

Urbanicity and Trends in New HIV Diagnoses, 2020

Introduction

Researchers are starting to assess the myriad long-term impacts of the COVID-19 pandemic on public health. New York State (NYS) saw a significant decline in the number of new HIV diagnoses (DX) starting in late March 2020 aligning with the start of the pandemic. The number of new HIV DX decreased 19% from 2,380 in 2019 to 1,933 in 2020. However, this decrease was not evenly distributed geographically across the state, and in some areas new HIV DX increased over the same time period. New York City (NYC) and surrounding areas (downstate urban – DU) reported the largest declines, while upstate urban (UU) areas reported stable or increased DX. This report focuses on new HIV DX in urban areas across the state early in the pandemic in 2020, in the context of a long-term, gradual decline in HIV DX in NYS and changing patterns of DX that preceded the pandemic. Additionally, increases were noted in specific demographic groups within the identified urban areas.

Key Terms

Urbanicity and RUCA codes: The rural-urban commuting area (RUCA) codes classify U.S. census tracts/zip codes using measures of population density, urbanization, and daily commuting. The UU and DU areas used for this analysis include zip codes designated as RUCA 1. See **Appendix A** and **Figure 2**.

Methods

People newly diagnosed with HIV in 2019 and 2020 were identified using the New York State HIV registry. Data were extracted in March 2021. RUCA codes were matched to registry data using zip code at diagnosis and “urban areas” were defined as RUCA1 areas.

Findings

New HIV DX in NYS were analyzed by urbanicity, race/ethnicity, age, and transmission risk groups. **Table 1** shows the change in the number of new HIV DX by race/ethnicity and transmission risk from 2019 to 2020 in NYS by region. While an overall 19% decline in HIV DX was observed, a large increase in new DX was noted in UU areas among non-Hispanic Black, primarily young (18-35 years) individuals and individuals reporting heterosexual contact as a transmission risk. The number of new DX in this demographic increased 39% among men who reported a history of male-to-male sexual contact (MSM) from 2019 to 2020 (38 to 53) and 450%

Highlights

-The number of new HIV diagnoses decreased 19% from 2,380 in 2019 to 1,933 in 2020.

-This decrease was not evenly distributed across NYS with NYC and surrounding areas showing the greatest declines and upstate urban areas showing little or no declines. In some upstate urban areas, the number of new HIV diagnoses increased.

-Increases in HIV DX in certain demographics were likely unrelated to the changes caused by the COVID-19 pandemic.

among individuals with reported heterosexual contact, from 4 new diagnoses in 2019 to 22 new diagnoses in 2020 (not shown).

Figure 1 shows the number of new HIV DX by quarter comparing UU, DU, and NYC areas from 2016-2020. During the initial COVID period (2020Q2) there was a decline in new HIV DX within the UU, DU, and NYC areas. There was an increase in 2020Q3, but then new HIV DX decreased again in 2020Q4 for DU and NYC areas, while DX remained stable in UU areas.

The number of new HIV DX decreased across almost all demographic groups in NYC and surrounding DU areas during April-December 2020. **Table 2** shows the percentage decline in new HIV DX during this time period compared to the expected numbers based on a linear forecast from 2016-2019. The largest decreases were noted among individuals with a history of injection drug use, and those reporting both a history of male-to-male sexual contact and injection drug use.

Discussion

The population of the DU areas is about 4.8 million and the UU areas is about 3.5 million. Despite this, the number of new HIV DX in each quarter of 2020 in the DU areas was below the number in UU areas. These decreases could be due to an actual decrease in transmission because of stay-at-home orders, or due to the known decrease in HIV testing, or a combination of both. The COVID pandemic and NY PAUSE certainly had an impact on new HIV DX in 2020, but differences in UU, DU, and NYC areas preceded the pandemic, indicating that the pandemic alone cannot explain the shifting epidemiology of HIV infection and DX in NYS. Monitoring this change going forward will be necessary to determine if the observed changes in the pattern of new HIV DX in NYS will persist. This analysis also demonstrates that even as the overall numbers of HIV DX are declining, there are specific populations that are still showing increases and may require targeted prevention and testing efforts.

Tables and Figures

Table 1. New HIV DX Changes, by Race/Ethnicity and Transmission Risk Group in UU, DU and NYC areas, 2019-2020

	UU - Upstate Urban			DU - Downstate Urban			NYC		
Race/Ethnicity	2019	2020	Change	2019	2020	Change	2019	2020	Change
Hispanic	23	28	5	84	48	-36	588	475	-113
Non-Hispanic Black	90	132	42	130	67	-63	816	661	-155
Asian/Pacific Islander	7	6	-1	11	3	-8	70	65	-5
Multi-Race	2	1	-1	2	2	0	20	10	-10
Native American	1	0	-1	1	2	1	2	2	0
Non-Hispanic White	88	75	-13	108	68	-40	191	198	7
Total	211	242	31	336	190	-146	1,687	1,411	-276
Risk	2019	2020	Change	2019	2020	Change	2019	2020	Change
MSM	128	122	-6	180	98	-82	943	665	-278
IDU	15	15	0	10	6	-4	31	11	-20
MSM/IDU*	12	12	0	13	2	-11	28	9	-19
Heterosexual	44	72	28	100	45	-55	384	279	-105
Pediatric	1	0	-1	0	1	1	3	2	-1
Unknown	11	21	10	33	38	5	298	445	147
Total	211	242	31	336	190	-146	1,687	1,411	-276

*History of male-to-male sexual contact (MSM) and history of injection drug use (IDU)

Figure 1. Quarterly HIV Diagnoses in Upstate Urban, Downstate Urban, and NYC, 2016-2020. Please note that the overall numbers of DX for NYC are higher than DU and UU areas and are indicated on the right scale.

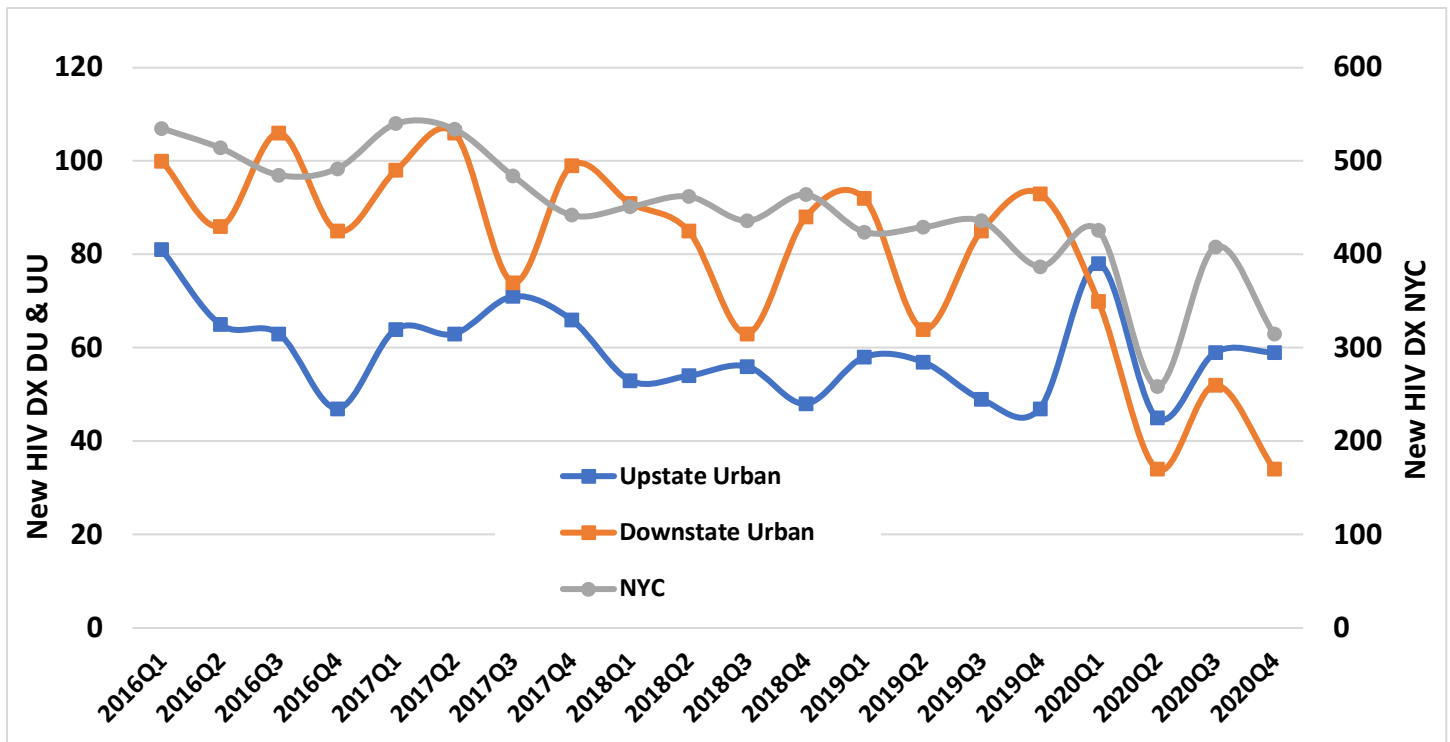
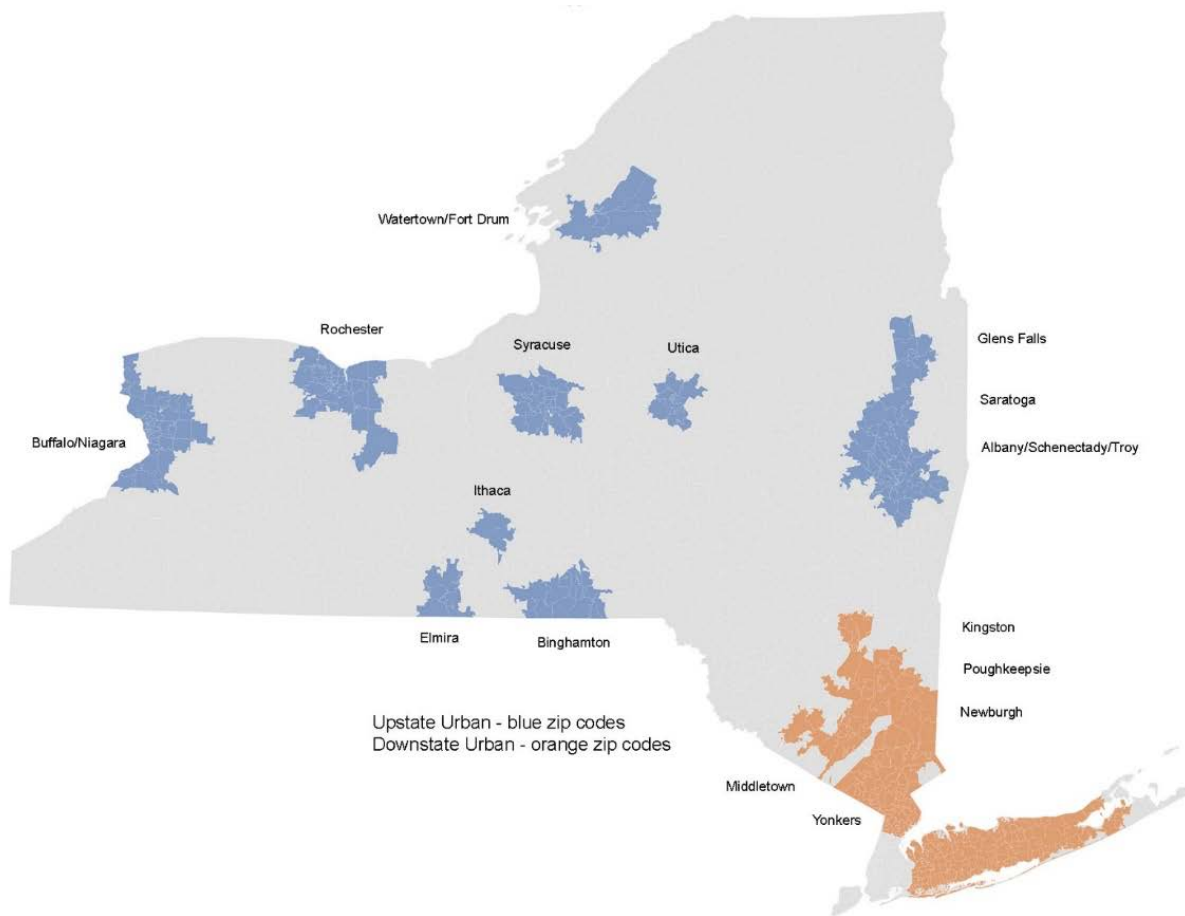


Table 2. Percent Decline from Expected Number of New HIV DX in Selected Race/Ethnicity and Transmission Risk Groups, NYC and DU Areas Combined, April-December 2020

Risk Group or Race/Ethnicity	Percentage Decline	Expected	Actual
Hispanic	-22%	477	373
Non-Hispanic Black	-28%	689	499
Asian/Pacific Islander	-7%	54	50
Non-Hispanic White	0%	194	194
MSM	-32%	760	520
IDU	-52%	27	13
MSM/IDU	-77%	30	7
Heterosexual	-34%	335	220

Figure 2. RUCA 1 Zip Codes in NY State Outside of New York City



Appendix A.

Primary RUCA Codes

- 1 Metropolitan area core: primary flow within an urbanized area (UA)
- 2 Metropolitan area high commuting: primary flow 30% or more to a UA
- 3 Metropolitan area low commuting: primary flow 10% to 30% to a UA
- 4 Micropolitan area core: primary flow within an Urban Cluster of 10,000 to 49,999 (large UC)
- 5 Micropolitan high commuting: primary flow 30% or more to a large UC
- 6 Micropolitan low commuting: primary flow 10% to 30% to a large UC
- 7 Small town core: primary flow within an Urban Cluster of 2,500 to 9,999 (small UC)
- 8 Small town high commuting: primary flow 30% or more to a small UC
- 9 Small town low commuting: primary flow 10% to 30% to a small UC
- 10 Rural areas: primary flow to a tract outside a UA or UC
- 99 Not coded: Census tract has zero population and no rural-urban identifier information

New York State Department of Health
AIDS Institute
Division of Epidemiology, Evaluation, and Partner Services
Data Analysis and Research Translation
BHAЕ@health.ny.gov