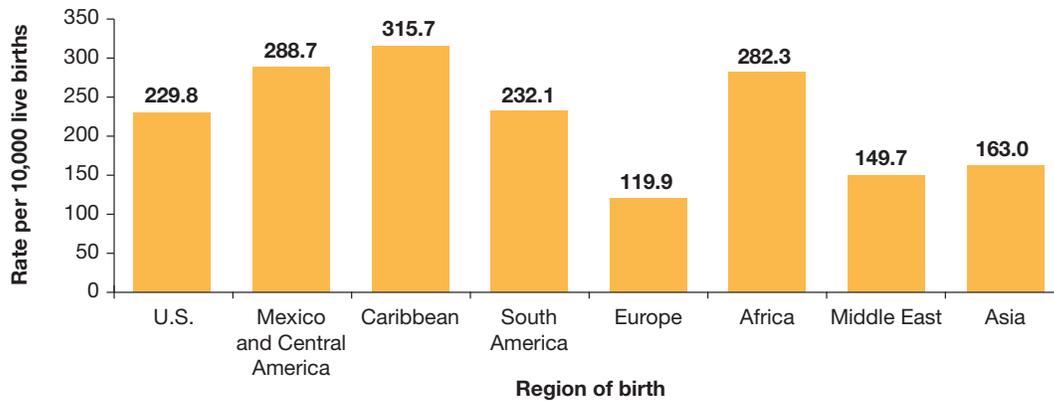
* Region of birth based on the mother's reported country of birth. Australian Region and Canada were excluded because of small numbers.

Table 1. Top 10 Non-U.S. Countries of Birth by Number and Rate of Severe Maternal Morbidity, New York City, 2008–2012

Birth countries with the greatest number of cases			Birth countries with the highest SMM rates		
Country of birth	Number	Rate	Country of birth	Number	Rate
Mexico	1,049	300.7	Haiti	363	494.0
Dominican Republic	898	242.8	St. Vincent	53	476.2
Jamaica	475	364.7	Barbados	38	464.0
China	391	111.8	Nigeria	122	435.6
Haiti	363	494.0	Jordan	17	409.6
Ecuador	300	221.6	Grenada	62	403.9
Guyana	280	307.6	Dominica	15	402.1
Trinidad	236	340.1	Sierra Leone	24	392.2
Bangladesh	236	266.6	Ghana	122	379.0
Pakistan	150	238.5	Antigua and Barbuda	24	366.4
U.S.	*6,588*	*229.8*	**U.S.**	*6,588*	*229.8*

Countries with <15 cases of SMM were excluded

- The SMM rate among U.S.-born women was similar to that of foreign-born women (229.8 and 229.3 per 10,000 deliveries, respectively) [data not shown].

- Among foreign-born women, those from Mexico, the Caribbean, Central America and Africa had the highest SMM rates (315.7, 288.7 and 282.3 per 10,000 deliveries, respectively). Within these regions, women from Haiti, St. Vincent, Barbados and Nigeria had the highest rates of SMM. Birth countries with the highest absolute number of cases included Mexico (n=1,049), the Dominican Republic (n=898), Jamaica (n=475) and China (n=391). Women from Haiti had both a high absolute burden and rate of SMM, with 363 cases and a rate of 494.0 per 10,000 deliveries.

- In general, women who immigrated less than a year before their delivery had higher SMM rates than women who had been living in the U.S. for more than a year (See Appendix B, Table 3).

Figure 13. Severe Maternal Morbidity by Educational Attainment, New York City, 2008–2012
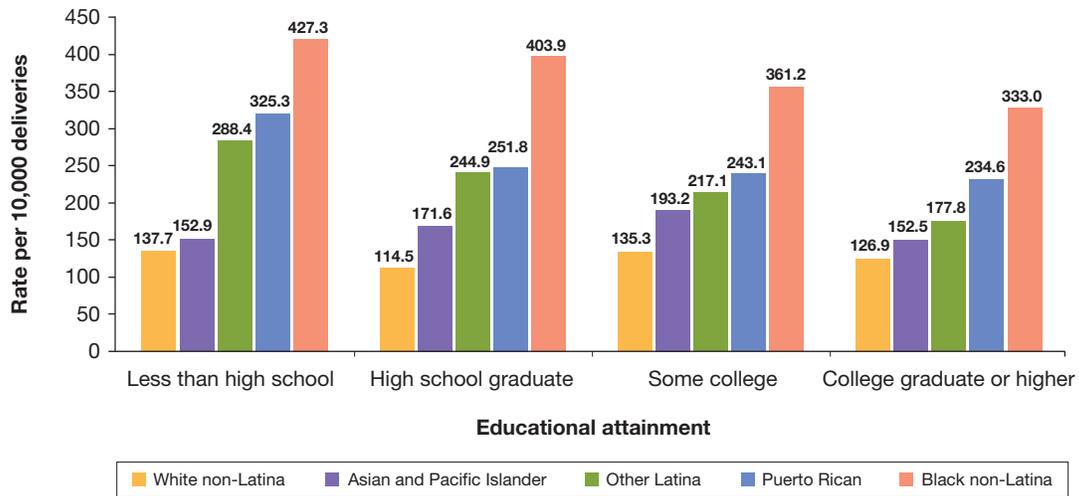
- Though the SMM rate varies by race/ethnicity, overall the rate was highest among women who had less than a high school education (283.9 per 10,000 deliveries) and lowest among those with at least a college degree (164.5 per 10,000 deliveries) (Appendix B, Table 3). The high rate among those with less than a high school education remained consistent even after restricting to women aged 21 and older.

- Black non-Latina women with at least a college degree had higher SMM rates than women of other race/ethnicities who never graduated high school.

Figure 14. Severe Maternal Morbidity by Health Insurance Coverage, New York City, 2008–2012
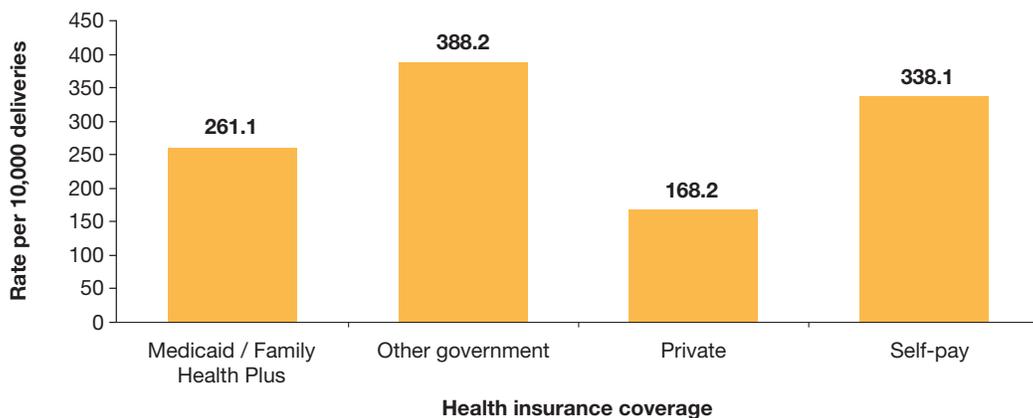
- The SMM rate for women insured by Medicaid or Family Health Plus at the time of delivery was higher than that of women with private insurance (261.1 versus 168.2 per 10,000 deliveries, respectively).

- Women who had other government insurance (i.e., Medicare, CHAMPUS, etc.) and those who self paid represented only 3% of all live births but had the highest SMM rates (388.2 and 338.1 per 10,000 deliveries, respectively).

Place-Based Characteristics

Figure 15. Severe Maternal Morbidity by Community District of Residence,* New York City, 2008–2012

Rate per 10,000 deliveries

Rate among all New York City residents (231.9 per 10,000 deliveries)
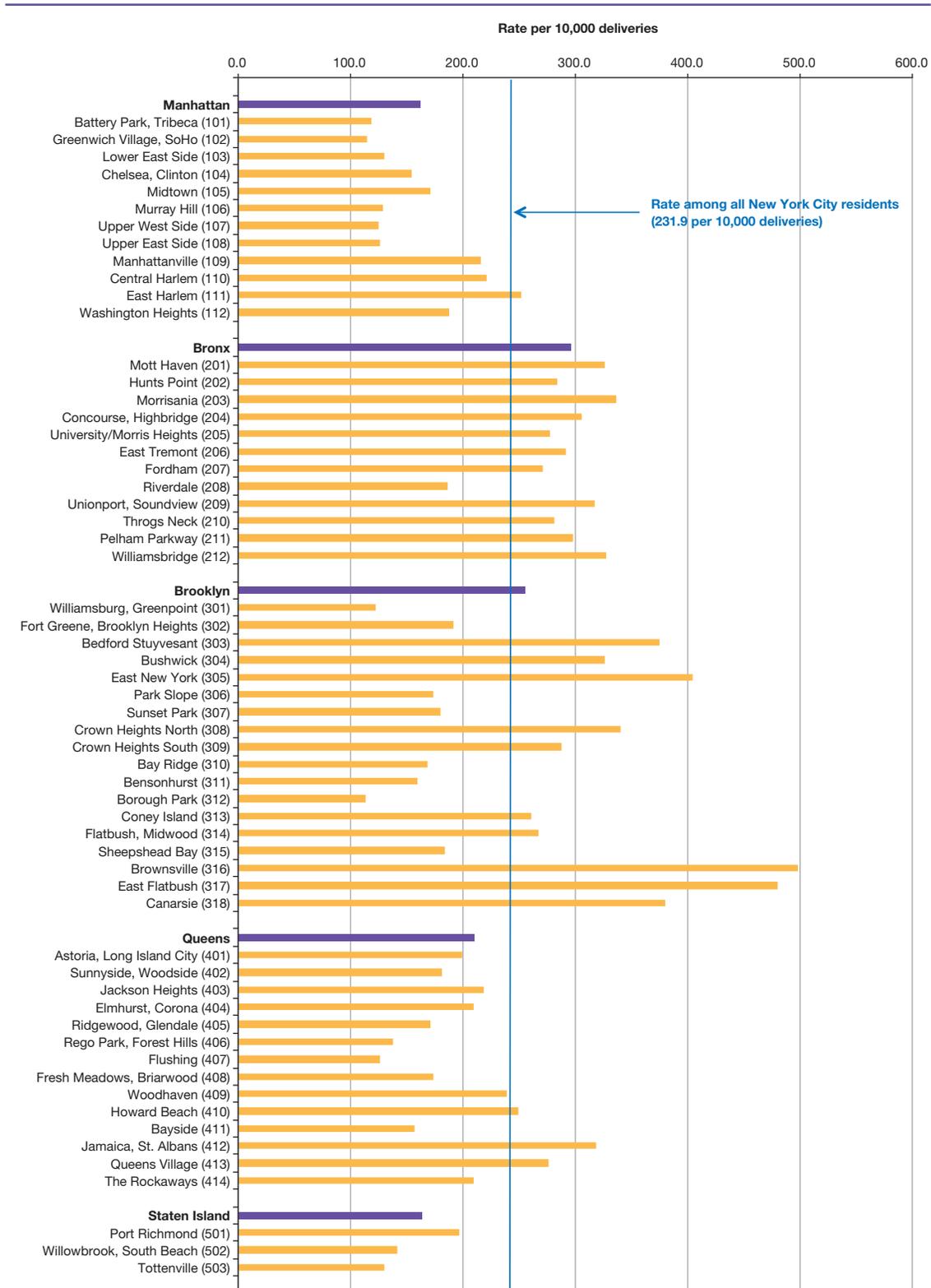
*Analysis was restricted to New York City residents, who comprised 92% (n=542,585) of all deliveries in the city's facilities.

Figure 16. Map of Severe Maternal Morbidity by Community District of Residence, New York City, 2008–2012

SMM per 10,000 deliveries by community district

- 113.3 - 160.9
- 161.0 - 231.9
- 232.0 - 340.9
- 341.0 - 497.4
- Action Center Neighborhoods
- Parks and airports
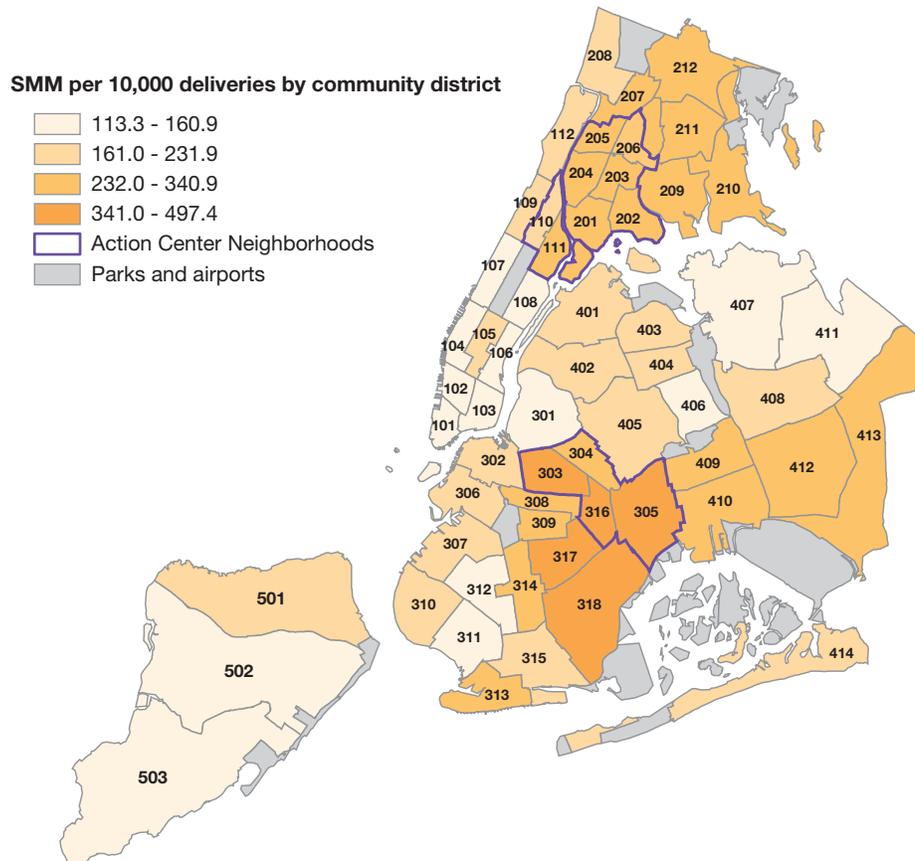
The numbers shown in the map correspond to the community districts listed in Figure 15.

New York City Residents and Boroughs

- The average SMM rate for New York City residents was 231.9 per 10,000 deliveries. The Bronx and Brooklyn had the highest borough SMM rates (295.7 and 255.3 per 10,000 deliveries, respectively); Manhattan and Staten Island had the lowest (162.2 and 163.5 per 10,000 deliveries, respectively). In Queens, the SMM rate was 210.2 per 10,000 deliveries (Appendix B, Table 3).

Community Districts

- The community districts with the highest SMM rates were all in Brooklyn: Brownsville (497.4 per 10,000 deliveries), East Flatbush (479.8 per 10,000 deliveries) and East New York (404.2 per 10,000 deliveries) (Appendix B, Table 4). The majority of deliveries in these neighborhoods were to Black non-Latina women: 76% of all deliveries in Brownsville, 87% in East Flatbush and 52% of all deliveries in East New York were to Black non-Latina women [data not shown].

- The community districts with the lowest SMM rates were Borough Park (113.3 per 10,000 deliveries) in Brooklyn, and Greenwich Village/SoHo (114.5 per 10,000 deliveries) and Battery Park/Tribeca (117.9 per 10,000 deliveries), both in Manhattan (Appendix B, Table 4).

Neighborhood Health Action Centers

The Neighborhood Health Action Centers, opening soon, are part of New York City's plan to promote health equity and reduce health disparities at the neighborhood level.

- SMM rates in three neighborhoods where the Action Centers will operate, and where the Health Department now has program offices, all exceed the citywide average.

- The highest SMM rate was in north and central Brooklyn (Community Districts 303-305 and 316), with 395.0 per 10,000 deliveries, followed by the south Bronx (Community Districts 201-206), with 302.6 per 10,000 deliveries and east and central Harlem (Community Districts 110-111), with 236.2 per 10,000 deliveries. The SMM rate among non-Action Center neighborhoods was 208.2 per 10,000 (Appendix B, Table 3).

Figure 17. Severe Maternal Morbidity by Neighborhood Poverty Level* and Race/Ethnicity, New York City, 2008–2012
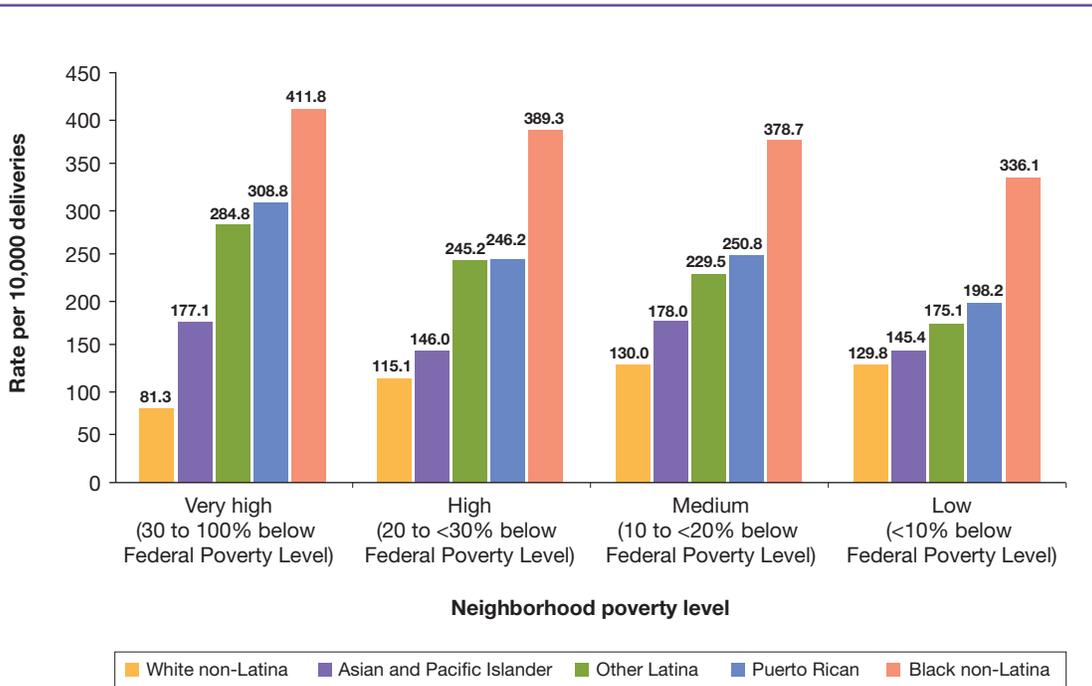
*Neighborhood poverty level was based on the mother's New York City residence zip code and indicates the percentage of residents of that zip code with incomes below the Federal Poverty Level. Analysis was restricted to New York City residents.

- Though the SMM rate differed by race/ethnicity, overall the rate was highest among women living in very high-poverty zip codes with 30% or more of residents below the Federal Poverty Level (282.7 per 10,000 deliveries) and was lowest among women living in low-poverty zip codes with less than 10% of residents below the Federal Poverty Level (162.7 per 10,000 deliveries) (Appendix B, Table 3). However, the low-poverty SMM rate for Black non-Latina women was higher than the very high-poverty SMM rates for other racial/ethnic groups.

Prenatal and Delivery Characteristics

Figure 18. Severe Maternal Morbidity by Time of Entry to Prenatal Care and Adequacy of Care,* New York City, 2008–2012
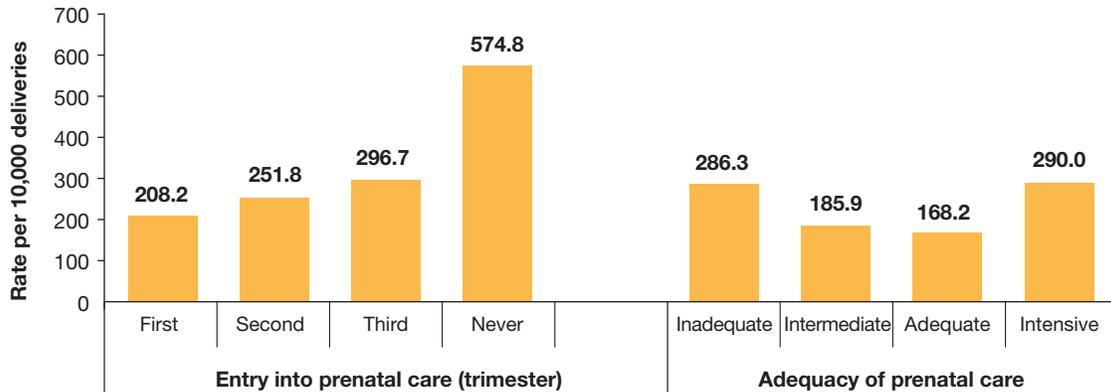
*Adequacy of care was based on the Kotelchuck Index, which takes into account the month of prenatal care initiation, the number of prenatal care visits and the gestational age of the baby at delivery. More information is available in Appendix C.

- The SMM rate was highest among women who received no prenatal care (574.8 per 10,000 deliveries) or late (third-trimester) care (296.7 per 10,000 deliveries). Less than 7% of women received no or late prenatal care.

- Women with inadequate and intensive prenatal care had the highest SMM rates (286.3 and 290.0 per 10,000, respectively).

Figure 19. Severe Maternal Morbidity by Parity, New York City, 2008–2012
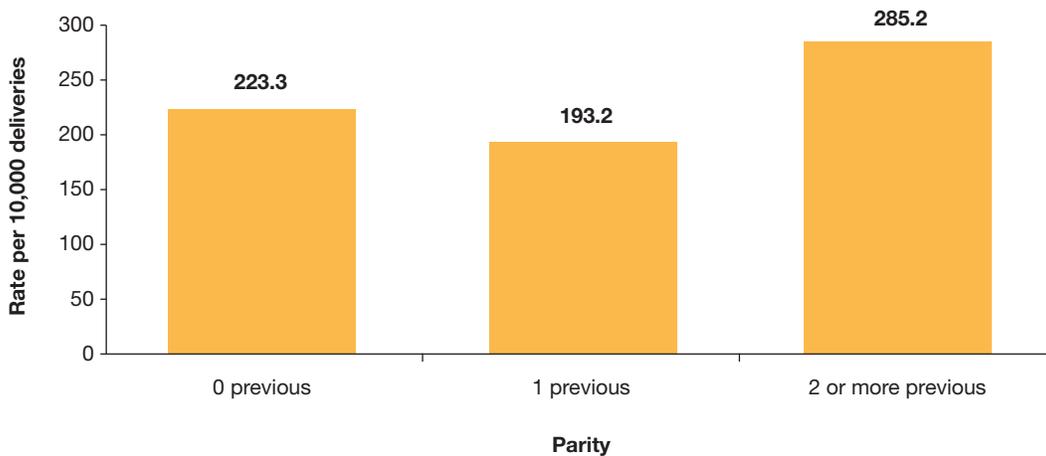
- Women with two or more previous live births had the highest SMM rate (285.2 per 10,000 deliveries) compared to those with zero or one previous live birth (223.3 and 193.2 per 10,000 deliveries, respectively).

Figure 20. Severe Maternal Morbidity by Delivery Type and Plurality, New York City, 2008–2012
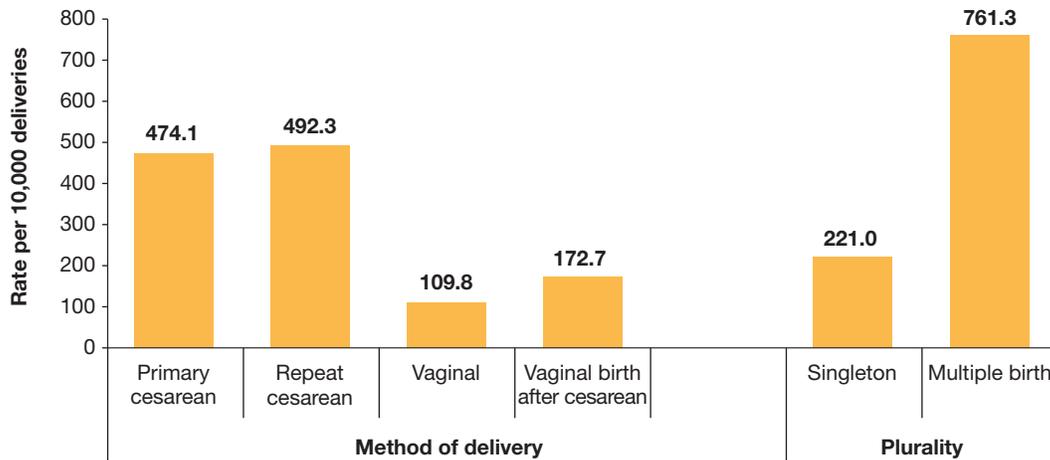
- Cesarean deliveries accounted for 31.9% of all live births but 66.8% of SMM cases (Appendix B, Table 5).

- The SMM rate was higher among women with a primary or repeat cesarean (474.1 and 492.3 per 10,000 deliveries, respectively), compared to women with a vaginal birth (109.8 per 10,000 deliveries) or vaginal birth after a cesarean (172.7 per 10,000 deliveries). Since it was difficult to differentiate between morbidity caused by cesarean delivery versus morbidity requiring a cesarean delivery, results should be interpreted with caution.

- Multiple births accounted for 1.6% of all deliveries but 5.3% of SMM cases (Appendix B, Table 5). The SMM rate was more than three times as high among women with multiple birth deliveries as among women with singleton births (761.3 versus 221.0 per 10,000 deliveries, respectively).

Figure 21. Severe Maternal Morbidity by Pregnancy Intention,* New York City, 2008–2012
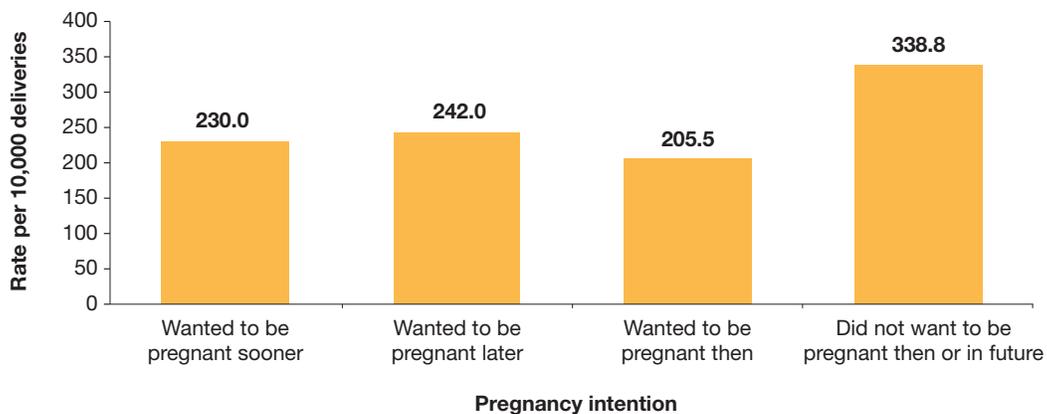
*One question on the birth certificate asks women to recall how they felt about becoming pregnant before they were pregnant.

- Women who said they did not want to be pregnant then or in the future were 1.6 times as likely to have SMM as women who reported wanting to get pregnant when they did (338.8 versus 205.5 per 10,000 deliveries, respectively).

Figure 22. Severe Maternal Morbidity by Level of Care,* New York City, 2008–2012
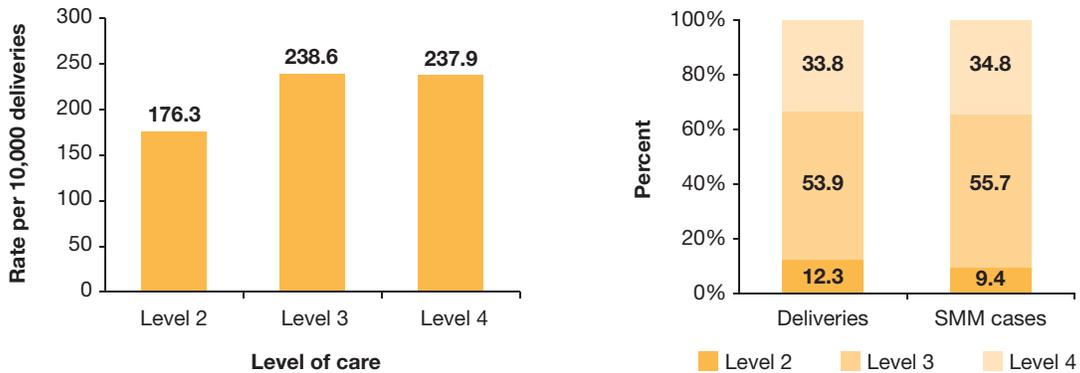
*Based on criteria developed by the American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine, New York City maternity hospitals fall within one of these categories: Level 2 (specialty care), Level 3 (subspecialty care) or Level 4 (Regional Perinatal Health Care Centers, i.e., facilities equipped to provide the highest level of care to women who are critically ill or with complex maternal conditions).[17]
Note: Facility-level analyses include hospitals with five or more births in every year 2008–2012 (N=583,921 deliveries).

- Women who delivered at Level 3 and 4 hospitals had the highest SMM rates (238.6 and 237.9 per 10,000 deliveries, respectively). New York City, overall, has a high level of perinatal care (as defined by the Levels of Maternal Care criteria), and the proportion of SMM cases occurring at Level 4 hospitals (34.8%) was similar to the overall proportion of deliveries occurring at Level 4 facilities (33.8%).

Figure 23. Severe Maternal Morbidity by Pre-Pregnancy Body Mass Index and Race/Ethnicity, New York City, 2008–2012
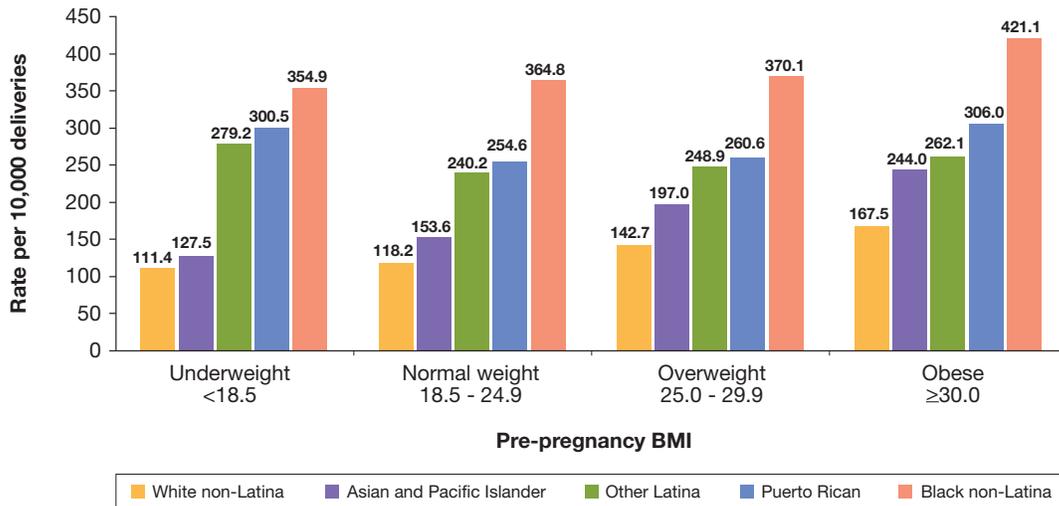
- SMM rates mostly increased as pre-pregnancy body mass index (BMI) increased. Overall, women who were underweight or normal weight had the lowest SMM rates (182.3 and 197.2 per 10,000 deliveries, respectively) (Appendix B, Table 5). Women who were obese at the time they became pregnant (BMI ≥30) had the highest rate of SMM (311.0 per 10,000 deliveries) (Appendix B, Table 5).

- Black non-Latina women consistently had the highest rates of SMM for all BMI groups. In addition, Black non-Latina women with normal pre-pregnancy BMI had higher rates of SMM (364.8 per 10,000 deliveries) than women of every other race/ethnicity who were obese.

Figure 24. Severe Maternal Morbidity by Chronic Condition, New York City, 2008–2012
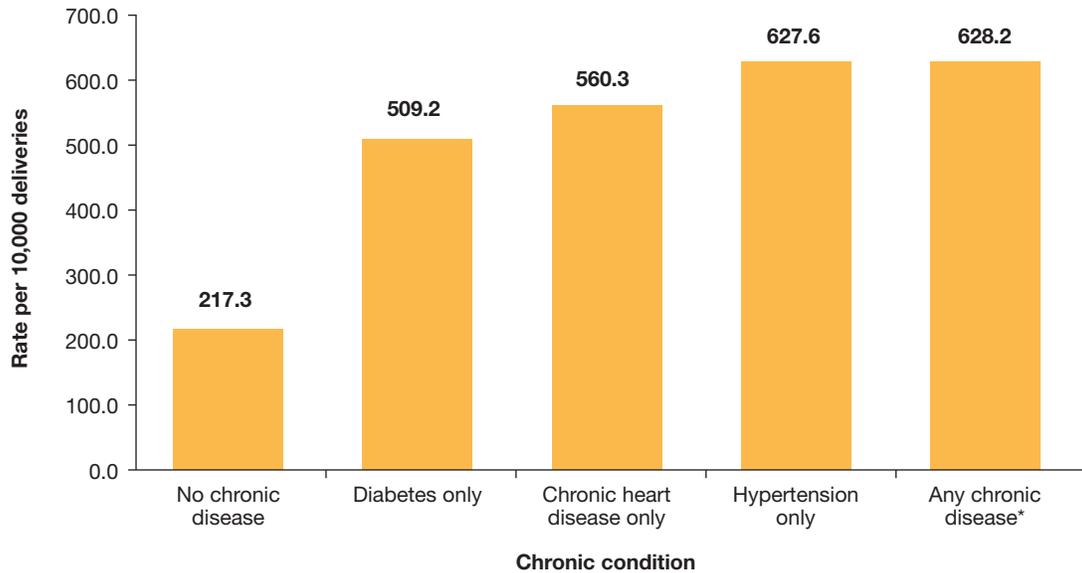
*Any chronic disease includes women with diabetes, heart disease or hypertension or any combination of these conditions.

- Women with any chronic condition (diabetes, heart disease or hypertension) were almost three times as likely to have SMM as women with none of these chronic conditions (628.2 versus 217.3 per 10,000 deliveries, respectively).

- While Black non-Latina women were more likely to deliver with a chronic condition than White non-Latina women (5.4% versus 2.0%), even without a chronic condition, they had higher SMM rates than other racial/ethnic groups at 361.9 per 10,000 deliveries [data not shown].

Figure 25. Estimated Delivery Cost by Number of Severe Maternal Morbidity Indicators, New York City, 2008–2012
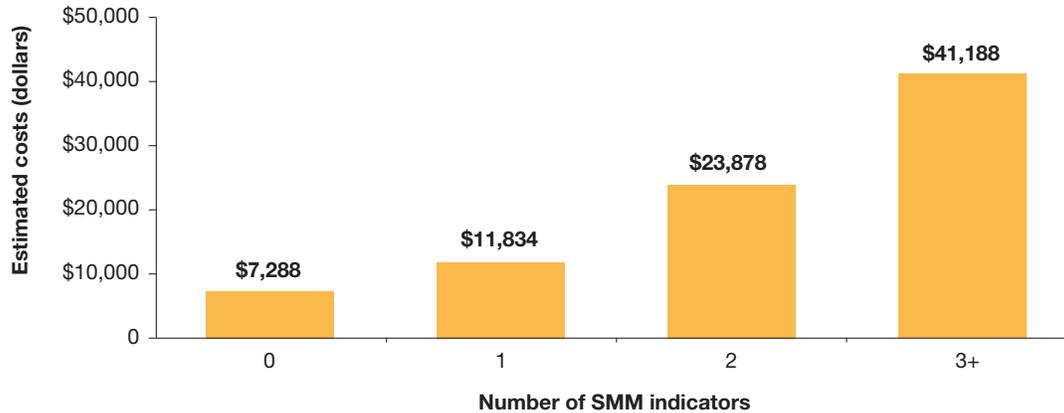
Figure 26. Estimated Delivery Cost With and Without Severe Maternal Morbidity, Adjusting for Other Factors,* New York City, 2008–2012
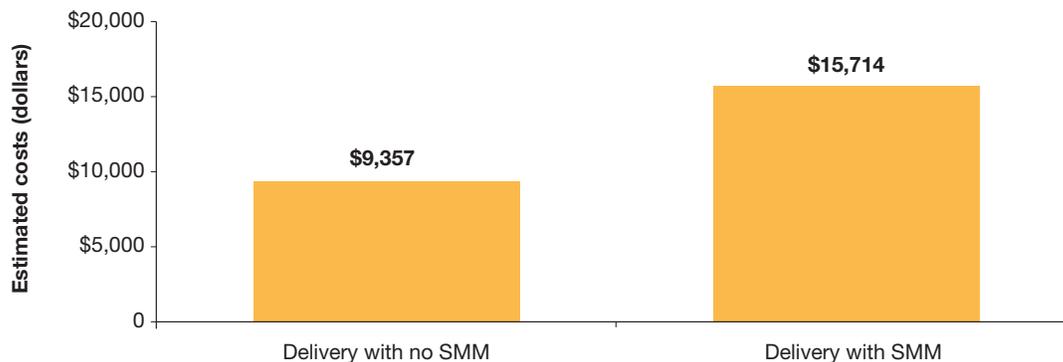
*Adjusted for maternal age, race/ethnicity, payer, method of delivery, plurality and comorbidity and clustered by hospital. The total sample for the adjusted analysis was 582,006 (excludes missing observations).

- The average cost of delivery increased as the number of SMM indicators increased. For women with two indicators, the average cost of delivery was $23,878, or more than three times the delivery cost for women with no indicators. With three or more SMM indicators, the average cost was more than five times as high as the cost of a delivery with no indicators ($41,188 versus $7,288, respectively).

- After adjusting for other maternal, clinical and hospital level factors, the average cost of delivery with SMM was $15,714 (95% CI: $13,342-18,509) compared to $9,357 (95% CI: $8,412-10,410) for deliveries without SMM. Therefore, the average difference between the cost of deliveries with and without SMM was $6,357 (95% CI: $6,200-6,516).

- With 13,505 cases of SMM in New York City from 2008–2012 and an adjusted difference in cost of $6,357 per case, the total excess costs related to SMM exceeded $85 million (13,505 * $6,357 = $85,851,285), an average of $17 million a year.

Recommendations

SMM is a pressing public health concern. The findings of this report point to many challenges and knowledge gaps in the effort to improve maternal health and reduce SMM, especially among women at highest risk. The Health Department recommends a concerted effort involving government, stakeholders, clinicians, researchers and others. Specific recommendations include:

1. **Implement interventions that improve women's overall health.** Increasing awareness of birth control options and access to family planning services, stressing the importance of preconception health and managing chronic diseases, enrolling women in insurance programs and prenatal care and educating women about the risk and warning signs of maternal morbidity may reduce SMM.

2. **Focus on reducing SMM among populations with the highest rates.** The data in this report show that certain neighborhoods have higher rates of SMM than others. Clinical, policy and program interventions should be directed at neighborhoods in which Black non-Latina and Latina women bear high burdens of SMM. Place-based approaches are part of the Health Department's overall commitment to addressing health inequities among neighborhoods. (For reference, see the Department's recently published Community Health Profiles).[18]

3. **Explore savings of specific SMM interventions.** Compare intervention costs and health care costs to estimate savings. Explore the societal costs of SMM, including time away from work and the need for long-term rehabilitation.

4. **Evaluate SMM trends.** Ongoing SMM surveillance will help document the effect of program and policy interventions and track progress in reducing SMM. Opportunities to improve surveillance methods, including the quality of blood transfusion measurements and the implementation of ICD-10 coding, should be explored. Surveillance should be expanded to include postpartum re-admissions and other pregnancy outcomes.

5. **Share population-level data with health care providers to improve their understanding of factors that contribute to health inequities.** Providers can tailor interventions to the health care needs and risks inherent in the patient populations they serve.

6. **Research the modifiable contributors to poor health and poor pregnancy outcomes.** While surveillance data are useful for highlighting overall trends and stark inequities by demographic characteristics, including race/ethnicity, education and neighborhood, they also raise many questions about the structural and social barriers women face in their daily lives that can be detrimental to their overall health and can contribute to poor pregnancy outcomes. Future research, including qualitative research that examines the experiences of women and families impacted by SMM, could help elucidate the social determinants of disease and identify modifiable risk factors.

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Appendix A. Methodology Notes

Data Matching and Quality

The New York State Department of Health matched SPARCS delivery hospitalizations and birth certificates, using an algorithm of identifying variables. Only one infant birth certificate was matched per hospital discharge record, even when there was a multiple birth. Each matched record represents a delivery where at least one live birth occurred. Matched records from 2008 and 2009 were updated in July 2014, and matched records from 2010 to 2012 were updated in June 2015.

To identify the overall match rate, the report authors calculated the number of deliveries (n=613,314) from the overall number of New York City births from 2008 to 2012 (n=625,505). The number of deliveries comprises all records from singleton births and one record per multiple birth. The analytical sample contained 588,232 birth certificates that successfully matched to a hospital discharge record. Using the number of deliveries between 2008 and 2012 as the denominator, the overall match rate was 95.9%.

The match rate for 2009 (91.3%) was noticeably lower than for other years (Appendix B, Table 1). In 2009, no birth certificates from deliveries of multiple births matched with a SPARCS record. Almost 2% of deliveries resulted in a multiple birth in 2009, and these women are not included in the matched data. Also, the SPARCS file was inadvertently truncated in 2009. Analysis of the birth certificates that would have matched had the SPARCS files not been truncated showed that missing records belonged disproportionately to Asian and Pacific Islander women; therefore these deliveries are underrepresented in 2009 (p<0.05).

Identification of Severe Maternal Morbidity

SMM was identified during delivery hospitalizations with the same criteria the CDC used to identify SMM in a national sample of delivery hospitalizations.[1] However, there are four key differences:

1. **New York City delivery hospitalizations were identified by the presence of a matched birth certificate.** In the national sample, there was no matched birth certificate, and delivery hospitalizations were identified by the presence of specific obstetric ICD-9-CM and diagnosis-related group (DRG) codes.[19] Sensitivity testing of the New York City matched sample showed that over 99% of the hospital discharge records would have been identified as deliveries using the specific codes. However, there may be delivery hospitalization records that were not included in the analytic sample because they did not match with a birth certificate.

2. **Since the New York City sample was defined by the presence of a birth certificate, every delivery in the New York City sample resulted in at least one live birth.** The national sample includes deliveries resulting in both live births and stillbirths. Information on women with a pregnancy resulting in stillbirth was not included in the analysis. As women with a pregnancy resulting in stillbirth may have a greater risk of complications in pregnancy and therefore SMM, this research could potentially be underestimating the rate of SMM in New York City. For information on all live births as well as other pregnancy outcomes occurring in New York City, see the Annual Summary of Vital Statistics (nyc.gov/html/doh/html/data/vs-summary.shtml).

3. **The New York City sample provides population-level estimates of all live deliveries in New York City.** The report authors did not need to account for sampling in the New York City analysis, as all deliveries resulting in a live birth that matched with a hospital-discharge record were included. The national analysis used the Nationwide Inpatient Sample, which is a sample of hospital discharge records in the United States. To produce national population-level estimates, records were weighted to account for complex sampling.

4. **While New York City hospital discharge records contain 25 ICD-9-CM diagnosis codes and 15 ICD-9-CM procedure codes, the discharge records used in the national sample contained only 15 diagnosis codes and 15 procedure codes.** More diagnosis codes on the New York City discharge records could identify more cases of SMM than would be captured with 15 diagnosis codes. However, sensitivity testing showed that the rate of SMM in New York City only decreased by 0.1% after restricting to 15 diagnosis codes.

Cost Analysis

The report authors excluded 14 records from three non-obstetric facilities that had fewer than five births in a given year. These deliveries were not representative of standard care: the average charge was $117,390 (compared to $13,955 for other deliveries), and the average length of stay was close to 13 days. The authors also excluded approximately 700 deliveries that occurred in late 2012, but were discharged in 2013, for which there was no cost information. Therefore, the analytical sample included 583,555 records (99.3% of the total sample). Converting costs to charges involved adjusting for three separate factors, outlined below:

1. **Hospital-specific mark-up:** To account for the variation in mark-up among hospitals, year- and hospital-specific cost-to-charge ratios (CCR) were used based on the Healthcare Cost and Utilization Project from annual cost reports.[13] The average CCR for all hospitals and years included in the sample ranged from 0.3870 to 0.4543. More information on the CCR files used in this report is available at https://www.hcup-us.ahrq.gov/db/state/costtocharge.jsp.

2. **Department-specific mark-up:** To account for mark-up between departments within a facility (for example, higher mark-up for operating room services compared to routine bed care),[20] costs were multiplied by the DRG adjustment factors, which were calculated by the Healthcare Cost and Utilization Project using service-specific charge to cost data[14]. DRGs are available in hospital discharge records and are coded based on the services a patient received, as well as patient characteristics such as age and comorbidities. Adjustment factors ranged from 0.8862 (DRG=5, Liver Transplant with Multiple Comorbid Conditions) to 1.3828 (DRG = 775, Vaginal Delivery without complicating diagnosis). Adjustment factors by DRG are available from the Agency for Healthcare Research and Quality at http://www.hcup-us.ahrq.gov/reports/methods/2011_04.pdf.

3. **Inflation:** To account for cost inflation, costs were multiplied by a year-specific factor, bringing everything to 2012 dollars, based on the Bureau of Labor Statistics' Consumer Price Index for medical care.[15] In the sample, 2008 costs increased by 12%, 2009 by 11%, 2010 by 8%, and 2011 by 5%.

Missing Data

Records with missing data on a variable of interest were not included in the presentation of the data for that variable (e.g., if a record was missing information on maternal age, that record would not be represented in the graph of SMM by maternal age). All variables presented in this report had less than 4% missing data. In some cases, the sample was restricted to a subset that had a particular characteristic present (e.g., area-based poverty was only presented among New York City residents).

Limitations

The matched birth certificate-hospital discharge data used in this report provide a unique opportunity to examine the clinical characteristics of a delivery, such as diagnoses and procedures that occur in the hospital, in conjunction with demographic characteristics that are not often captured in hospital discharge data. Despite the advantages of the matched dataset, several limitations should be noted.

In administrative data such as hospital discharge records, events based on ICD-9-CM codes may be over- or underreported, or the severity of certain events may not be accurately captured. In particular, women who received a code for blood transfusion may have had blood loss or hemorrhage with varying levels of severity. Additionally, the quality of billing information in hospital discharge data is known to vary. Even with the charge conversion method, the cost is an estimate and does not represent the amount paid by insurance companies or individuals. Births that do not occur in hospitals are underrepresented in the matched data, as they often will have no associated hospital discharge records. Pregnancies not resulting in a live birth, including ectopic and molar pregnancies, spontaneous abortions and stillbirths, were excluded. Postpartum hospitalizations were not included here because of differences in the data file construction. Finally, certain variables of interest, such as homelessness, were not accurately captured in these data and therefore could not be examined.

Appendix B. Supplemental Data Tables

Table 1. **Number of Total Deliveries, Matched SPARCS and Birth Certificate Records, and the Percent Matched by Year, New York City, 2008–2012**

Year	All deliveries	Matched files	Percent
2008	125,216	120,379	96.1%
2009	124,311	113,539	91.3%
2010	122,295	118,933	97.3%
2011	120,612	117,400	97.3%
2012	120,880	117,981	97.6%
All	613,314	588,232	95.9%

Table 2. **Rate of Severe Maternal Morbidity Indicators per 10,000 Deliveries, New York City, 2008–2012**

SMM indicator	Rate per 10,000 deliveries
Diagnosis-based indicators	
Complications during procedure or surgery	19.7
Disseminated intravascular coagulation	17.1
Adult respiratory distress syndrome	6.6
Acute renal failure	6.5
Eclampsia	4.3
Shock	3.4
Sepsis	3.1
Thrombotic embolism	2.8
Puerperal cerebrovascular disorders	2.6
Pulmonary edema	2.4
Sickle cell anemia with crisis	2.2
Severe anesthesia complications	2.1
Cardiac arrest	0.6
Amniotic fluid embolism	0.4
Acute myocardial infarction	0.3
Intracranial injuries	–
Internal injuries of thorax, abdomen, and pelvis	–
Aneurysm	–
Procedure-based indicators	
Blood transfusion	176.5
Hysterectomy	12.5
Ventilation	11.4
Operations on the heart and pericardium	6.4
Cardio monitoring	3.7
Conversion of cardiac rhythm	0.7
Temporary tracheostomy	–
SMM rate overall	**229.6**

Note: Indicators with cell sizes less than 15 were suppressed.

Table 3.   Severe Maternal Morbidity by Maternal Demographics and Place of Residence, New York City, 2008–2012 (n=588,232)

	SMM cases	Rate per 10,000 deliveries	Total deliveries	Percent of total deliveries	Percent of SMM cases
Maternal age					
≤19	998	292.2	34,152	5.8%	7.4%
20-24	2,698	237.8	113,478	19.3%	20.0%
25-29	3,013	198.6	151,689	25.8%	22.3%
30-34	3,327	205.0	162,286	27.6%	24.6%
35-39	2,430	248.8	97,680	16.6%	18.0%
≥40	1,039	358.9	28,947	4.9%	7.7%
Race/ethnicity					
Puerto Rican	1,226	272.0	45,080	7.7%	9.1%
Other Latina	3,486	248.5	140,278	23.8%	25.8%
Asian and Pacific Islander	1,447	162.9	88,832	15.1%	10.7%
White non-Latina	2,265	126.7	178,808	30.4%	16.8%
Black non-Latina	4,808	386.9	124,268	21.1%	35.6%
Other non-Latina	72	308.7	2,332	0.4%	0.5%
Non-Latina of two or more races	168	218.5	7,689	1.3%	1.2%
Unknown	33	349.2	945	0.2%	0.2%
Region of birth					
U.S.	6,588	229.8	286,634	48.7%	48.8%
Mexico and Central America	1,375	288.7	47,628	8.1%	10.2%
Caribbean	2,243	315.7	71,044	12.1%	16.6%
South America	788	232.1	33,944	5.8%	5.8%
Europe	373	119.9	31,105	5.3%	2.8%
Africa	591	282.3	20,932	3.6%	4.4%
Middle East	185	149.7	12,361	2.1%	1.4%
Asia	1,301	163.0	79,821	13.6%	9.6%
Australian region	–	–	880	0.1%	0.1%
Canada	32	109.4	2,925	0.5%	0.2%
Unknown	19	198.3	958	0.2%	0.1%
Years in U.S.					
Not foreign-born	6,588	229.8	286,634	48.7%	48.8%
Less than 1 year	436	255.3	17,078	2.9%	3.2%
1+ years	6,271	225.7	277,878	47.2%	46.4%
Unknown*	210	316.2	6,642	1.1%	1.6%
Education					
Less than high school	3,942	283.9	138,868	23.6%	29.2%
High school graduate	3,251	244.4	132,999	22.6%	24.1%
Some college	3,128	244.1	128,156	21.8%	23.2%
College graduate or higher	3,059	164.5	185,976	31.6%	22.7%
Unknown	125	559.8	2,233	0.4%	0.9%
Insurance					
Medicaid/Family Health Plus	8,915	261.1	341,406	58.0%	66.0%
Other government	374	388.2	9,634	1.6%	2.8%
Private	3,741	168.2	222,464	37.8%	27.7%
Self-pay	274	338.1	8,105	1.4%	2.0%
Other	85	253.4	3,354	0.6%	0.6%
Unknown	116	354.8	3,269	0.6%	0.9%

Table 3. **Severe Maternal Morbidity by Maternal Demographics and Place of Residence, New York City, 2008–2012 (n=588,232)** *(continued)*

	SMM cases	Rate per 10,000 deliveries	Total deliveries	Percent of total deliveries	Percent of SMM cases
Borough of residence					
Bronx	2,966	295.7	100,290	17.0%	22.0%
Brooklyn	4,991	255.3	195,526	33.2%	37.0%
Manhattan	1,488	162.2	91,718	15.6%	11.0%
Queens	2,712	210.2	129,002	21.9%	20.1%
Staten Island	426	163.5	26,049	4.4%	3.2%
Non-residents	921	201.8	45,632	7.8%	6.8%
Unknown	–	–	15	0.0%	–
Action Center Neighborhoods					
Bronx	1,541	302.6	50,921	9.4%	12.2%
Harlem	378	236.2	16,004	2.9%	3.0%
Brooklyn	1,608	395.0	40,704	7.5%	12.8%
Not in Action Center neighborhood	9,055	208.2	434,846	80.1%	72.0%
Unknown	–	–	110	0.0%	0.0%
Neighborhood poverty level**					
Low (<10% below Federal Poverty Level)	1,331	162.7	81,790	15.1%	10.6%
Medium (10 to <20% below Federal Poverty Level)	3,653	217.3	168,085	31.0%	29.0%
High (20 to <30% below Federal Poverty Level)	3,730	239.7	155,631	28.7%	29.6%
Very high (30 to 100% below Federal Poverty Level)	3,863	282.7	136,661	25.2%	30.7%
Unknown	–	–	418	0.1%	–

*Unknown number of years in the U.S. includes foreign-born women with unknown years in U.S. and women with unknown nativity

**Action Center neighborhood and neighborhood poverty level only reported for New York City residents (n=542,585). Neighborhood Health Action Centers (formerly District Public Health Offices), opening soon, are part of New York City's plan to better link New Yorkers with local health and community services. The Action Centers will operate in neighborhoods with high rates of chronic disease and premature death.

Note: Indicators with cell sizes less than 15 were suppressed

Table 4. Severe Maternal Morbidity by Community District of Residence, New York City, 2008–2012

Community District name	Community District number	SMM rate
Manhattan		**162.2**
Battery Park, Tribeca	101	117.9
Greenwich Village, SoHo	102	114.5
Lower East Side	103	130.2
Chelsea, Clinton	104	154.2
Midtown	105	170.5
Murray Hill	106	128.7
Upper West Side	107	125.1
Upper East Side	108	125.9
Manhattanville	109	216.0
Central Harlem	110	221.1
East Harlem	111	251.4
Washington Heights	112	187.3
Bronx		**295.7**
Mott Haven	201	326.4
Hunts Point	202	283.7
Morrisania	203	336.0
Concourse, Highbridge	204	305.4
University/Morris Heights	205	277.3
East Tremont	206	290.8
Fordham	207	270.7
Riverdale	208	186.2
Unionport, Soundview	209	316.7
Throgs Neck	210	280.7
Pelham Parkway	211	297.6
Williamsbridge	212	327.5
Brooklyn		**255.3**
Williamsburg, Greenpoint	301	122.5
Fort Greene, Brooklyn Heights	302	191.3
Bedford Stuyvesant	303	374.8
Bushwick	304	326.4
East New York	305	404.2
Park Slope	306	174.1
Sunset Park	307	179.4
Crown Heights North	308	339.8
Crown Heights South	309	287.3
Bay Ridge	310	168.2
Bensonhurst	311	159.2
Borough Park	312	113.3
Coney Island	313	261.0
Flatbush, Midwood	314	266.8
Sheepshead Bay	315	184.4
Brownsville	316	497.4
East Flatbush	317	479.8
Canarsie	318	379.9
Queens		**210.2**
Astoria, Long Island City	401	198.7
Sunnyside, Woodside	402	180.9
Jackson Heights	403	218.4
Elmhurst, Corona	404	209.5
Ridgewood, Glendale	405	171.5
Rego Park, Forest Hills	406	138.2
Flushing	407	126.5
Fresh Meadows, Brianwood	408	172.9
Woodhaven	409	238.7
Howard Beach	410	249.2
Bayside	411	156.4
Jamaica St. Albans	412	318.9
Queens Village	413	275.4
The Rockaways	414	209.6
Staten Island		**163.5**
Port Richmond	501	196.9
Willowbrook, South Beach	502	141.9
Tottenville	503	130.4

Table 5.   Severe Maternal Morbidity by Prenatal and Delivery Characteristics, New York City, 2008–2012 (n=588,232)

	SMM cases	Rate per 10,000 deliveries	Total deliveries	Percent of total deliveries	Percent of SMM cases
Prenatal care initiation					
1st trimester	8,443	208.2	405,586	69.0%	62.5%
2nd trimester	3,142	251.8	124,782	21.2%	23.3%
3rd trimester	1,066	296.7	35,925	6.1%	7.9%
Never	237	574.8	4,123	0.7%	1.8%
Unknown	617	346.3	17,816	3.0%	4.6%
Adequacy of prenatal care					
Inadequate	2,853	286.3	99,664	16.9%	21.1%
Intermediate	1,230	185.9	66,158	11.2%	9.1%
Adequate	4,061	168.2	241,467	41.0%	30.1%
Intensive	4,593	290.0	158,389	26.9%	34.0%
Unknown	768	340.5	22,554	3.8%	5.7%
Parity					
0 Previous live births	6,023	223.3	269,746	45.9%	44.6%
1 Previous live birth	3,373	193.2	174,583	29.7%	25.0%
2+ Previous live births	4,091	285.2	143,444	24.4%	30.3%
Unknown	18	392.2	459	0.1%	0.1%
Method of delivery					
Primary cesarean	5,576	474.1	117,606	20.0%	41.3%
Repeat cesarean	3,450	492.3	70,079	11.9%	25.5%
Vaginal	4,275	109.8	389,240	66.2%	31.7%
Vaginal birth after cesarean	171	172.7	9,899	1.7%	1.3%
Unknown	33	234.4	1,408	0.2%	0.2%
Plurality					
Singleton birth	12,790	221.0	578,840	98.4%	94.7%
Multiple birth	715	761.3	9,392	1.6%	5.3%
Pregnancy intention					
Wanted to be pregnant sooner	2,728	230.3	118,473	20.1%	20.2%
Wanted to be pregnant later	2,807	242.0	115,981	19.7%	20.8%
Wanted to be pregnant then	6,351	205.5	309,105	52.5%	47.0%
Did not want to be pregnant then or future	854	338.8	25,209	4.3%	6.3%
Unknown	765	393.0	19,464	3.3%	5.7%
Facility level of care*					
Level 2	1,271	176.3	72,112	12.3%	9.4%
Level 3	7,507	238.6	314,639	53.9%	55.7%
Level 4	4,690	237.9	197,170	33.8%	34.8%
Pre-pregnancy BMI					
Underweight (<18.5)	587	182.3	32,202	5.5%	4.3%
Normal weight (18.5 - 24.9)	6,228	197.2	315,772	53.7%	46.1%
Overweight (25 - 29.9)	3,450	251.2	137,318	23.3%	25.5%
Class I (30 - 34.9)	1,710	284.0	60,221	10.2%	12.7%
Class II (35 - 39.9)	730	323.4	22,570	3.8%	5.4%
Class III (≥40)	534	416.1	12,833	2.2%	4.0%
Unknown	266	363.6	7,316	1.2%	2.0%
Chronic disease^					
No chronic disease	12,400	217.3	570,642	97.0%	91.8%
Any chronic disease	1,105	628.2	17,590	3.0%	8.2%

*Facility level of care is only reported for deliveries at hospitals with >5 births in all years (n=583,921 deliveries)
^ Any chronic disease includes deliveries to women with chronic hypertension, pre-existing diabetes or chronic heart disease
Note: Indicators with cell sizes less than 15 were suppressed

Appendix C. Notes

1. All demographic variables, prenatal care and pregnancy history variables, and maternal height and weight (used to calculate body mass index) were ascertained from the birth certificate. Hospital-specific variables, including facility-level information and costs, were ascertained from the hospital discharge record.

2. Respondents were allowed to select multiple races and ancestries on the birth certificate. Responses were coded into the seven race/ethnicity categories used in this report by the New York City Bureau of Vital Statistics following the rules of the National Center for Health Statistics. Individuals are first assigned to Puerto Rican or other Hispanic ethnicities based on ancestry, regardless of race. Then, those of non-Hispanic ancestries are classified by race as Asian and Pacific Islander, White non-Hispanic, Black non-Hispanic or Other/Multiple race. (This report uses the term Latina instead of Hispanic.)

3. U.S.-born refers to women born in the 50 states, District of Columbia or other U.S. territories including American Samoa, Guam, Puerto Rico and the U.S. Virgin Islands. All others with a known country of birth were considered foreign-born.

4. Women who indicated their highest level of education was an Associate's degree were categorized as "Some College."

5. Health insurance status indicates the primary payer for the delivery as recorded on the birth certificate.

6. Women were considered New York City residents if their usual residence reported on the birth certificate was in the Bronx, Brooklyn, Manhattan, Queens or Staten Island.

7. Neighborhood poverty level was defined using women's zip code of residence as recorded on the birth certificate. The American Community Survey five-year estimate from 2008–2012 provided information on area-based poverty level. Area-based poverty level by zip code was based on the proportion of residents living below the Federal Poverty Level. Area-based poverty levels were only assigned to New York City residents with valid New York City zip codes.

8. Community district boundaries are determined by the New York City Department of City Planning and are used to facilitate the delivery of city services. Additional information on community districts can be found at www.nyc.gov/dcp.

9. Neighborhood Health Action Centers (formerly District Public Health Offices), opening soon, are part of New York City's plan to better link New Yorkers with local health and social services. The Action Centers will operate in neighborhoods with high rates of chronic disease and premature death. Action Center catchment area boundaries are determined by community districts in this report: the Bronx includes community districts 201-206, Brooklyn includes 303-305 and 316 and Harlem includes 110-111.

10. Prenatal care adequacy was measured using the Kotelchuck Index.[21] The Kotelchuck Index utilizes timing of prenatal care initiation, number of prenatal care visits, infant birth weight, infant sex and gestational age to determine the adequacy of prenatal care. The value for gestational age used in this calculation was the clinical estimate of gestation, which is the birth attendant's final estimate of gestation in completed weeks.

11. Information on perinatal levels of care for hospitals was found on the New York State Hospital Profiles available at http://profiles.health.ny.gov/hospital and was linked to births using the facility recorded on the hospital discharge record.

12. Chronic conditions were identified from SPARCS data using previously identified ICD-9-CM codes.[6] Chronic heart disease was identified by the presence of ICD-9-CM codes 412-414, 394-397, 424, 428.22, 428.23, 428.32, 428.33, 428.42, 428.43; chronic hypertension by ICD-9-CM codes 401-405, 642.7, 642.0-642.2; and diabetes by ICD-9-CM codes 249, 250, 648.0. Chronic hypertension does not include exclusively pregnancy-related hypertensive disorders. Diabetes does not include women with exclusively gestational diabetes.

13. For the cost analysis, the report authors defined comorbidity using an index developed by Bateman et al, which includes 20 different conditions.[22] Multiple gestation and previous cesarean section were removed from the list because they were included as separate factors in the analysis. The final list included 18 conditions. Codes were also removed from two conditions (sickle cell anemia and eclampsia) that overlapped with codes included in the SMM algorithm (282.6 and 642.6). The prevalence of a comorbidity using this adapted algorithm was 14.7% in the total delivery sample.

Appendix D. Complete List of SMM Indicators and Associated ICD-9-CM Codes

Classification	Condition	Description	ICD-9-CM codes
Diagnosis	Acute myocardial infarction	Heart attack	410.xx
	Acute renal failure	Kidney failure	584.x, 669.3x
	Adult respiratory distress syndrome	Respiratory failure	518.5x, 518.81, 518.82, 518.84,799.1
	Amniotic fluid embolism	Condition where amniotic fluid or fetal material enters the mother's bloodstream causing systemic collapse of organ functions	673.1x
	Aneurysm	Abnormal widening of a blood vessel which may cause rupture and acute blood loss	441.xx
	Cardiac arrest/ventricular fibrillation	Failure of the heart to pump blood	427.41, 427.42, 427.5
	Complications during procedure or surgery	Complications of obstetrical surgery and procedures, including cardiac complications	669.4x, 997.1
	Disseminated intravascular coagulation	Interruption of blood clotting mechanism leading to bleeding	286.6, 286.9, 666.3x
	Eclampsia	Onset of seizures during pregnancy	642.6x
	Internal injuries of thorax, abdomen and pelvis	Injuries to internal organs, including the lungs, uterus, liver and kidneys	860.xx—869.xx
	Intracranial injuries	Injuries to the skull and brain	800.xx, 801.xx, 803.xx, 804.xx, 851.xx-854.xx
	Puerperal cerebrovascular disorders	Stroke	430, 431, 432.x, 433.xx, 434.xx, 436, 437.x, 671.5x, 674.0x, 997.2, 999.2
	Pulmonary edema	Excess fluid in the lungs not allowing for oxygenation of tissues	428.1, 518.4
	Sepsis	Whole-body response to an infection causing collapse and lack of organ function	038.xx, 995.91, 995.92
	Severe anesthesia complications	Complications resulting from pain control procedures	668.0x, 668.1x, 668.2x
	Shock	Condition where organs are not getting enough blood flow	669.1x, 785.5x, 995.0, 995.4, 998.0x
	Sickle cell anemia with crisis	Episodes of acute pain in a person with sickle cell anemia	282.62, 282.64, 282.69
	Thrombotic embolism	Blood clot	415.1x, 673.0x, 673.2x, 673.3x, 673.8x
Procedure	Blood transfusion	Transfusion of whole blood and other blood products	99.0x
	Cardio monitoring	Monitoring of cardiac output and blood pressure and gases	89.6x
	Conversion of cardiac rhythm	Procedure that restores an irregular heartbeat to normal rhythm	99.6x
	Hysterectomy	Removal of the uterus	68.3x-68.9
	Operations of the heart and pericardium	Operations on the heart and membrane enclosing the heart	35.xx, 36.xx, 37.xx, 39.xx
	Temporary tracheostomy	Procedure where an alternate breathing route is provided through the trachea (windpipe)	31.1
	Ventilation	Assisted breathing	93.90, 96.01-96.05, 96.7x

Pregnancy-Associated Mortality

Mortality

New York City, 2006-2010

NYC
Health

Table of Contents

Executive Summary

The dramatic decline in maternal mortality in the United States is one of the great public health successes of the 20th century. However, recent national data suggest that maternal mortality is increasing, and Black, non-Hispanic women continue to have an elevated risk of death compared to White, non-Hispanic women.[1]

This report provides estimates and examines characteristics and causes of death within one year of pregnancy in New York City. Although we present data on *pregnancy-associated deaths* (deaths during pregnancy or within one year of pregnancy from any cause), the focus of the report is on *pregnancy-related deaths*, a subset of pregnancy-associated deaths that are causally related to pregnancy. For the purpose of this report, we refer to pregnancy-related deaths interchangeably as maternal deaths and maternal mortality. The findings are based on enhanced surveillance of pregnancy-associated deaths that occurred in New York City between 2006 and 2010 conducted by the New York City Department of Health and Mental Hygiene's Bureau of Maternal, Infant and Reproductive Health. Enhanced surveillance involves the use of multiple data sources to identify and review deaths that occur during pregnancy or within one year from the end of pregnancy. This differs from standard surveillance, which relies only on death certificate data to identify and categorize deaths, and reports only on deaths that occur during pregnancy or within 42 days of pregnancy.

Numerous studies have found that enhanced surveillance improves case ascertainment of deaths that are temporally associated with pregnancy, and allows for a more complete understanding of the causes and characteristics of deaths. [2,3] The Health Department's enhanced surveillance protocol was informed by guidelines from the American Congress of Obstetricians and Gynecologists and the Centers for Disease Control and Prevention Maternal Mortality Study Group.[4] From 2006 to 2010, cases were identified using three data sources: death certificates, medical examiner records and hospital discharge data. Information from all three data sources, along with linked birth certificate information and hospital medical records, were reviewed by an obstetrician/gynecologist, who determined cause of death and whether the death was causally or only temporally related to pregnancy. More information on this methodology is available at: nyc.gov/html/doh/downloads/pdf/ms/ms-report-online.pdf.[5]

Pregnancy-associated deaths are categorized as either pregnancy-related (causally related to pregnancy) or not pregnancy-related (not causally related). Pregnancy-related mortality ratios are calculated by the following characteristics: maternal age, race/ethnicity, education, nativity and borough of residence. Place of death, interval between the end of pregnancy and death, pregnancy outcome, pregnancy history and cause of death are also reported.

The pregnancy-related mortality ratio (PRMR) is defined as the number of pregnancy-related deaths per 100,000 live births. It is a ratio, rather than a rate, because the denominator contains only live births and not all pregnant women who are at risk of maternal death. Where possible, the Health Department compared the PRMR and characteristics of deaths that occurred from 2006 to 2010 to New York City data for the period from 2001 to 2005 and to U.S. estimates for 2006 to 2010.[1] Because pregnancy-related deaths are relatively rare, for most estimates, data are grouped in two five-year periods. The chi-square test was used to examine differences in the PRMR by select maternal characteristics between 2001 to 2005 and 2006 to 2010. The Cochran-Armitage test was used to examine trends in the PRMR from 2001 to 2010.

Key findings of this report include:

- From 2006 to 2010, there were 252 pregnancy-associated deaths in New York City, of which 139 were pregnancy-related.

- Pregnancy-related mortality decreased in New York City from 2001 to 2010 – from 33.9 deaths per 100,000 live births in 2001 to 17.6 deaths per 100,000 live births in 2010. However, there was no significant decrease between 2006 and 2010.

- Black, non-Hispanic women were 12 times more likely than White, non-Hispanic women to die from pregnancy-related causes between 2006 and 2010. This represents a widening of the pregnancy-related mortality gap since the period from 2001 to 2005, when the mortality risk was seven times greater among Black, non-Hispanic women. The increasing gap was largely driven by a 45% decrease in pregnancy-related mortality among White, non-Hispanic women.

- Asian/Pacific Islander women were more than four times as likely and Hispanic women were more than three times as likely as White, non-Hispanic women to die from pregnancy-related causes between 2006 and 2010.

- From 2006 to 2010, the leading cause of pregnancy-related death was hemorrhage, accounting for 27.3% of deaths, followed by embolism (18.7%), pregnancy-induced hypertension (13.7%) and cardiovascular conditions (12.9%).

- From 2006 to 2010, the most common pregnancy outcome among pregnancy-related deaths was live birth (64.7%), followed by ectopic pregnancy (10.8%); in contrast, from 2001 to 2005, 2.5% of all pregnancy-related deaths followed an ectopic pregnancy.

The data in this report speak to the problem of pregnancy-related mortality in New York City and, in particular, its striking impact on Black women. Although the causal relationships for the increased risk of death for Black, non-Hispanic women are not well established, pregnancy-related mortality is associated with obesity, underlying chronic illness and poverty – all conditions that disproportionately affect New York City's Black population. The chronic stress of racism and social inequality also likely contribute to racial disparities in health, such as differences observed in infant mortality, preterm birth and low birth weight,[6,7,8] and may play a role in pregnancy-related mortality, as well. Pregnancy-related mortality also disproportionately impacts Asian/Pacific Islander women and Hispanic women, though not to the same extent as that found among Black women.

The New York City Health Department recognizes that reducing maternal mortality and eliminating the racial/ethnic gap requires attention to a woman's well-being throughout her lifetime, not just during pregnancy. It also requires a particular focus on those communities most impacted – communities with high concentrations of people of color and poverty. Furthermore, it requires an understanding of and willingness to tackle the underlying contributors to maternal mortality, including social inequities and injustices – past and present. Engaging the affected communities in meaningful dialogue is essential for developing a well-considered approach for addressing maternal mortality. While the Health Department is committed to gathering and analyzing the data that help characterize the problem, the agency is equally committed to stimulating and fostering partnerships with stakeholders, clinicians, policymakers and others to combat what has, for decades, been an unrelenting problem.

Definitions

Maternal death (also known as **maternal mortality**) has traditionally been defined as the death of a woman while pregnant or within 42 days of the termination of pregnancy, irrespective of the site or duration of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. This definition is used in reports of maternal deaths based on vital statistics data. However, the term is sometimes used to describe deaths within one year of pregnancy. In this report, maternal death includes deaths within one year of pregnancy that are causally related to pregnancy.

Pregnancy-associated death is the death of a woman from any cause while pregnant or within one calendar year of the end of pregnancy. Pregnancy-associated deaths are further categorized based on whether they are causally related to the pregnancy.

Pregnancy-related death is defined as the death of a woman while pregnant or within one year of the end of pregnancy from any cause related to or aggravated by the pregnancy or its management. In these cases, the pregnancy and death are causally related. Pregnancy-related deaths are a subset of pregnancy-associated deaths.

Not pregnancy-related death is defined as a death that is temporally related to pregnancy (i.e., occurring within one year of pregnancy or at the end of pregnancy) but which is not causally related to the pregnancy. These deaths include those due to accidents and homicides. Not pregnancy-related deaths are a subset of pregnancy-associated deaths.

Pregnancy-related mortality ratio (PRMR) is defined as the number of pregnancy-related deaths per 100,000 live births. PRMR is the main indicator in the tables and figures of this report.

Pregnancy-associated mortality ratio (PAMR) is defined as the number of pregnancy-associated deaths per 100,000 live births. This ratio is typically higher than the PRMR because it includes both pregnancy-related and not pregnancy-related deaths.

Figure 1. Classification of Pregnancy-Associated Deaths in New York City, 2006 to 2010

Pregnancy-Associated
N=252 (100%)

Pregnancy-Related	Not Pregnancy-Related	Undetermined
N=139 (55%)	N=108 (43%)	N=5 (2%)
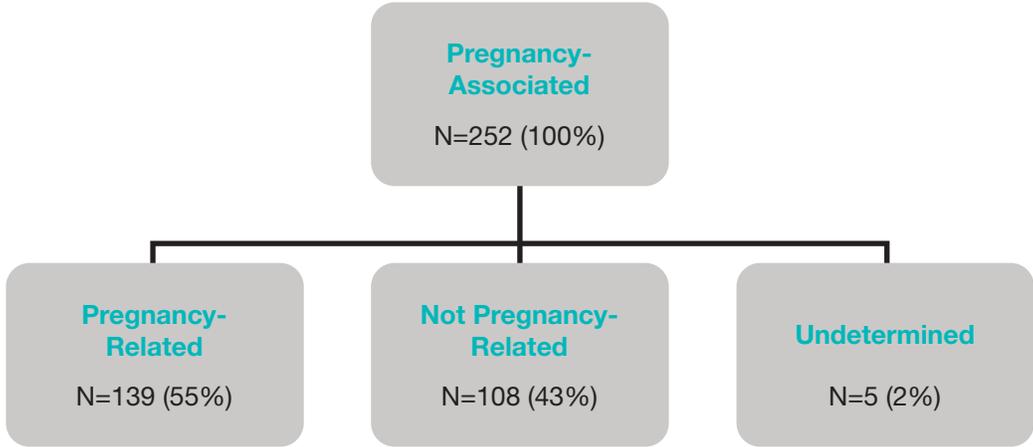
- From 2006 to 2010, there were a total of 252 pregnancy-associated deaths in New York City. Of these, 139 were pregnancy-related, 108 were not pregnancy-related and for five deaths, the relationship between pregnancy and death could not be determined.

Figure 2. Pregnancy-Associated and Pregnancy-Related Mortality Ratios, New York City, 2006 to 2010

Pregnancy-Associated Mortality Ratio (PAMR)
Pregnancy-Related Mortality Ratio (PRMR)

Deaths per 100,000 Live Births

Year	PAMR	PRMR
2006	41.4	27.9
2007	37.2	18.6
2008	41.5	24.3
2009	43.4	21.3
2010	35.3	17.6

Year of Death
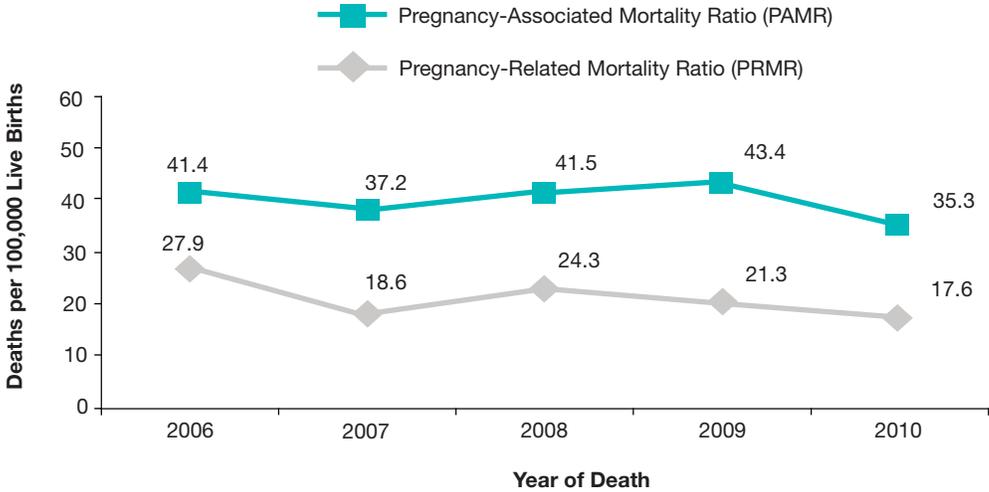
- From 2006 to 2010, the PAMR was 39.8 deaths per 100,000 live births. The ratio ranged from a high of 43.4 in 2009 to a low of 35.3 in 2010.
- From 2006 to 2010, the PRMR was 21.9 deaths per 100,000 live births. The ratio ranged from a high of 27.9 in 2006 to a low of 17.6 in 2010.

Figure 3. Pregnancy-Related Mortality Ratios, New York City and U.S., 2001 to 2010
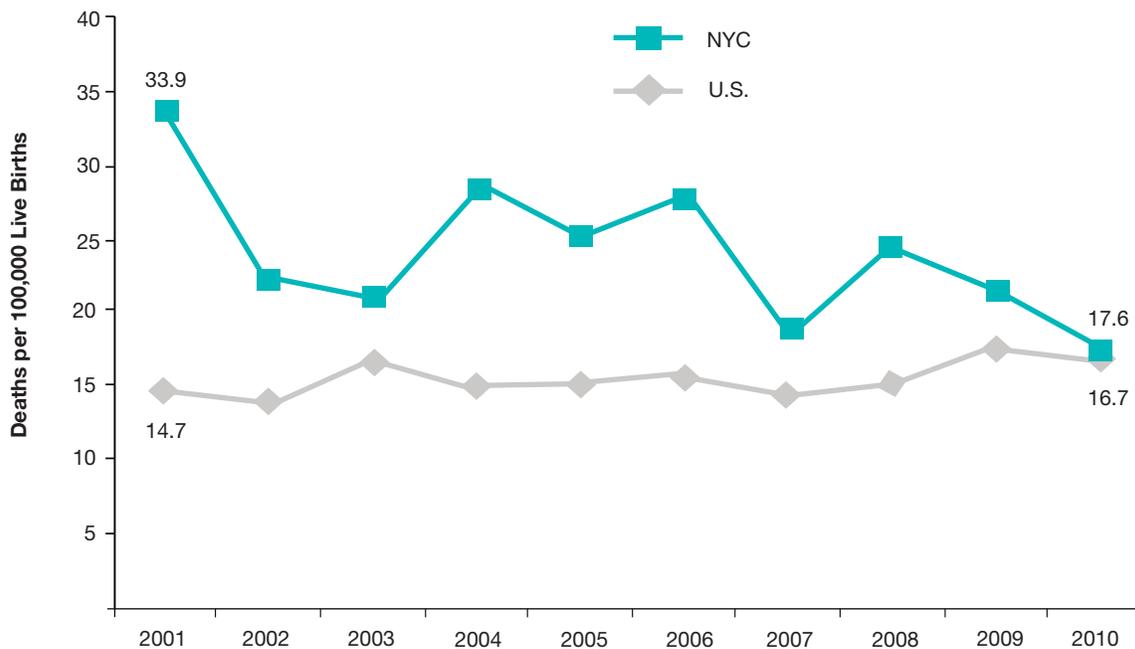
- From 2001 to 2010, the New York City PRMR decreased 48%, from 33.9 to 17.6 deaths per 100,000 live births.
- The U.S. PRMR increased 13.6% from 2001 to 2010, from 14.7 to 16.7 deaths per 100,000 live births.[1]
  - Most deaths occurred in 2009 (17.8 deaths per 100,000 live births), driven largely by the 2009 H1N1 influenza epidemic, which disproportionately affected pregnant women.
- The PRMR was higher in New York City than in the U.S. for every year from 2001 to 2010.[1]

Figure 4. Pregnancy-Related Mortality Ratios by Maternal Age, New York City, 2006 to 2010
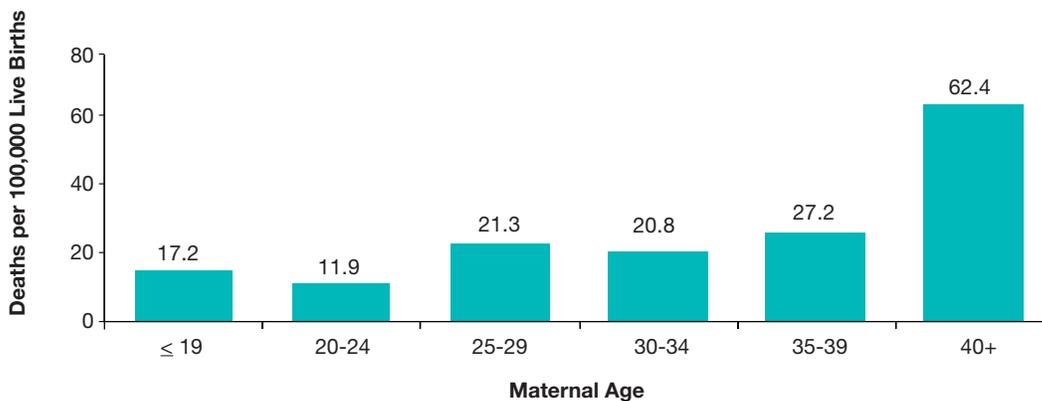
- The PRMR was highest among women aged 40 and older (62.4) and lowest among women aged 20 to 24 (11.9).
- There were no significant changes in the PRMR by maternal age group when compared to the PRMR from 2001 to 2005.

Figure 5. Pregnancy-Related Mortality Ratios by Maternal Race/Ethnicity, New York City, 2001 to 2005 and 2006 to 2010
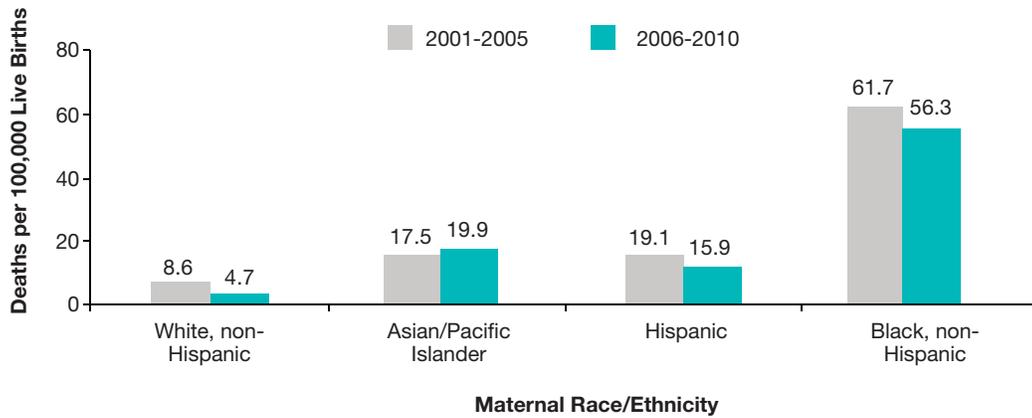
- From 2006 to 2010, Black, non-Hispanic women (56.3) had the highest PRMR, followed by Asian/Pacific Islander women (19.9), Hispanic women (15.9) and White, non-Hispanic women (4.7).

- From 2006 to 2010, the PRMR for Black, non-Hispanic women was 12 times higher than that of White, non-Hispanic women. This represents a widening of the pregnancy-related mortality gap from 2001 to 2005, when the PRMR among Black, non-Hispanic women was seven times greater. The increasing gap was largely driven by a 45% decrease in the PRMR among White, non-Hispanic women.

- From 2006 to 2010, Asian/Pacific Islander women were more than four times as likely and Hispanic women were more than three times as likely as White, non-Hispanic women to die from pregnancy-related causes.

Figure 6. Pregnancy-Related Deaths and Live Births by Race/Ethnicity, New York City, 2006 to 2010
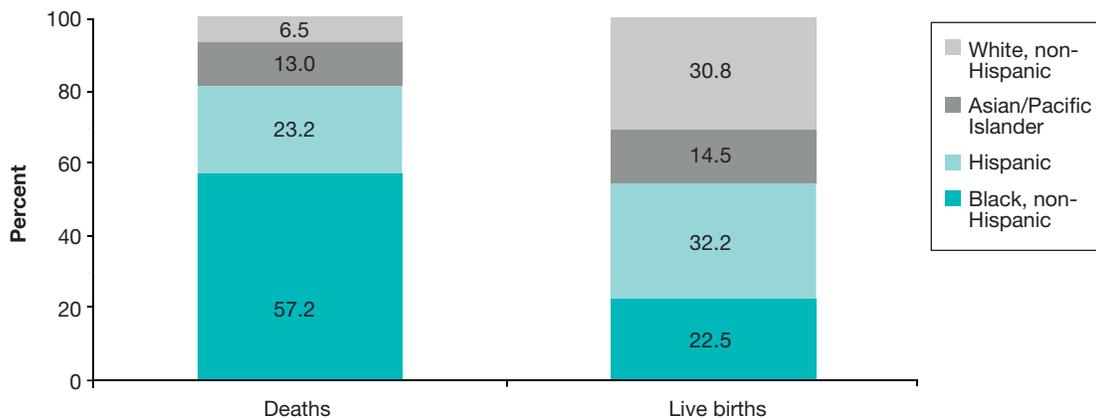
Excludes women from Other and Unknown racial/ethnic groups. Totals may not equal 100% due to rounding.

- Black, non-Hispanic women comprised a disproportionately higher percentage of pregnancy-related deaths (57.2%) compared to live births (22.5%). By contrast, White, non-Hispanic women comprised 30.8% of live births and only 6.5% of pregnancy-related deaths.

Figure 7. Pregnancy-Related Mortality Ratios by Maternal Race/Ethnicity, New York City and U.S., 2006 to 2010
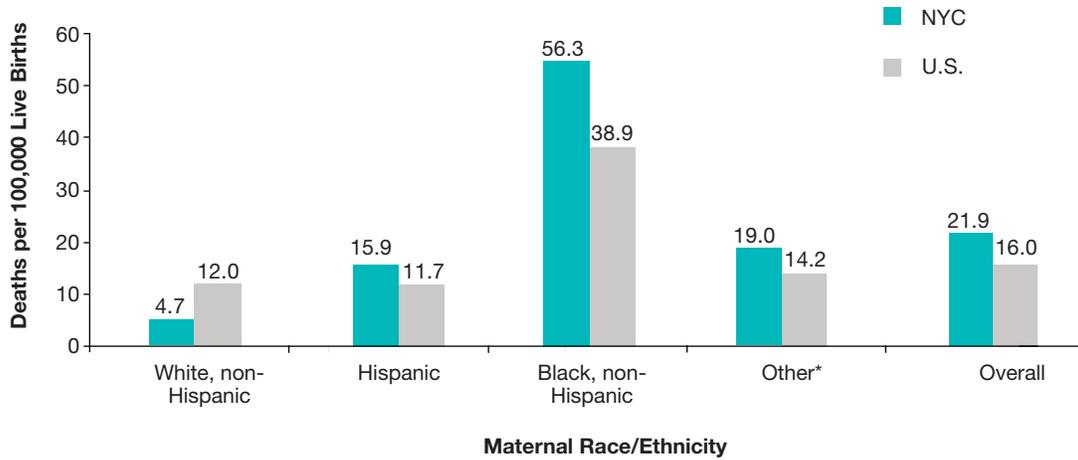
*Asian/Pacific Islander women are included in the Other category in national reports, and therefore, are grouped as such for New York City data above.

- During 2006 to 2010, the PRMR for the U.S. was highest among Black, non-Hispanic women (38.9), followed by women of Other race/ethnicity (14.2), White, non-Hispanic women (12.0) and Hispanic women (11.7).[1]

- Based on U.S. data from 2006 to 2010, the PRMR for Black, non-Hispanic women was three times higher than for White, non-Hispanic women.[1]

- White, non-Hispanic women were the only racial/ethnic group where the PRMR was lower in New York City (4.7) compared to the U.S. (12.0).

Figure 8. Pregnancy-Related Mortality Ratios by Maternal Education, New York City, 2006 to 2010
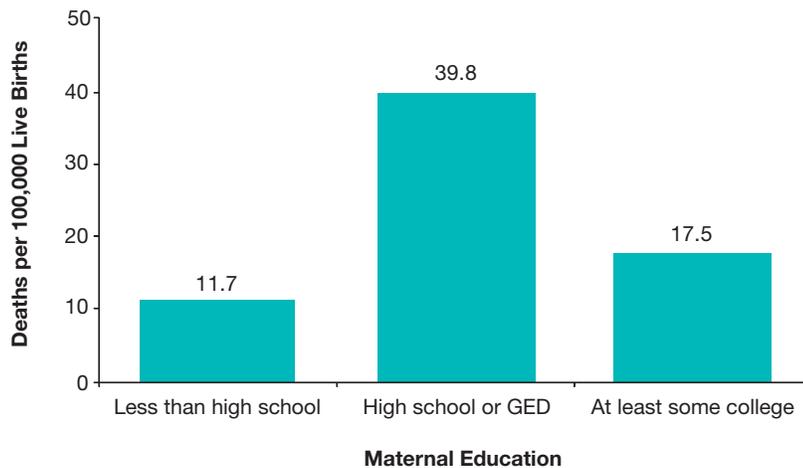
- The PRMR was lowest among women with less than a high school education (11.7), followed by women with at least some college (17.5) and highest among women who had graduated from high school but had no higher education (39.8).

Figure 9. Pregnancy-Related Mortality Ratios by Maternal Borough of Residence, New York City, 2006 to 2010
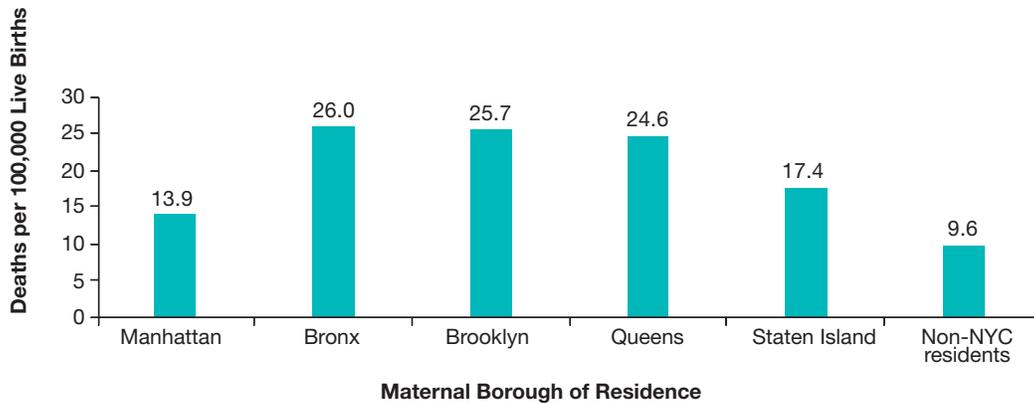
- The Bronx had the highest PRMR (26.0), followed by Brooklyn (25.7), Queens (24.6), Staten Island (17.4) and Manhattan (13.9).
- The borough-specific PRMR remained unchanged compared to 2001 to 2005 data.

Figure 10. Pregnancy-Related Mortality Ratios by Maternal Nativity, New York City, 2006 to 2010
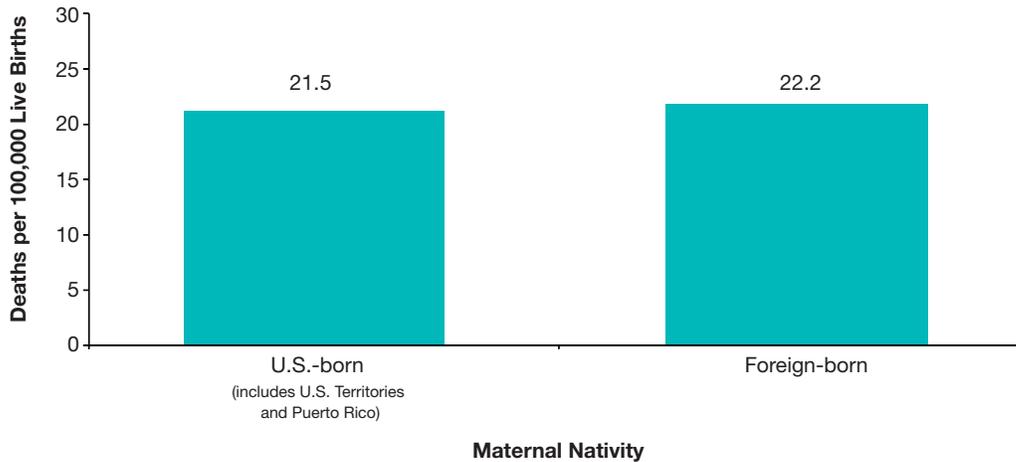
- The PRMRs for U.S.-born and foreign-born women were similar at 21.5 and 22.2, respectively.
- There was no difference in the PRMR by nativity status for Hispanic or Black, non-Hispanic women for 2006 to 2010. (Data not shown.)

Figure 11. Location of Death for Pregnancy-Related Deaths, New York City, 2006 to 2010
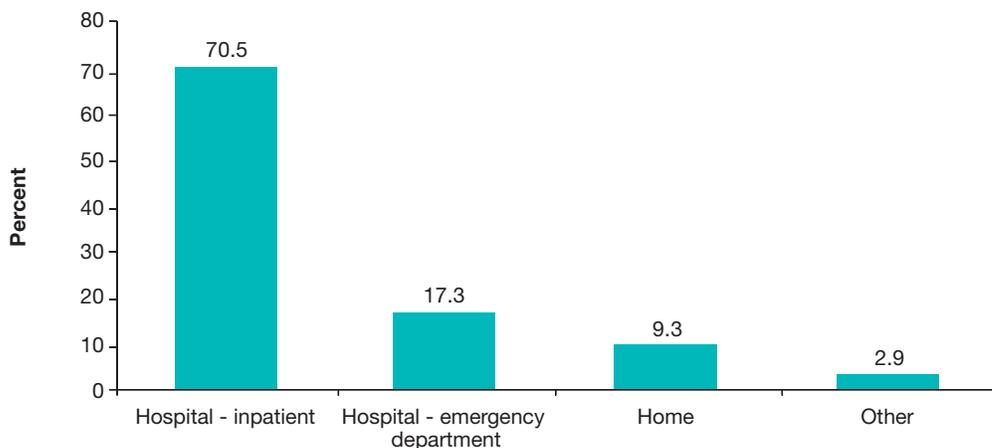
- The majority of pregnancy-related deaths occurred in the hospital (70.5% inpatient and 17.3% in the emergency department), while 9.3% occurred at home.

Table 1. Distribution of Pregnancy Outcomes for Pregnancy-Related Deaths, New York City, 2006 to 2010

Pregnancy Outcome	Number	Percent
Live birth	90	64.7
Ectopic pregnancy	15	10.8
Undelivered	13	9.4
Stillborn (>20 weeks gestation)	11	7.9
Induced termination of pregnancy	6	4.3
Spontaneous termination of pregnancy	2	1.4
Molar/trophoblastic pregnancy	1	0.7
Unknown	1	0.7
Total	139	100.0

- The most common pregnancy outcome among pregnancy-related deaths was a live birth (64.7%).

- Ectopic pregnancies accounted for 10.8% of deaths (n=15). This was an increase from 2001 to 2005, when ectopic pregnancies accounted for 2.5% of deaths (n=4).

  - Nationally, only 3.1% of all deaths occurred as a result of an ectopic pregnancy. Of these, roughly half (55%) occurred in Black, non-Hispanic women. Comparatively, Black, non-Hispanic women comprised 80% of ectopic pregnancy deaths in New York City.

  - Previous research has shown significant racial/ethnic disparities in the ectopic pregnancy mortality ratio; however, it is not clear whether this is the result of increased incidence or a higher case-fatality rate.[9]

- Pregnancy outcomes differed by maternal race/ethnicity. A notably larger proportion of Black, non-Hispanic women (46.8%) died after a pregnancy outcome other than a live birth compared to other racial/ethnic groups. (Data not shown.)

Table 2. Cause of Pregnancy-Related Deaths, New York City, 2006 to 2010

Cause of Death	Number	Percent
Hemorrhage	38	27.3
Embolism	26	18.7
Pregnancy-induced hypertension	19	13.7
Cardiovascular condition	18	12.9
Infection	10	7.2
Cancer	5	3.6
Injury	3	2.2
Anesthesia complication	3	2.2
Other	16	11.5
Unknown	1	0.7
Total	139	100

- The leading causes of pregnancy-related death during 2006 to 2010 were hemorrhage (27.3%), embolism (18.7%), pregnancy-induced hypertension (13.7%), cardiovascular conditions (12.9%) and infection (7.2%).

- The proportion of pregnancy-related deaths due to hemorrhage increased significantly during 2006 to 2010 compared to 2001 to 2005, when 16.8% of deaths were due to hemorrhage.

  – Pregnancy-related deaths due to hemorrhage were driven by an increase in ectopic pregnancies.

- Nationally, the leading causes of pregnancy-related death from 2006 to 2010 were embolism (14.9%), cardiovascular conditions (14.6%), infection (13.6%), cardiomyopathy (11.8%) and hemorrhage (11.4%).

Table 3. Cause of Pregnancy-Related Deaths by Race/Ethnicity, New York City, 2006 to 2010

Cause of Death	White, non-Hispanic N	White, non-Hispanic %	Black, non-Hispanic N	Black, non-Hispanic %	Hispanic N	Hispanic %	Asian/ Pacific Islander N	Asian/ Pacific Islander %
Hemorrhage	1	11.1	20	25.3	10	31.3	7	38.9
Embolism	1	11.1	16	20.3	6	18.8	3	16.7
Pregnancy-induced hypertension	2	22.2	12	15.2	4	12.5	1	5.6
Cardiovascular condition	2	22.2	12	15.2	3	9.4	1	5.6
Infection	0	0.0	5	6.3	3	9.4	2	11.1
Anesthesia complication	0	0.0	3	3.8	0	0.0	0	0.0
Injury	1	11.1	0	0.0	1	3.1	1	5.6
Cancer	1	11.1	2	2.5	2	6.3	0	0.0
Other	1	11.1	9	11.4	3	9.4	2	11.1
Unknown	0	0.0	0	0	0	0.0	1	5.6

- The leading causes of death for Asian/Pacific Islander, Black, non-Hispanic and Hispanic women were hemorrhage and embolism.

- There was an increase in deaths due to hemorrhage for Black, non-Hispanic women, from 12.9% of deaths during 2001 to 2005 to 25.3% of deaths during 2006 to 2010. This increase was driven by an increase in deaths due to hemorrhage following an ectopic pregnancy.

- In comparison, nationally, traditional causes of pregnancy-related death (e.g., hemorrhage, hypertensive disorders, embolism and anesthesia complications) have declined over time, whereas cardiovascular conditions and infection have increased. (Data not shown.)

Figure 12. Interval Between the End of Pregnancy and Death, New York City, 2006 to 2010
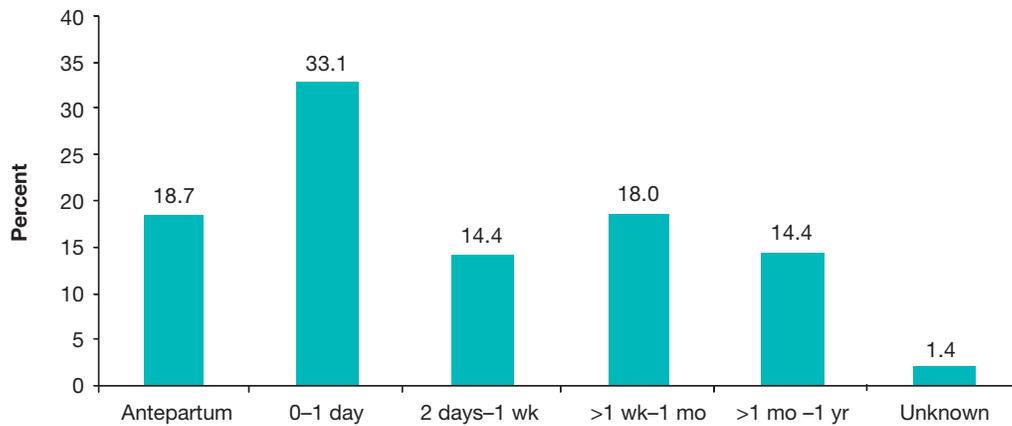
- The majority (66.2%) of deaths occurred either antepartum or within one week post-pregnancy.
- One third (33.1%) of pregnancy-related deaths occurred within one day post-pregnancy.

Figure 13. Live Birth Order Among Pregnancy-Related Deaths, New York City, 2006 to 2010
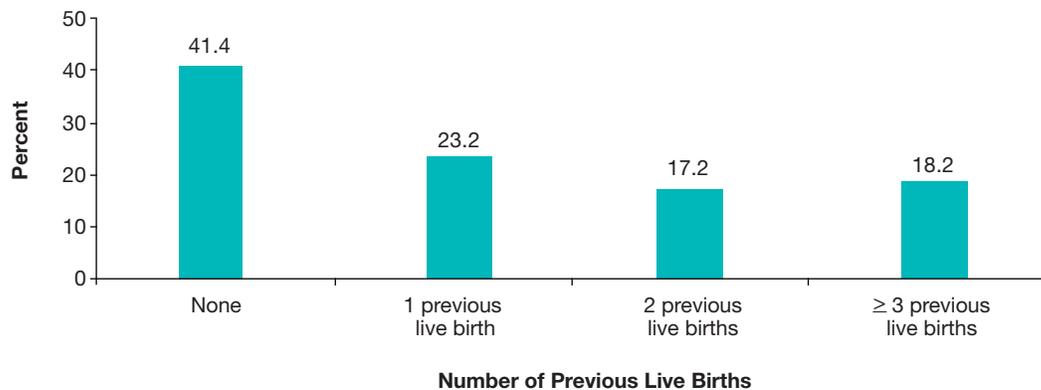
- Among pregnancy-related deaths with known live birth order, 41.4% had no previous live births, 23.2% had one, 17.2% had two and 18.2% had three or more.

Table 4. Pre-Existing Conditions Among Top Five Causes of Pregnancy-Related Deaths, New York City, 2006 to 2010

Cause of Death	Percent		
	≥ 1 Pre-Existing Condition	Obesity	Hypertension
All causes	59.0	30.2	15.8
Hemorrhage	50.0	23.7	2.6
Embolism	53.9	46.2	15.4
Pregnancy-induced hypertension	57.9	26.3	36.8
Cardiovascular condition	94.4	55.6	38.9
Infection	50.0	10.0	20.0

- Among women with a pregnancy-related death, 59.0% had a pre-existing chronic condition. The most common condition was obesity (30.2%), followed by hypertension (15.8%).

- Among the top five causes of pregnancy-related death, women who died of cardiovascular conditions were most likely to have at least one pre-existing condition (94.4%) and to be obese (55.6%).

Figure 14. Trimester of Prenatal Care Initiation for Pregnancy-Related Deaths Resulting in Live Birth or Stillbirth, New York City, 2006 to 2010

Trimester of Prenatal Care Initiation

- First trimester: 61.2
- Second trimester: 26.2
- Third trimester: 8.8
- No prenatal care: 3.8
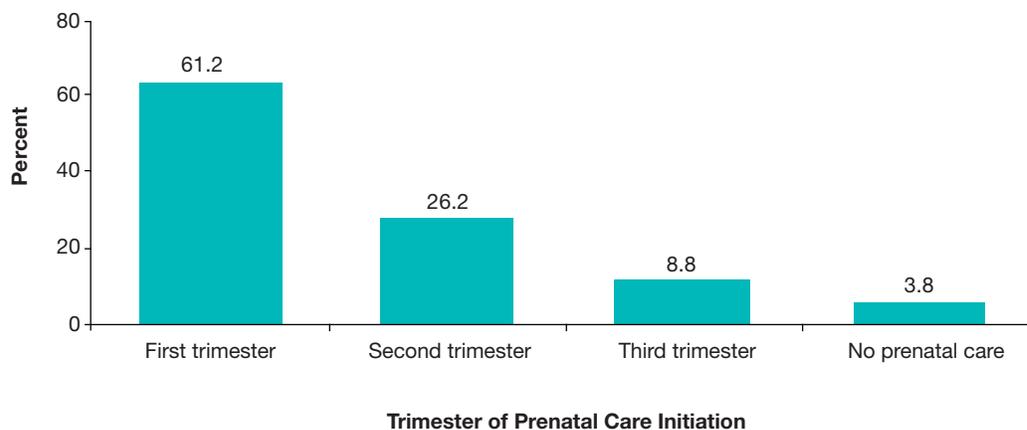
- Among women with a live birth or stillbirth, 61.2% initiated prenatal care within the first trimester.

Table 5. Cause of Death When Not Pregnancy-Related, New York City, 2006 to 2010

Cause of Death	Number	Percent
Injury	44	40.7
Cancer	11	10.2
Cardiovascular condition	11	10.2
Infection	7	6.5
Cerebrovascular accident	7	6.5
Neurologic/neurovascular problem	6	5.6
Cardiac arrhythmia	4	3.7
Hematopoietic problem (e.g., sickle cell disease)	4	3.7
Pulmonary problem	4	3.7
Metabolic problem, not pregnancy-related	3	2.8
Immune deficiency problem	3	2.8
Embolism	1	0.9
Collagen vascular disease	1	0.9
Other condition not specified above	1	0.9
Unknown	1	0.9
Total	108	100

- Among deaths not pregnancy-related, the most common cause was injury (40.7%).

Table 6. Types of Injuries Causing Death When Not Pregnancy-Related, New York City, 2006 to 2010

Type of Injury	Number	Percent
Homicide	16	36.4
Suicide	10	22.7
Substance abuse	8	18.2
Motor vehicle accident	6	13.6
Fire	2	4.5
Other	2	4.5
Total	44	100

- Among fatal injuries not related to pregnancy, the most common cause was homicide (36.4%), followed by suicide (22.7%) and substance abuse (18.2%).

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Testimony of Choices in Childbirth
Sang Hee Won, MPH
Project Director, Choices in Childbirth

New York City Council Health Committee
Re: Public Hearing Int. No. 1172 to Require the NYC DOHMH to
Issue an Annual Report on Maternal Mortality

December 7, 2016

Good afternoon, Chairman Johnson and City Council Members. My name is Sang Hee Won, and I am the Project Director for Choices in Childbirth, a non-profit organization working to ensure that all families can access childbirth related care that is healthy, safe, equitable, and empowering. Our mission is to promote evidence-based, family-centered childbirth options through public education, advocacy, and policy reform.

Previous to this role, I served as project director on the Health Department's first surveillance of severe maternal morbidity. Thus, I am very pleased to submit this testimony in support of the City Council's proposed Local Law to amend the administrative code of the city of New York, in relation to requiring the Department of Health and Mental Hygiene to issue an annual report on maternal mortality.

Maternal Mortality in the United States and New York City
Despite significant global progress in reducing maternal mortality in recent years, the United States is one of the few countries in the world where the maternal mortality ratio (MMR) is on the rise. With an MMR of 14 deaths for every 100,000 live births, the United States is currently ranked 46 out of 184 countries worldwide.[1] From 2000 to 2014, the estimated MMR in the United States increased by 27 percent for 48 states and the District of Columbia.[2]

With approximately 120,000 births each year—more than 42 states nationwide--New York City is in an unique position to convene their own maternal mortality surveillance.[3] We would like to recognize the leadership that New York City's Department of Health and Mental Hygiene has shown, by becoming one of the only cities in the United States to conduct an ongoing maternal mortality surveillance process.

In 2015, the New York City Department of Health and Mental Hygiene found that the pregnancy-related mortality was higher in New York City than in the United States for every year from 2001 to 2010.[4] However, while pregnancy-related mortality decreased from 33.9 deaths per 100,000 live births in 2001 to 17.6 deaths per 100,000 live births in 2010, significant disparities by race and ethnicity were persistent within the data.[5] Black, non-Hispanic women in New York City were 12 times more likely than White, non-Hispanic women to die from pregnancy-related causes between 2006 and 2010 whereas their mortality risk was seven times greater from 2001 to 2005.[6] Other women of color also face greater risks; Asian/Pacific Islander women were more than four times as likely and Hispanic women were more than three times as likely as White, non-Hispanic women to die from pregnancy-related causes (19.9 and 15.9, respectively, vs. 4.7 per 100,000 live births).[7]

Factors Associated with Maternal Death

The causes of maternal mortality are complex, but a number of factors contribute to these poor outcomes, which include:

- In New York City, 59% of the pregnancy-related deaths between 2006-2010 occurred in women with a pre-existing chronic condition with obesity (30.2%) being the most common condition.[8] Delayed childbearing can also lead to more complications during pregnancy and childbirth. The pregnancy-related mortality rate was highest among women aged 40 and older (62.4 per 100,000 live births) in New York City.[9] Older women are at greater risk of entering pregnancy with pre-existing chronic conditions that add to the risk of complications or death during pregnancy and birth.[10] Diabetes, hypertension, heart conditions and obesity are among the factors contributing to worsening maternal health.

- Medical interventions that are beneficial in particular circumstances are being used routinely in situations where the risks may outweigh their benefits, and no-risk, low-tech solutions are being underutilized. While cesarean births can be life-saving, the increase in primary cesarean birth rates has not resulted in the reduction of either maternal or infant mortality. Cesarean rates are now widely recognized as well beyond what is needed or appropriate.[11]

- Lastly, place matters in health. Significant disparities by place of residence exist in maternal health. Residents of low-income communities and communities of color face disproportionate rates of poor maternal and infant health outcomes. Dr. Elizabeth Howell recently published findings showing that Black mothers are more likely to deliver at poorer performing hospitals than White mothers, and this discrepancy contributes to the disparities.[12] Poverty and its attendant factors along with racism, chronic stress and disparities in access to and utilization of care also play a role in who suffers serious complications of pregnancy and childbirth.

Importance of Maternal Mortality Review

Routine, systematic surveillance of maternal mortality is a core public health function and a first step in identifying the causes and potential strategies for reducing maternal mortality. The City Council's proposed local law to require the Department of Health and Mental Hygiene to issue annual findings on maternal mortality will ensure the regular collection, analysis, and distribution of this information on a routine basis so that it can be used to improve maternal health, eliminate health disparities and reduce maternal deaths for the people of New York City.

The inclusion of § 17-112.1(b)(4) —the provision requiring the issuance of recommendations regarding strategies to improve maternal health and reduce disparities – provides a critical opportunity to ensure that the data are used to inform system changes that can in turn improve health outcomes.

The requirement to issue recommendations also creates an opportunity for the Health Department to not only provide guidance on how to reduce maternal mortality, but to convene stakeholders who can help operationalize the recommendations into actionable steps and implement them to effect change.

Thus, Choices in Childbirth supports the City Council's proposed local law to require the Department of Health and Mental Hygiene to issue regularly timed reports on maternal mortality and develop recommendations to improve maternal health, eliminate health disparities, and reduce maternal deaths. Choices in Childbirth is committed to working with the Health Department and the larger maternal health community to move data to action to affect meaningful change in New York City.

We thank the Health Department for its commitment to ongoing surveillance of maternal mortality and morbidity and to improving maternal health.

We also thank the City Council for shining a light on this critical, but often overlooked issue. Any maternal death is one too many. But this law will help ensure that lessons are learned, and allow future losses to be prevented.

Thank you.

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Testimony of Elizabeth Holtzman
before
The Committee on Health
of the
New York City Council
December 7, 2016

Chair Corey Johnson, Members of the Committee on Health:

Thank you very much for the opportunity to testify before you on Int. 1162. Let me begin by congratulating Corey Johnson, the Chair of this Committee, for his leadership in scheduling this hearing on this important subject. Let me also congratulate Council Member Elizabeth Crowley for her leadership in introducing Int. No. 1162--as well as the eleven other Council Members who co-sponsored it.

This seems to be a modest bill. What it calls for is requiring the NYC Department of Health to collect data and publically report annually on the utilization rates of long-acting reversible contraceptives. But what is really at stake here is not modest at all. The bill actually is trying to make the City Health Department deal effectively with the rates of teenage pregnancy in our city. And if progress can be made on that front through this bill, then this bill packs a huge wallop.

As we all know, rates of teen pregnancy are way too high in the United States, and New York City is no exception. In fact, the US rate is substantially higher than that in other industrialized countries.

The consequences of teen pregnancy are extremely harmful. According to the US Department of Health's Office of Adolescent Health, the children of teen mothers suffer "poorer educational and behavior and health problems throughout their lives compared with children born to older parents." According to the Centers for Disease Control, the costs of teen pregnancy for taxpayers has been estimated at about $9 billion, and affects the teen mothers negatively as well as their children. The problem has been difficult to correct.

But we now know the solution. Recently, the state of Colorado began a pilot program funded by a foundation to provide long-acting reversible contraceptives such as IUD's to the state's teenage population. The results, although predictable, are still astonishing. Colorado saw a reduction of about 45% in the rate of teen pregnancy. The Colorado program has won recognition across the United States. There are relatively few instances in which we have a program with such remarkable and proven results as that conducted in Colorado.

Despite those results, New York City has been sitting on the sidelines on providing teenagers with reversible, long lasting contraceptives. The State of New York has also been sitting on the sidelines. This is inexcusable. Both the State and the City should be leaders in the country on reducing the rate of teen pregnancy. Any political figure concerned about inequality

or poverty should be leaping on the bandwagon of replicating the Colorado program here. But that hasn't happened.

This bill will force the City to track and publicize what is happening on the provision of long-term reversible contraception, and will thereby allow the press and the public to monitor whether the City has embraced the Colorado example or continues to ignore it, whether it is seriously trying to give young women the tools to take control of their lives or not, whether it really cares about alleviating poverty and inequality that are the direct consequence of teen pregnancy or is indifferent to these problems.

Again, I thank Council Member Johnson and Council Member Crowley for their leadership on this vital issue. I hope this legislation and this hearing will push New York--both City and State--into the forefront of remedying the problem of teenage pregnancy. Given the Colorado example, the City and State have a tremendous opportunity to put a real dent in the teen age pregnancy problem. I certainly hope they take up the challenge and do so.

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Planned Parenthood of New York City
Health Committee Hearing – Introductions 1161, 1162, and 1172

December 7, 2016

Good afternoon. I am Elizabeth Adams, Director of Government Relations at Planned Parenthood of New York City (PPNYC). I am pleased to submit testimony at today's hearing on Intros 1161, 1162, and 1172. Planned Parenthood of New York City thanks our strong supporters Speaker Melissa Mark-Viverito, Chair of the New York City Council Committee on Health, Honorable Council Member Corey Johnson, as well as Honorable Council Member Elizabeth Crowley for introducing the following legislation. We'd also like to thank the entire City Council for their dedication to these issues and we welcome the opportunity to discuss ways we can boost access to care and improve health outcomes for all New Yorkers.

Planned Parenthood of New York City serves more than 64,000 patients annually in our health centers located in all five boroughs. PPNYC provides sexual and reproductive health services including birth control; emergency contraception; gynecological care (including cervical and breast cancer screenings); male reproductive health exams; testing, counseling, and treatment for sexually transmitted infections; HIV testing and counseling; pregnancy testing, options counseling (including adoption) and abortion. PPNYC provides the full range of contraceptive methods as well as Pap screenings, the HPV vaccine, and colposcopies to our patients to help prevent and diagnose HPV-related cancers, and understands the importance of providing preventive care in strengthening the health of our communities.

As a trusted sexual and reproductive health care provider in New York City we know firsthand the effects of the Human Papillomavirus (HPV) on New Yorkers and understand the importance of passing supportive legislation and raising awareness to stop the spread of this infection. HPV is the most common sexually transmitted infection in the United States[1] and can lead to serious health problems such as genital warts and multiple forms of cancer, including cervical, vaginal, anal, and penile cancer.[2] Yet many HPV-related cancers are preventable, with the CDC estimating that regular screening and HPV vaccination could prevent as many as 93% of cervical cancers in the United States.

Intro. No. 1161 would require the Department of Health and Mental Hygiene (DOHMH) to report on current vaccination rates for New York City residents of HPV, disaggregated by gender and number of doses received. We commend the introduction of this legislation to better identify gaps in vaccination rates and opportunities for improving access and information. The HPV vaccine has proven to be effective; studies have shown that in the limited amount of time that the vaccine has been available there has been over a 50% reduction of cervical cancer cases in the U.S. and a reduction of HPV prevalence in adolescent girls by almost two-thirds.[3] However, the CDC reports that HPV vaccination rates are shockingly low in the U.S. and that many patients are not receiving the full three dose series.[4] Public reports on the number of doses

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individuals receive would provide insight into efficacy, barriers, and opportunities for improvement of the provision of HPV vaccination across New York City.

As a health provider, we also know the best way to ensure that New Yorkers won't become infected with HPV is by vaccinating before they are exposed to the virus, and so we recommend that the required reporting data be disaggregated by age in addition to gender and dosage, to assess barriers that young people may face in accessing critical preventive services such as the HPV vaccine. Until recently, minors could not consent on their own for the vaccine, which may contribute to low rates. PPNYC is committed to removing barriers our patients face in accessing critical and confidential services and we hope this policy change will raise public awareness of the benefits of the HPV vaccine and enable more young people to obtain care.

One way that we at PPNYC demonstrate our commitment to a patient-centered approach and to reproductive autonomy is by offering the full range of FDA-approved contraceptive methods, so that our patients may choose the one that is best for them, based on the benefits, side effects, and considerations of each method. Intro. 1162 would require DOHMH to collect data on usage rates for long-acting reversible contraceptives (LARCs) as part of its annual community health survey, in order to better assess the provision of contraceptive methods and barriers communities may face in accessing services.

Long-acting reversible contraceptives are highly effective[5] removable contraceptive methods that prevent pregnancy and last for several years. LARCs, such as intrauterine devices (IUDs) and implants like Nexplanon are inserted and do not required continued patient action, which helps to reduce inconsistent use and improves effectiveness. PPNYC applauds the City Council's continued commitment to improving access to LARCS, and we thank the Speaker for her support in making them affordable and accessible to more New Yorkers regardless of income. We hear from the people we serve directly how critical this access is in their lives:

> "*Moving from being covered by my parents' health care plan to a union plan to providing my own coverage meant there were occasional gaps in my birth control prescription as my coverage changed...*"

> "*Being raised in a strict religious household, I have not had the opportunity to get access to the reproductive health services I need as a sexually active, independent individual. This IUD grant has allowed me to receive a method of birth control that actually works for me (I cannot take the pill) without having to go through a husband I have since left, but still controls my health insurance (and, therefore, my reproductive health).*"

While we support this legislation and recognize the benefits of tracking information on LARC usage, it is imperative that citywide LARC metrics do not lead providers and public health officials to promote one method over another. To this end, PPNYC respectfully recommends that the Council consider extending the reporting requirements to all forms of contraception so we have a more accurate picture of contraceptive usage and potential knowledge gaps and barriers to access. In addition, we recommend adding a break down of contraceptive usage by borough and age, to assess additional opportunities for community engagement.

A patient-centered approach necessitates that an individual's own sexual and reproductive health needs, goals, and priorities are valued and respected, and that public health interests do not supersede a patient's interests. PPNYC acknowledges that a long history of reproductive coercion and oppression of marginalized communities cannot be separated out from current public health practices, and that practices such as forced

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sterilization of women of color must inform our current provision of care. Reproductive justice leaders have led the fight for all women to the live they want free from reproductive coercion,[6] and it is incumbent on us as providers to support our patients' reproductive decisions without judgment or bias, but with trust and information.

Lastly, PPNYC is proud to support Intro. 1172, which would require DOHMH to issue an annual report on maternal mortality, including the number of maternal mortalities from the previous year, disaggregated by age, education, race, borough and location of death, the pregnancy-related mortality ratio and leading causes of maternal mortality from the previous year, as well as recommendations for actions the Department, the Mayor, and the Council can take to improve maternal health, particularly in disproportionately impacted communities.

Rates of maternal mortality for American women are much higher than other industrialized nations and while overall rates are decreasing in New York City, the racial disparity has dramatically increased. In 2000, black women were seven times more likely to die from pregnancy than white women, but by 2010, that gap widened and now black women are twelve times more likely to die from pregnancy than white women,[7] indicating an urgent need to address broader health disparities and the social determinants of health. The City needs informed and innovative approaches to combat the current unsettling rates of pregnancy-related deaths, particularly among women of color, and PPNYC supports this needed step to better understand where gaps are most significant and identify opportunities for improvement.

In addition to stronger reporting to assess gaps in care for marginalized communities, it is imperative that New York City directly engage community experts and patient-centered models of care in efforts to reduce the rates of maternal mortality. Currently, many citywide programs serve women once they become pregnant, but few specifically address a woman's health before and between pregnancies, which contributes to healthier pregnancies.[8] Engaging community members most directly impacted in policy solutions led to the success of the Healthy Women, Healthy Futures campaign (HWHF), of which PPNYC was a proud member. HWHF helps women to address health issues before they become pregnant and connect New Yorkers to birth and postpartum doulas for birthing, breastfeeding, and parenting support. By addressing the need for preconception and interconception care, health education, and doula care, Healthy Women, Healthy Futures addresses underlying health issues that can lead to higher-risk pregnancies.

The aforementioned legislation proposed today will enable New York City to better meet the health needs of our communities, and will send an important signal that New York City is committed to stopping the spread of HPV, increasing access to contraception, and reducing health disparities in our City. We urge the New York City Council to pass this legislative package.

Thank you for the opportunity to testify on this important issue and I would be happy to take any questions or provide additional information.

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Testimony of the National Institute for Reproductive Health
before
The New York City Council Committee on Health
regarding
Reporting on HPV vaccination rates,
the use of long-acting reversible contraceptives, and maternal mortality
Int. 1161, 1162, 1172
December 7, 2016

Thank you Chairman Johnson and members of the Committee for the opportunity to speak with you this morning. My name is Danielle Castaldi-Micca and I am the Director of Political and Government Affairs at the National Institute for Reproductive Health. We work in New York State and across the country to ensure that every woman has the right and ability to make the reproductive health decisions that are best for her life and her family. This includes preventing unintended pregnancy, bearing healthy children, and choosing safe, legal abortion.

Each of the bills before you addresses an important public health matter affecting our city. The National Institute supports Int. 1161, related to the reporting of HPV vaccination rates. Human papillomavirus, known as HPV, is the most common sexually transmitted infection in the United States, affecting 1 in 4 Americans.[i] While there are many types of HPV, some strains can cause major health problems ranging from genital warts to cancer. Thankfully, the development of the HPV vaccine, designed to immunize young people of any gender long before they run the risk of infection, has resulted in significant reduction of HPV rates. Among teen girls, there has been a 64% reduction in HPV infection since 2006, when the vaccine was introduced.[ii] Unfortunately, HPV immunization rates lag behind those that prevent other diseases. According to state data from 2012, 54% of 13-17 year old girls in New York City had received at least one dose of the vaccine, while among New York City boys in the same age bracket only 27% had received one dose of the vaccine.[iii] The NYC Department of Health (DOH) currently collects information through its immunization registry, and we encourage DOH, the Mayor, and the City Council to use that data to inform their work to increase the vaccination rates among New York City youth.

1

The second bill before you, Int. 1162, directs the Department of Health to collect data on usage rates for Long-Acting Reversible Contraceptives, or LARCs, which includes intrauterine devices (IUDs) and implants. Although LARCs are the most effective form of contraception, uptake in the United States is low relative to other Western countries. This is due to several factors including a lack of awareness of this method and persistent myths about their dangers among both patients and providers, insufficient provider training in insertion and removal, the high cost of the device, and operational challenges associated with offering LARCs. The National Institute has collaborated with the Department of Health on many LARC-related projects, including the Maybe the IUD campaign and the NYC LARC Access Taskforce, and we appreciate the DOH and the City Council's recognition of LARCs as an important form of contraception for women across the city. We also, however, caution against the inadvertent promotion of LARCs as the best form of contraception for all women. It is important to note that just as there have been movements to deny access to contraception, there is also a long history of government and other institutions using contraception, including LARCs, as a means of oppressing women of color. Contraception use is a deeply personal decision and the data collection prescribed by this bill should not be misconstrued or misunderstood as encouraging medical providers to increase LARC use by their patients. More data can be helpful to advocates and government agencies as we work with diverse populations around the city on matters of contraceptive access, but there should be no implication of a hierarchy among contraceptive types. The ultimate goal of all of our work on contraceptive access is, and should always be, to ensure that all people have an understanding of the full range of contraceptive methods, and are able to determine and access that method that is best for them.

Finally, Int. 1172 directs the Department of Health to issue an annual report on maternal mortality. Last year, a DOH study of pregnancy-associated mortality found that maternal mortality rates in our city fell from 33.9 deaths per 100,000 births in 2001 to 17.6 deaths per 100,000 live births in 2010.[iv] While this decline is to be celebrated, the study also revealed a tragic racial disparity. Black women were 12 times more likely to die than white women from pregnancy-related causes between 2006 and 2010.[v] As the Department of Health, the City Council, and advocates across the city work to eliminate this significant and disturbing disparity and lower maternal mortality rates for Black women in particular, this annual report will service as an important resource.

I want to thank the City Council and the Health Committee for casting light on these three important issues. The National Institute for Reproductive Health supports Ints. 1161, 1162, and 1172, thanks the bill sponsors for their support of reproductive rights and health, and urges the Council to pass this legislation.

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[i] Centers for Disease Control and Prevention, "Human Papillomavirus," https://www.cdc.gov/hpv/

[ii] Centers for Disease Control and Prevention, "Human Papillomavirus: Questions and Answers," http://www.cdc.gov/hpv/parents/questions-answers.html

[iii] New York State Department of Health, "HPV Related Cancers and HPV Vaccination Rates in New York State," https://www.health.ny.gov/statistics/cancer/docs/hpv_related_cancers_and_vaccination_rates_2015.pdf

[iv] NYC Department of Health and Mental Hygiene Bureau of Maternal, Infant and Reproductive Health, *Pregnancy Associated Mortality*, https://www1.nyc.gov/assets/doh/downloads/pdf/ms/pregnancy-associated-mortality-report.pdf

[v] Ibid

Community Healthcare Network

Testimony of Diana Christian
Senior Policy Associate
Community Healthcare Network
Hearing before the New York City Council Committee on Health
RE: Int. No. 1161 - In relation to reporting on HPV vaccination rates.
Int. No. 1162 - In relation to reporting on the use of long-acting reversible
contraceptives.
Int. No. 1172 - In relation to requiring the department of health and mental
hygiene to issue an annual report on maternal mortality.
New York City Council Chambers
Wednesday, December 7, 2016

Thank you Chairman Johnson and members of the Committee for the opportunity to speak this afternoon. My name is Diana Christian and I am the Senior Policy Associate at Community Healthcare Network. CHN is a network of 11 Federally Qualified Health Centers, plus two mobile medical vans and a school-based health center. We provide affordable primary care, dental, behavioral health and social services for 85,000 New Yorkers annually in four boroughs.

On behalf of CHN, we fully support the New York City Council in passing the bills before you, which will require the Department of Health and Mental Health to monitor and report HPV vaccination rates, LARC utilization, and maternal mortality rates. We are encouraged by the strides that the city is making to improve the reporting and monitoring of sexual and reproductive health issues, and urge the Council to recognize how critical it is for organizations like ours to have access to reliable, consistent, and reported data.

As a provider of comprehensive health care services in underserved communities for over three decades, CHN has extensive experience in identifying gaps in service and health care needs within communities, and then developing and implementing systems and programs to address those needs. We are continuously evaluating patient needs through patient surveys, focus groups, and most notably—through community surveillance of local data. It is considered best practice to utilize evidence to plan programs. Public health priorities cannot be determined without appropriate information about where to focus, and on what.

We currently have a robust sexual and reproductive health program, in which we provide clinical and educational services, comprehensive education about how to prevent sexually transmitted infections, testing for STIs and HIV, treatment and counseling, and many different types of birth control, including implants, injections, and intrauterine devices (IUDs) at low or no-cost. So far in 2016, our providers have provided 820 HPV vaccinations, inserted 1,043 long-action reversible contraceptives, and given prenatal care to 1,724 women.

We often use City reported data to inform decisions on how to prioritize our efforts. For example, we recently implemented new maternal health programs at our two health centers in Jamaica, Queens. After looking at city-wide and neighborhood-specific data, we found that despite a decrease in infant mortality across the city, Jamaica and Hollis had the highest infant mortality rate in the city, at 9 per 1,000 live births, and nearly double the average rates for Queens and for all of NYC. The neighborhood also had higher rates of: preterm births (11%), teen births (27 per 1,000), individuals lacking health insurance (24%), and of late or no prenatal care (12%).

In response to the identified population health need, CHN applied for and received funding to implement a new program model which targets mothers and their infants on safe sleep, breastfeeding, women's health, family planning, and toxic stress and trauma. Families are reached via two levels-- individually through personalized telephone calls and in-person visits, and in group settings. Both levels require conducting group education sessions and targeted support groups.

In addition to the new programs, we use surveillance data to create a baseline for our own services. Recently we have used City data to evaluate colonoscopy numbers, STD testing and treatment, and HIV viral load suppression and other methods of HIV quality. As an example, with the new data, we will be able to see the average percentage of individuals in the city who are receiving HPV vaccinations, and evaluate if our patients are receiving less HPV vaccinations than the average. If so, CHN can direct more resources to ensure that we meet or exceed those numbers. Without this, we will be less able to plan programs and monitor our levels of care.

In closing, I strongly encourage the New York City Council to pass these three bills which will enforce the reporting and monitoring of HPV vaccination rates, LARC utilization, and maternal mortality rates, thereby enabling New Yorkers to lead sexually healthy and responsible lives. Thank you for holding this hearing today.

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1161, 1162 1172 Res. No. _____
☑ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Deborah Kaplan

Address: 42-09 28th St. LIC

I represent: NYC DOHMH

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1161, 1162, 1172 Res. No. _____
☑ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Jane Zucker

Address: 42-09 28th St LIC

I represent: NYC DOHMH

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1161, 1162, 1172 Res. No. _____
☐ in favor ☐ in opposition

Date: 12/7/16

(PLEASE PRINT)

Name: Diana Christian

Address: 19 Greenwich Ave, 4C, NY, NY 10014

I represent: Community health care Network

Address: 60 madison Ave, NY, NY 10010
5th FL

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THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1161, 1162, 1172 ___ Res. No. _____

☑ in favor ☐ in opposition

Date: 12/7/16

(PLEASE PRINT)

Name: Elizabeth Adams

Address: 26 Bleeker St., NY NY 10012

I represent: Planned Parenthood of NYC

Address: _____

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Appearance Card

I intend to appear and speak on Int. No. 1172 ___ Res. No. _____

☑ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Sang Hee Won

Address: _____

I represent: Choices in Childbirth

Address: 601 W. 26th St. New York, NY.

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THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _1162_ Res. No. _____

☑ **in favor** ☐ **in opposition**

Date: _____

(PLEASE PRINT)

Name: _ELIZABETH HOLTZMAN_

Address: _2 Park Ave, NY, NY, 10011_

I represent: _me_

Address: _____

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THE COUNCIL
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Appearance Card

I intend to appear and speak on Int. No. _All_ Res. No. _____

☑ **in favor** ☐ **in opposition**

Date: _12/7_

(PLEASE PRINT)

Name: _Danielle Cassaladi - Micca_

Address: _____

I represent: _National Institute for Reproductive_

Address: _Health_

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