HIV/AIDS Diagnoses by Neighborhood, Sex, and Race/Ethnicity in NYC

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ABSTRACT

HIV/AIDS is one of the challenges facing public heath in the world. We identified through this research which is the neighborhood in New York City most affected by this problem, the neighborhood with the highest number of HIV cases between 2011 and 2014 was Bedford Stuyvesant - Crown Heights, associated with African-American, also the male gender represents the highest percentage of patients diagnosed with HIV.

OBJECTIVES

- Identify which New York City neighborhood has the highest number of people diagnosed with HIV.
- Determine which gender is most affected.
- Assess the racial groups most diagnosed with HIV in New York City neighborhoods.

INTRODUCTION

Previously diseases such as HIV/AIDS were associated with gender or a specific community, but over time this perception has changed. The negative effects of HIV stigma may extend beyond those who are HIV-positive, to people who are perceived to be at risk of HIV [4]. In NYC, great efforts are being made to fight the HIV pandemic[8], for this, research must be carried out in the mainly affected areas, these results will help develop campaigns for communities at high risk [11]. NYC is recognized worldwide for the great diversity in its population [2], with this research seeks to identify whether HIV affects minority groups or not, there is a clear difference.

METHODOLOGY

Data Sources
NYCOpenData [2] provides free data from New York City, HIV/AIDS data from the HIV Surveillance Annual Report, this data is provided by Department of Health and Mental Hygiene. The dataset has 18 columns and with a total the 6005 rows. On the other hand, We also use data from the NYC DOHMH Department of Health and Mental Hygiene [6], which includes information on new HIV and AIDS diagnoses in New York City from 2010 to 2013. Age group, race/ethnicity, and United Hospital Fund (UHF) neighborhood are used to categorize reported cases and case rates (per 100,000 population).

Analysis
HIV/AIDS pandemic not only affects low-income countries, places like NYC are also affected, the public data published by NYCOpenData has available a collection of quantitative data on new cases of HIV/AIDS in NYC, through the exploration from these data we sought to quantify the number of cases by neighborhood in NYC, the corresponding race and ethnicity of these patients. This methodology makes it possible to identify the spreader where there are the greatest number of patients, which are the neighborhoods to which the testing and prevention campaigns should be focused.

RESULTS

HIV (Human Immunodefiency Virus) has different stages [1], in Figure 1 we can see that the highest age range where HIV is diagnosed in the first stage is between 20-29 years as AIDS is the last phase of HIV we can see that the diagnosis is at an older age between 40-49 years.
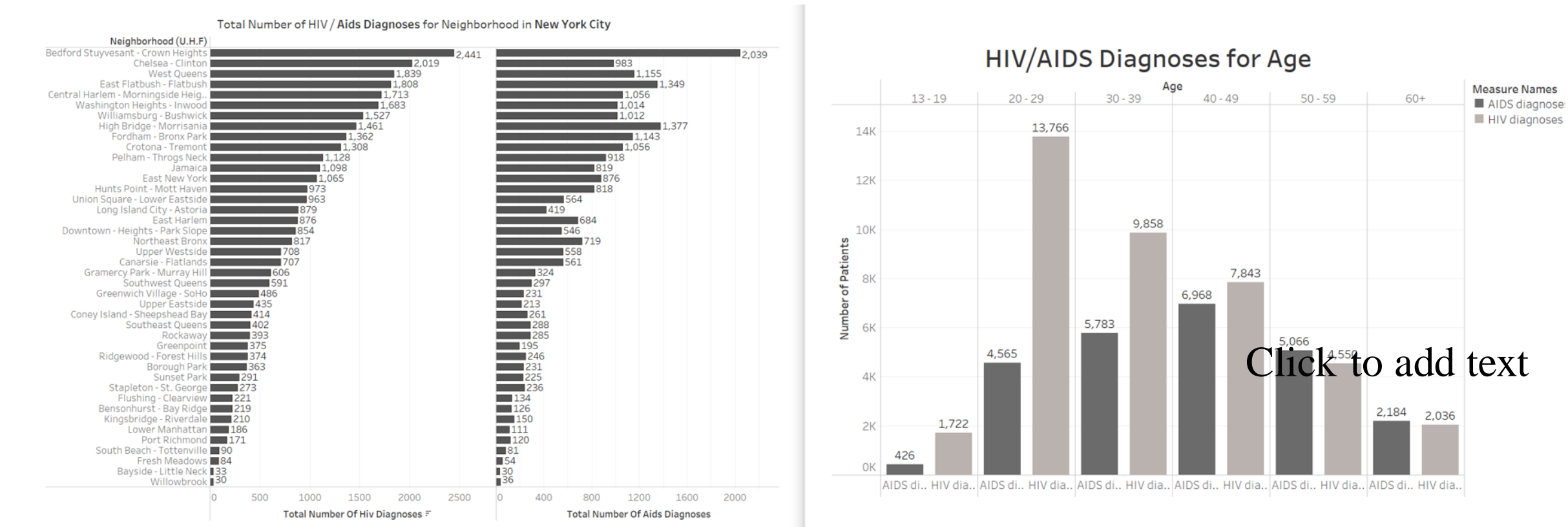

Figure 1. Left -Number of patients with HIV/AIDS by neighborhoods in New York City (2011 - 2014). Right - Total number of HIV Diagnoses for Age Range. Color shows details about sex.

New York City is comprised of five boroughs [4], there are 59 community districts, as we shown in Figure 1, the cases of HIV/AIDS by neighborhood, the neighborhood with the most HIV cases in both categories is Bedford Stuyvensant - Crown Heights and the neighborhood with the lowest Willobrook.
In Figure 3, an area graph where it is explored which gender is the most affected between the years of 2010 to 2013 diagnosed with HIV disease. We found that there is clear disagreement in the cases but it can be seen that the male gender is the most affected.

Figure 2. Left - Race/Ethnicity. Color shows sum of total number of Aids Diagnoses. Size shows sum of Total Number of Aids Diagnoses. Right - Total number of HIV Diagnoses for Gender.

Research shown that people who start retroviral treatment early have a life expectancy equal to that of a person without this disease [4]. In addition, New York City has a program to provide this treatment for free, but as we can see in the Figure 3, death due to AIDS, it is affecting areas like the Bronx in New York City.
A tree map figure 4 we can see the data in a hierarchical, where it is evident that the most affected race are Black people, secondly Hispanics and the least affected are White people.
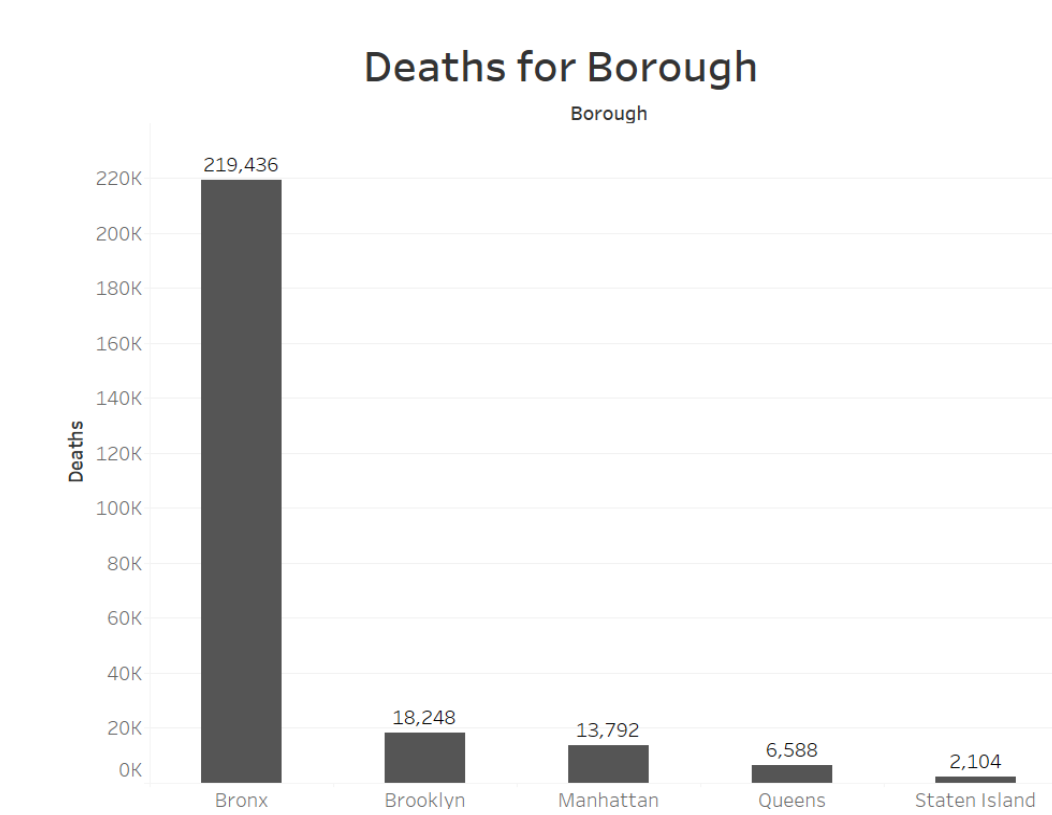

Figure 3. Deaths for each Borough.

CONCLUSIONS

- The neighborhood in the New York City between 2011 to 2014 with the highest number of people diagnosed with HIV and AIDS is Bedford Stuyvesand.
- The male gender corresponded to 56.6% of patients diagnosed with HIV in the city of NYC, there is a considerable percentage categorized as "All" that due to the data we cannot identify if it corresponds to the male or female sex.
- Black men correspond to the largest number of people diagnosed with HIV / AIDS, Hispanics in second place and white people last.
- The age range where people with HIV are most diagnosed is between 20-29 years, while the age range of people diagnosed with AIDS is in the range of 40-49 years.

REFERENCES

[1] Roger Chou, Christopher Evans, Adam Hoverman, Christina Sun, Tracy Dana, Christina Bougatsos, Sara Grusing, and P Todd Korthuis.Preexposure prophylaxis for the prevention of hiv infection: evidence report and systematic review for the us preventive services task force. Jama, 321(22):2214–2230, 2019.
[2] Marcelo D'Agostino, Noah O Samuel, Maria Janina Sarol, Federico G de Cosio, Myrna Marti, Tianyu Luo, Ian Brooks, and Marcos Espinal. Open data and public health. Revista Panamericana de Salud Publica, 42:e66, 2018.
[3] Byoungjun Kim, Denton Callander, Ralph DiClemente, Chau Trinh-Shevrin, Lorna E Thorpe, and Dustin T Duncan. Location of pre-exposure prophylaxis services across new york city neighborhoods: do neighborhood socio-demographic characteristics and hiv incidence matter? AIDS and Behavior, 23(10):2795–2802, 2019.
[4] Nancy Klimas, Anne O'Brien Koneru, and Mary Ann Fletcher. Overview of hiv. Psychosomatic medicine, 70(5):523–530, 2008.
[5] Sobia Nizami, Cameron Morales, Kelly Hu, Robert Holzman, and Amy Rapkiewicz. Trends in mortality from human immunodeficiency virus infection, 1984–2016: An autopsy-based study. Archives of pathology & laboratory medicine, 144(5):572–579, 2020.
[6] Douglas Storey, Kim Seifert-Ahanda, Adriana Andaluz, Benjamin Tsoi, Jennifer Medina Matsuki, and Blayne Cutler. What is health communication and how does it affect the hiv/aids continuum of care? a brief primer and case study from new york city. JAIDS Journal of Acquired Immune Deficiency Syndromes, 66:S241–S249, 2014.
[7] Robin A Weiss. How does hiv cause aids? Science, 260(5112):1273–1279, 1993.
[8] Ellen W Wiewel, Angelica Bocour, Laura S Kersanske, Sara D Bodach, Qiang Xia, and Sarah L Braunstein. The association between neighborhood poverty and hiv diagnoses among males and females in new york city, 2010–2011. Public Health Reports, 131(2):290–302, 2016.