

ASSOCIATION BETWEEN HIV CLINIC CASELOADS AND VIRAL LOAD SUPPRESSION IN NEW YORK CITY

Saiganesh Ravikumar¹, Erica D'Aquila¹, Muhammad Daud¹, Carly Skinner¹, Craig Hayes¹, Ellen Brazier², Tyeirra Seabrook¹, Erica Crittendon¹, Demetre Daskalakis¹, Bisrat Abraham¹

¹New York City Department of Health and Mental Hygiene, Long Island City, NY, USA; ²City University of New York Graduate School of Public Health and Health Policy, NY, USA

BACKGROUND

New York State's Ending the HIV/AIDS Epidemic (EtE) Initiative aims to achieve 95% viral load suppression (VLS) among people living with HIV (PLWH) in care by 2020.

Characteristics, capacity, and practices among HIV clinics in New York City (NYC) must be explored to identify and replicate evidence-based findings associated with optimal VLS outcomes.

The relationship between HIV patient caseload and VLS was examined due to the rising integration of HIV care into primary care clinics, shortage of primary care physicians (PCPs), and inconclusive literature on the association between HIV patient caseloads and HIV patient outcomes.

OBJECTIVES

The NYC Department of Health's Clinical Operations and Technical Assistance Program surveyed HIV clinics to examine the following:

- Clinic Information (e.g., clinic classification, on-site medical services, funding sources, etc.);
- Staffing (e.g., full time equivalents [FTE] of clinical and non-clinical staff);
- HIV Patient Caseload and Characteristics;
- Clinic Accessibility;
- Retention and Adherence Practices;
- Data-to-Care Practices; and
- Challenges and Effective Strategies to Achieve VLS.

METHODS

Sample

- Purposive sampling was utilized to administer a survey to 154 clinics providing HIV primary care.
- To be eligible, clinics had to be located in NYC and provide HIV primary care.
- 110 eligible clinics (71%) submitted completed surveys.

Analysis

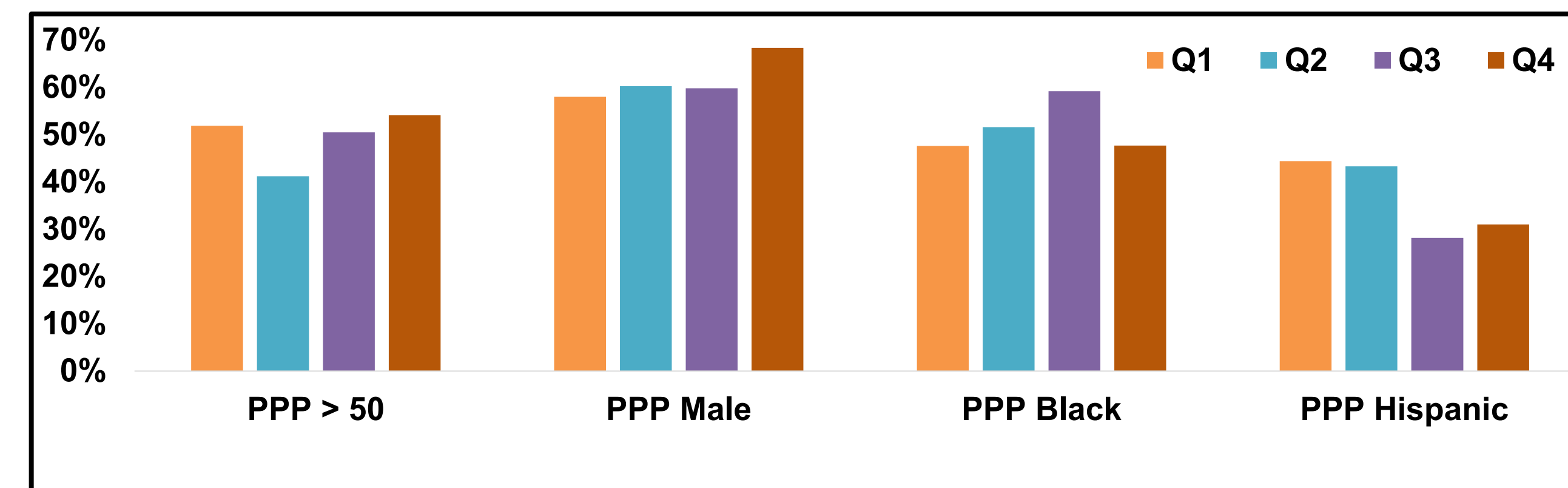
- Clinics were dichotomized based on achievement of the 2016 EtE VLS goal (i.e., 85% VLS).
- Clinics' HIV patient caseload was defined as the number of all HIV positive patients with at least one HIV medical visit in 2016.
- Clinics were categorized into four quartiles (Q1-4) based on their HIV patient caseload:
 - Q1: 1-60 HIV patients;
 - Q2: 61-200 HIV patients;
 - Q3: 201-450 HIV patients; and
 - Q4: 451-4200 HIV patients.
- A multiple logistic regression was calculated to examine the association between clinics' HIV patient caseload and clinics' achieving a VLS of at least 85%. Adjustments were made for clinics' patient demographics (i.e., age, sex, ethnicity, and race).
- Chi-square, Fisher's exact, and Mann-Whitney U tests were performed to identify clinic characteristics, capacity, and practices unique to clinics with the HIV patient caseload associated with the greatest likelihood of achieving 85% VLS.

RESULTS

Table 1. Main Effects of HIV Caseload on Achieving ≥85% Viral Load Suppression (VLS) in HIV Clinics

	<85% VLS (N=74)	≥85% VLS (N=36)	Crude Odds Ratio (95% CI)	P-Value	Intermediate Adjusted Odds Ratio (95% CI)	P-Value	Adjusted Odds Ratio (95% CI)	P-Value
HIV Patient Caseload				0.04*				0.50
Q1: 1-60	24 (32%)	8 (22%)	1 (Reference)	---	---	---	1 (Reference)	---
Q2: 61-200	22 (30%)	9 (25%)	1.2 (0.40 - 3.7)	0.72	---	---	6.6 (1.2 - 37)*	0.032*
Q3: 201-450	14 (19%)	6 (17%)	1.3 (0.37 - 4.5)	0.69	---	---	2.1 (0.35 - 12)	0.41
Q4: 451-4200	14 (19%)	13 (36%)	2.8 (0.93 - 8.37)	0.068	---	---	2.0 (0.35 - 12)	0.43
Proportion of Patient Population (PPP) >50 years of age				0.002*				0.002*
0%-24.9%	8 (11%)	1 (3%)	0.17 (0.021 - 1.5)		0.008 (0.0046 - 1.4)		0.037 (0.0016 - 0.86)*	
25%-49.9%	33 (45%)	8 (22%)	0.34 (0.13 - 0.88)*		0.27 (0.82 - 0.088)*		0.20 (0.050 - 0.80)*	
50%-74.9%	31 (42%)	22 (61%)	1 (Reference)		1 (Reference)		1 (Reference)	
75%-100%	2 (3%)	5 (14%)	3.5 (0.63 - 19.8)		6.4 (0.71 - 58)		14 (0.89 - 230)	
PPP Male				0.5				0.72
0%-24.9%	2(3%)	1 (3%)	1.1 (0.097 - 13.0)		4.8 (0.30 - 78)		6.5 (0.35 - 118)	
25%-49.9%	7 (9%)	3 (8%)	0.96 (0.22 - 4.05)		0.76 (0.11 - 5.4)		0.95 (0.12 - 7.6)	
50%-74.9%	54 (73%)	24 (67%)	1 (Reference)		1 (Reference)		1 (Reference)	
75%-100%	11 (15%)	8 (22%)	1.6 (0.58 - 4.6)		1.4 (0.37 - 5.4)		1.5 (0.35 - 6.4)	
PPP Hispanic Ethnicity				0.8				0.1
0%-24.9%	24 (32%)	8 (22%)	0.38 (0.14 - 1.04)		0.40 (0.10 - 1.5)		0.34 (0.083 - 1.4)	
25%-49.9%	23 (31%)	20 (56%)	1 (Reference)		1 (Reference)		1 (Reference)	
50%-100%	27 (37%)	8 (22%)	0.34 (0.13 - 0.92)*		0.056 (0.011 - 0.29)*		0.031 (0.0044 - 0.22)*	
PPP Black Race				0.02*				0.003*
0%-24.9%	7 (9%)	7 (18%)	1.4 (0.42 - 4.8)		8.5 (1.3 - 57.3)*		24 (2.3 - 240)*	
25%-49.9%	24 (32%)	17 (47%)	1 (Reference)		1 (Reference)		1 (Reference)	
50%-74.9%	26 (35%)	8 (22%)	0.43 (0.16 - 1.2)		0.20 (0.056 - 0.68)*		0.20 (0.050 - 0.80)*	
75%-100%	17 (23%)	4 (11%)	0.33 (0.095 - 1.16)		0.22 (0.040 - 1.2)		0.22 (0.035 - 1.3)	
*P-value <0.05								

Figure 1. Mean Proportion of Patient Population (PPP) by Selected Demographics for each HIV Patient Caseload Clinic Quartile



- Q2 clinics (HIV patient caseload of 61-200) were most likely to achieve ≥85% VLS (Table 1), despite having greater proportions of patients (Figure 1) with characteristics that were associated with VLS <85% (Table 1).

Table 2. Clinic Characteristics and Practices Unique to Q2 Clinics

Clinic Classification	Q2	Q1, Q3, Q4	P-Value
University Clinic	7	9	0.061
Hospital Clinic	4	28	-
Community-Based Clinic	20	40	-
Other Clinic Classification	0	2	-
Clinic Capacity: Median Provider FTE to Patient Ratios, Per 100 HIV Patients			
Primary Care Physicians (excluding Infectious Disease) FTE	2.6	0.80	0.049*
Infectious Disease Physicians FTE	0.39	0.21	0.49
Psychiatrists FTE	0.13	0.011	0.17
Registered Nurses FTE	1.3	0.35	0.32
Medical Assistant FTE	2.8	0.62	0.11
Social Worker FTE	1.6	0.78	0.032*
Nutritionist FTE	0.41	0.05	0.011*
Practice Manager FTE	0.79	0.21	0.12
Patient Navigators FTE	0.71	0.30	0.83
Data Entry Staff FTE	0.40	0.06	0.17
Dedicated Staff to Obtain Prior Authorization FTE	0.73	0.18	0.28
Clinic Practices (Median or %)			
Personal Phone Call Reminders for Upcoming Appointments	100%	86%	0.03*
Hire Culturally Competent Staff Based on Patient Population	97%	72%	0.10
Monthly EMR Query of HIV Patients Who Have Not Achieved VLS	72%	47%	0.020*
Device Based Medication Adherence Reminders	65%	37%	<0.001*
Saturday Hours of Operation	58%	37%	0.042*
Overall Patient "No Show" Rate	37%	47%	0.10
Availability of Gynecological Care Services On-Site	97%	78%	0.020*
Required HIV-related Continuing Medical Education Hours	25	15	0.11
*P-value <0.05			

- Q2 clinics were more likely to be community-based clinics than other clinic classifications.
- Q2 clinics had significantly higher FTEs of PCPs, Social Workers, and Nutritionists per 100 HIV patients than Q1, Q3, and Q4 clinics combined.
- Q2 clinics reported conducting particular patient engagement and retention practices at greater frequencies than Q1, Q3, and Q4 clinics combined.

CONCLUSIONS

- Clinics with HIV patient caseloads of 61-200 patients within primary care clinics in NYC may allow clinics to best plan and execute practices that can improve patients VLS, particularly among patient populations that face significant barriers to achieving VLS.
- To achieve local and national EtE goals, additional research is needed to identify and expand clinic practices that are associated with high VLS.