

# **HIV Clinical Cohort Database: Overview and Summary Statistics**

Through Quarter 2 of 2022, ending June 30, 2022

Updated November 10, 2022





# Einstein-Rockefeller-CUNY Center for AIDS Research (ERC-CFAR)

- New York City-based CFAR funded by NIAID and other NIH institutes (P30-AI-124414)
- Synergizes the scientific strengths, research expertise, and clinical resources of three major New York City academic institutions:



Montefiore

THE ROCKEFELLER UNIVERSITY  
*Science for the benefit of humanity*



- Overarching goal: to stimulate, coordinate, and support an integrated multidisciplinary research agenda to arrest the AIDS epidemic

# ERC-CFAR

## HIV Clinical Cohort Database

- Relational database maintained at Einstein by
  - CFAR's Clinical and Translational Science Core (Director: K. Anastos)
  - Epidemiology Informatics & Study Mgmt Unit (Director: M. Ginsberg)
- Contains clinical data on both >20,000 patients with HIV and >500,000 patients with confirmed HIV-negative status seen in the Montefiore Health System in the Bronx, New York
  - Electronic medical records systems (e.g., Epic, CareCast)
  - AIDS Institute Reporting System (AIRS)
  - Einstein Cancer Registry, National Death Index, etc.
- Objectives
  - Establish clinical cohort for epidemiologic studies
  - Serve as potential source of study participants for clinical studies

# Target population: The Bronx, New York City

## HIV prevalence by ZIP code (2019)

### Hospitals and emergency departments

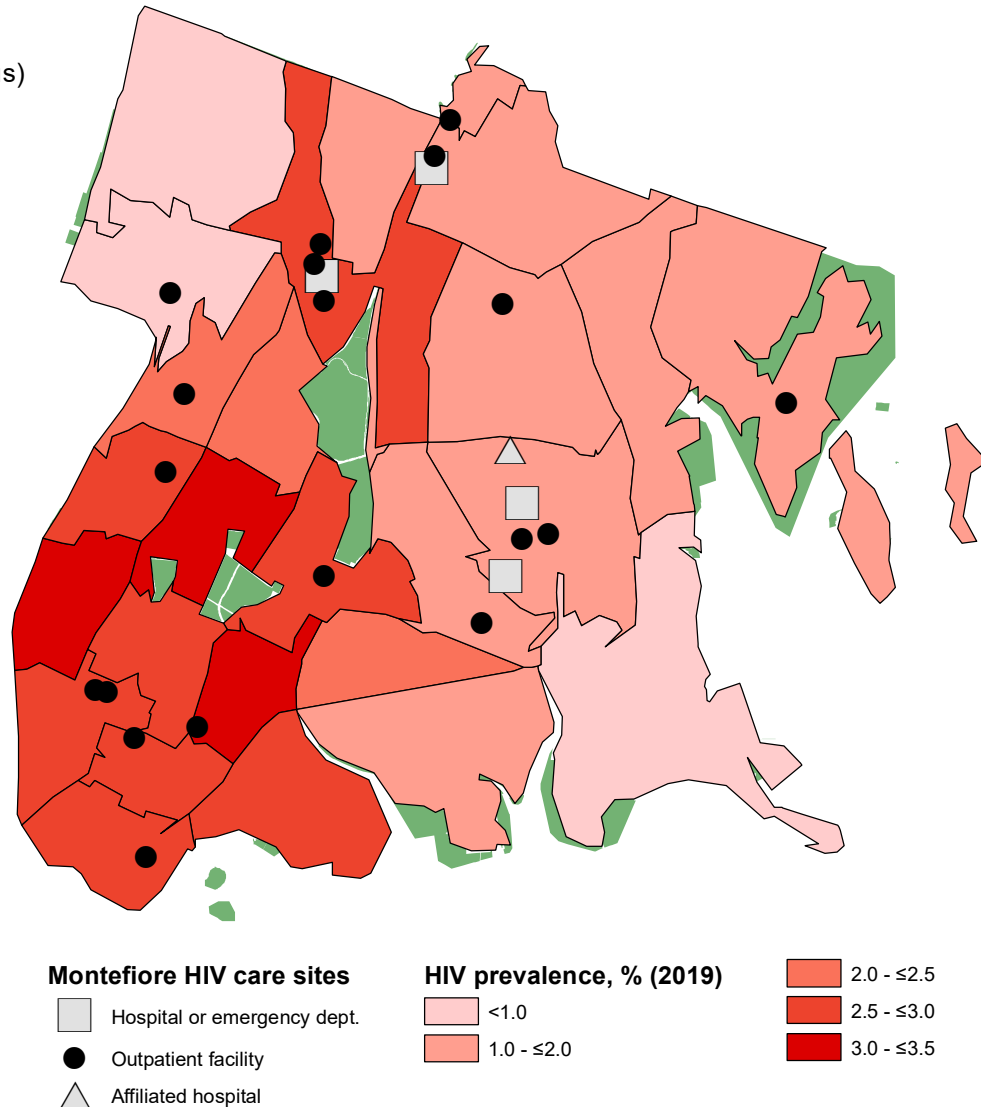
Children's Hospital at Montefiore (Moses Campus)  
Montefiore Hospital (Moses Campus)  
Weiler Hospital (Einstein Campus)  
Wakefield Hospital (Wakefield Campus)  
Westchester Square Campus

### Outpatient facilities

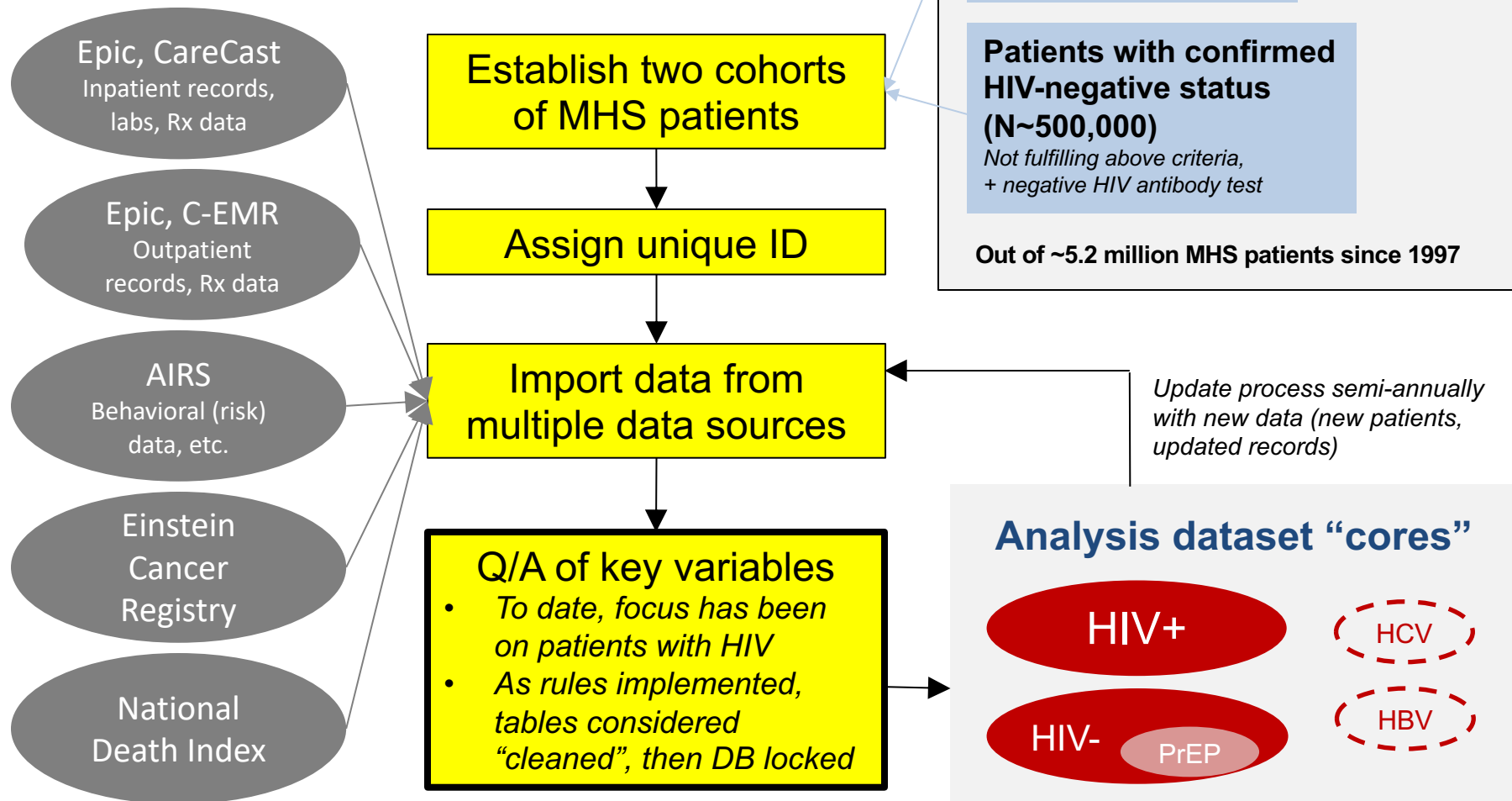
Adolescent AIDS Center  
Castle Hill Family Practice  
Comprehensive Family Care Center  
Comprehensive Health Care Center  
Center for Positive Living  
Family Health Center  
Marble Hill Family Practice  
Next Steps North  
Next Steps South  
Oval Center at Montefiore (STD services)  
South Bronx Health Center  
Substance Abuse Treatment Program Unit I  
Substance Abuse Treatment Program Unit III  
University Avenue Family Practice  
Via Verde  
Wakefield Ambulatory Care Center  
Wakefield Recovery Center  
Wellness Center at Port Morris  
West Farms Family Practice  
Williamsbridge Family Practice

### Affiliated hospitals

NYC Health + Hospitals/Jacobi Medical Center



# Development of the HIV Clinical Cohort Database



# ERC-CFAR

## HIV Clinical Cohort Database

What kinds of data are available?

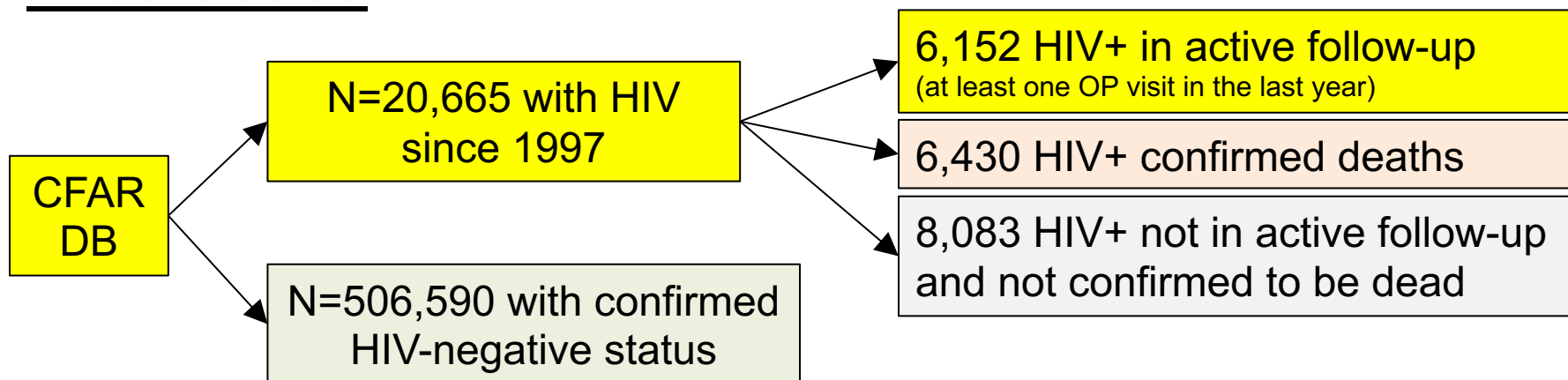
- Demographics
- Labs (CD4 counts, HIV-1 viral loads, others)
- Visits (inpatient, outpatient, Emergency Dept)
- Diagnoses from billing and problem lists (ICD-9-CM, ICD-10-CM)
- Medications (prescribed and administered, including ART and PrEP)
- HIV risk factor
- Cancer stage, pathology
- Hepatitis B and C lab results
- Vital status, cause of death

# ERC-CFAR HIV Clinical Cohort Database

## QA and maintenance

- Semi-annual query of electronic data warehouse:
  - Updated data on existing patients, addition of new patients
- QA of key variables (e.g., ART, CD4, VL, HCV, visits)
- Inclusion and QA of additional variables *a la carte*, dependent on investigator needs

## Breakdown of patients in database



# **Cumulative summary data on patients with HIV**



# Patients with HIV through 6/2022 (N=20,665)

## Demographic and behavioral characteristics

	N	%
<b>Gender</b>		
Man/boy	12,370	60
Woman/girl	8,263	40
Other/unknown/ choose not to disclose	32	0.2
<b>Age in 2022<sup>1</sup> (years)</b>	Median 56	IQR 44-63
0-12	11	0.1
13-29	638	4
30-49	4,147	29
50+	9,433	66
<b>Race/ethnicity</b>		
Hispanic	7,093	34
Black, non-Hispanic	8,849	43
White, non-Hispanic	1,109	5
Asian/Pacific Islander	58	0.3
Native American	22	0.1
>1, other, unknown	3,534	17

	N	%
<b>Transmission risk, men/boys<sup>2</sup></b>		
Heterosexual/other	4,102	46
MSM	2,772	31
IDU	1,927	22
Perinatal	109	1
<b>Transmission risk, women/girls<sup>2</sup></b>		
Heterosexual/other	4,927	81
IDU	877	14
Perinatal	154	3
Recorded as MSM	154	3
<b>Year of earliest HIV diagnosis</b>		
2020-present	1,152	6
2016-2019	2,214	11
2011-2015	2,778	13
2006-2010	3,735	18
Before 2006	10,786	52
<b>Year of last contact</b>		
2020-present	8,449	41
2016-2019	2,989	14
2011-2015	2,875	14
2006-2010	2,728	13
Before 2006	3,624	18

<sup>1</sup>Among those presumed to be alive, N=14,229. <sup>2</sup>Among those with transmission risk in AIRS, N=8,910 men/boys, 6,112 women/girls.

# Patients with HIV presumed to be alive through 6/2022 (N=14,229)

Current age

	Total N	Total %	N seen in past year	% of total N seen in past year
Age in 2022 (yrs)	Median 56, IQR 44-63		Median 56, IQR 44-62	
0-12	11	0.1	6	55
13-29	638	4	341	53
30-49	4,147	29	1,972	48
50+	9,433	66	4,419	47
50-54	1,762	12	795	45
55-59	2,708	19	1,282	47
60-64	2,244	16	1,084	48
65-69	1,471	10	693	47
70-74	759	5	358	47
75-79	300	2	130	43
80+	189	1	77	41
Total	14,229	100	6,738	47

# Patients with HIV through 6/2022 (N=20,665)

HIV lab values, ART use, seroconversion, data linkages

	N or median	% or IQR
<b>HIV lab values</b>		
Most recent CD4+ T-cell count*, cells/uL (median, IQR)	561	352-787
Suppressed viral load (<200 cp/mL) at most recent test*	4,599	75
Undetectable viral load (<40 cp/mL) at most recent test*	4,185	68
<b>Treatment and testing</b>		
Any ART prescribed in past year*	5,387	88
With negative HIV antibody test prior to entering HIV+ cohort (“seroconverter”)	693	3
<b>Data linkages</b>		
Matched with Einstein Cancer Registry	2,416	12
Matched with National Death Index	5,752	51

\*Among those with at least one outpatient visit between 7/2021 and 6/2022, N=6,152.

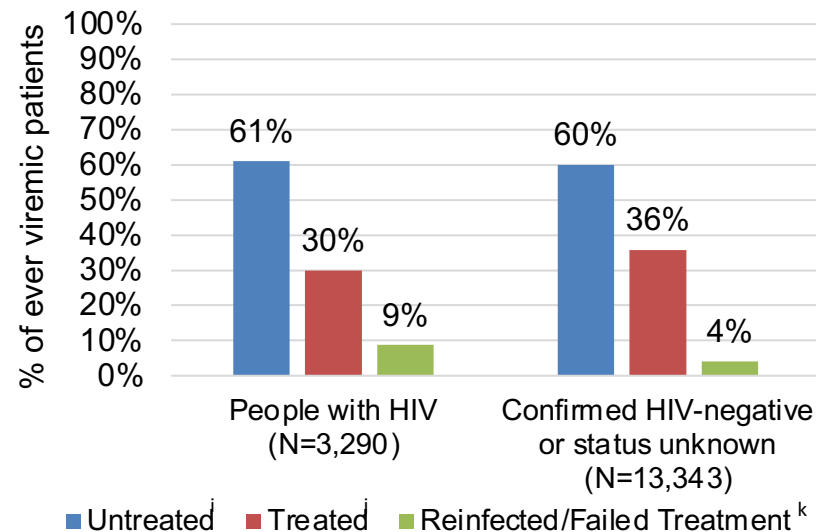
For CD4+ data, N=5,112 due to missing data. For viral suppression, patients with no viral load data are considered not suppressed. For ART data, denominator includes patients who may be getting ART prescriptions elsewhere.

## HCV status and populations of interest among MHS patients age 18+, by HIV status

	People with HIV, N=19,456 N (%)	Confirmed HIV-negative or status unknown, N=2,196,434 N (%)
<b>HCV status</b>		
Unknown <sup>a</sup>	2,374 (12)	1,755,828 (80)
Known <sup>b</sup>	17,082 (88)	440,606 (20)
<b>Most recent HCV status<sup>c</sup></b>		
HCV negative	11,535 (67)	413,992 (94)
HCV Ab+	5,547 (32)	26,614 (6)
Ever viremic <sup>d</sup>	3,290 (19)	13,343 (3)
Never viremic <sup>e</sup>	1,142 (7)	8,780 (2)
Viremia unknown <sup>f</sup>	1,115 (7)	4,491 (1)
<b>HCV populations of interest</b>		
HCV seroconverter <sup>g</sup>	446 (3)	1,866 (0.4)
HCV with HCC <sup>h</sup>	94 (2)	951 (4)

HCV = hepatitis C virus, HCV Ab+ = hepatitis C antibody positive, HCC = hepatocellular carcinoma, VL = viral load, UD = undetectable.

### Treatment status among HCV Ab+ ever viremic patients, by HIV status



<sup>a</sup> Includes those with no HCV tests, uninterpretable results, or only  $\geq 1$  undetectable HCV VL results (and no HCV Ab result)

<sup>b</sup> Includes those with any interpretable HCV testing

<sup>c</sup> Reported as percent of those with known HCV status

<sup>d</sup> HCV VL ever detectable (with or without any HCV Ab result)

<sup>e</sup> At least one HCV VL recorded and never detectable (may represent cleared infection vs. prior tx)

<sup>f</sup> No recorded HCV VL

<sup>g</sup> Ever had neg HCV Ab followed by pos HCV Ab, reported as percent of those with known HCV status

<sup>h</sup> Ever HCV Ab+ **AND** HCC dx in cancer registry, reported as percent of those with HCV Ab+

<sup>i</sup> Most recent HCV VL is detectable

<sup>j</sup> Ever had detectable HCV VL **AND** most recent HCV VL is UD

<sup>k</sup> Ever had detectable HCV VL **AND** subsequent UD HCV VL **AND** most recent HCV VL is detectable

# **Summary data on current outpatients with HIV**

# Current outpatients with HIV, 7/2021-6/2022 (N=6,152)

## Demographic and behavioral characteristics

	N	%
<b>Gender</b>		
Man/boy	3,467	56
Woman/girl	2,682	44
Other/unknown/ choose not to disclose	3	0.05
<b>Age in 2021<sup>1</sup> (years)</b>	Median 56	IQR 44-63
0-12	6	0.1
13-29	316	5
30-49	1,728	28
50+	4,024	66
<b>Race/ethnicity</b>		
Hispanic	2,660	43
Black, non-Hispanic	2,616	43
White, non-Hispanic	248	4
Asian/Pacific Islander	15	0.2
Native American	8	0.1
>1, other, unknown	605	10

<sup>1</sup>Among those presumed to be alive, N=6,074.

<sup>2</sup>Among those with transmission risk in AIRS, N=2,876 men/boys, 2,247 women/girls.

	N	%
<b>Transmission risk, men/boys<sup>2</sup></b>		
Heterosexual/other	1,200	42
MSM	1,181	41
IDU	461	16
Perinatal	34	1
<b>Transmission risk, women/girls<sup>2</sup></b>		
Heterosexual/other	1,868	83
IDU	239	11
Perinatal	59	3
Recorded as MSM	81	4
<b>Year of earliest HIV diagnosis</b>		
2020-present	711	12
2016-2019	943	15
2011-2015	999	16
2006-2010	1,044	17
Before 2006	2,455	40

## Current outpatients with HIV, 7/2021-6/2022 (N=6,152)

### CD4+ T-cell count, HIV viral suppression, ART use

	N or median	% or IQR
Most recent CD4+ T-cell count (cells/uL)	561	352-787
500 or more	2,950	58
350 to 499	892	17
200 to 349	690	14
50 to 199	462	9
0 to 49	118	2.3
Suppressed viral load (<200 cp/mL) at most recent test	4,599	75
Undetectable viral load (<40 cp/mL) at most recent test	4,185	68
Any ART prescribed in past year	5,387	88

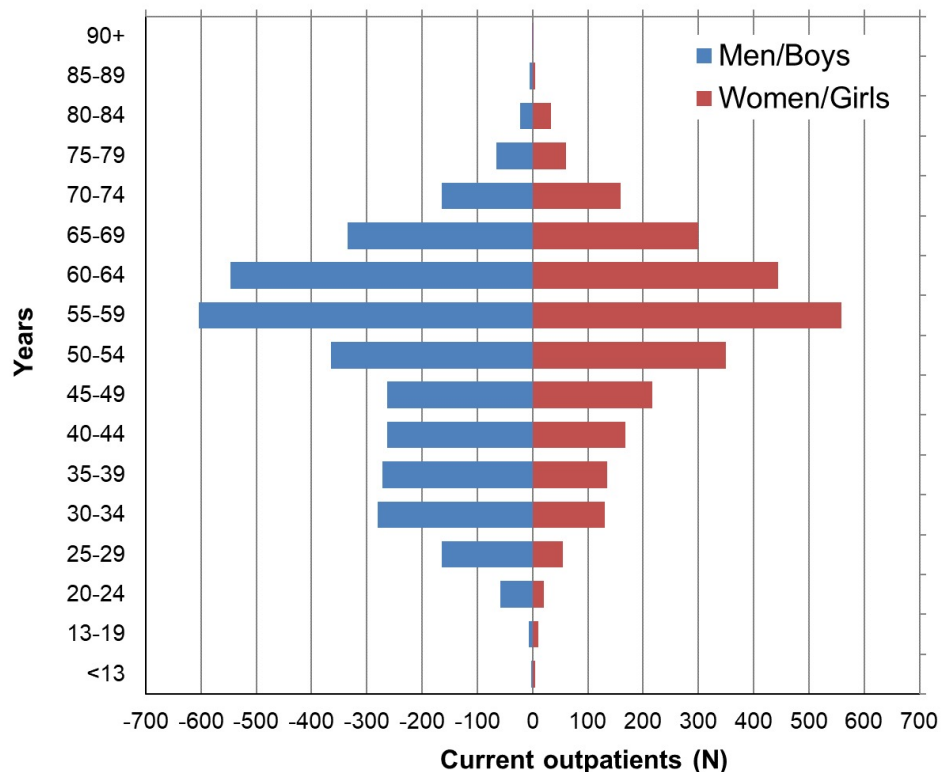
For CD4+ data, N=5,112 due to missing data. For VL suppression, patients with no viral load data are considered not suppressed. For ART data, denominator includes patients who may be getting ART prescriptions elsewhere.

# Current outpatients with HIV, 7/2021-6/2022 (N=6,152)

## Age structure and selected comorbidities

### Age structure, by gender

(among those presumed  
to be alive, N=6,074)



### Selected comorbidities

(based on inpatient discharge and outpatient  
diagnosis codes and/or prescriptions)

History of:	N	%
Coronary heart disease ICD-9-CM 410-415, ICD-10-CM I20-25	1,159	19
Lipid-lowering therapy Rx	2,529	41
Statin Rx	2,335	38
Anti-hypertensive medication Rx	3,349	54
Diabetes mellitus (either diagnosed or prescribed medication) ICD-9-CM 250, ICD-10-CM E10, E11, E13	1,956	32
Substance use disorder ICD-9-CM 292, 304, 305.2-305.9, ICD-10-CM F11-F16, F18, F19	2,471	40
Depression ICD-9-CM 296.2, 296.3, 298.0, 300.4, 311, ICD-10-CM F32-F34	3,072	50
Anxiety ICD-9-CM 300.0, 300.2, ICD-10-CM F40, F41	2,328	38



# Current outpatients with HIV and history of HCV co-infection, 7/2021-6/2022

(N=1,419, 23% of all outpatients with HIV)

## Characteristics

	N	Col. %	Row %
<b>Gender</b>			
Man/boy	888	63	26
Woman/girl	529	37	20
Other/unknown/ choose not to disclose	2	0.1	67
<b>Age in 2021<sup>1</sup> (years)</b>	Median 61, IQR 55-66		
18-29	25	2	8
30-49	181	13	10
50+	1,186	84	29
<b>Race/ethnicity</b>			
Hispanic	780	55	29
Black, non-Hispanic	434	31	17
White, non-Hispanic	90	6	36
Asian/Pacific Islander	0	0	0
Native American	1	0.1	13
>1, other, unknown	114	8	45

History of HCV infection defined as HCV Ab+ OR detectable VL.

<sup>1</sup>Among those presumed to be alive, N=1,464. <sup>2</sup>Among those with transmission risk in AIRS, N=779 men/boys, 463 women/girls. <sup>3</sup>Among those with CD4 T-cell available, N=1,196. <sup>4</sup>HCV Ab+ with viremia unknown, or HCV VL tested but HCV Ab-, or lab history unclear.

	N	Col. %	Row %
<b>Transmission risk, men/boys<sup>2</sup></b>			
Heterosexual/other	204	28	17
MSM	152	21	13
IDU	372	51	81
Perinatal	1	0.1	3
<b>Transmission risk, women/girls<sup>2</sup></b>			
Heterosexual/other	277	59	15
IDU	173	37	72
Perinatal	4	1	7
Recorded as MSM	14	3	17
<b>Most recent CD4+ T-cell count (cells/uL)<sup>3</sup></b>	Median 463 IQR 275-684		
500 or more	527	45	18
350 to 499	229	20	26
200 to 349	218	19	32
50 to 199	151	13	33
0 to 49	34	3	29
<b>Current HCV status</b>			
Chronic, presumed untreated	125	9	-
Chronic, s/p tx	579	41	-
Reinfected or failed tx	142	10	-
Without viremia	491	35	-
Unknown/Other <sup>4</sup>	82	6	-

# Chronic HBV co-infection

Definition of chronic HBV co-infection	Patients with HIV, (N=20,665), N (%)	Current outpatients with HIV (N=6,152), N (%)
Ever HBsAg+	967 (4.7)	211 (3.4)
Ever HBsAg+ <b>OR</b> detectable HBV viral load	1,107 (5.4)	263 (4.3)
Ever HBsAg+ <b>OR</b> detectable HBV viral load <b>OR</b> diagnosis code for chronic HBV	1,747 (8.5)	485 (7.9)
With hepatocellular carcinoma (HCC)	36 (2.1)	5 (1.0)

HBV = hepatitis B virus, HBsAg+ = hepatitis B surface antigen positive.

Diagnosis codes for chronic HBV: ICD-9-CM codes 070.22, 070.23, 070.32, 070.33,

ICD-10-CM: B18.0, B18.1, B19.10, B19.11.

# Current outpatients with HIV and chronic HBV co-infection, 7/2021-6/2022 (N=485)

## Characteristics

	N	Col. %	Row %
<b>Gender</b>			
Man/boy	303	62	9
Woman/girl	182	38	7
<b>Age in 2021<sup>1</sup> (years)</b>	Median 59, IQR 52-64		
0-12	0	0	0
13-29	5	1	2
30-49	92	19	5
50+	380	80	9
<b>Race/ethnicity</b>			
Hispanic	199	41	7
Black, non-Hispanic	232	48	9
White, non-Hispanic	19	4	8
Asian/Pacific Islander	1	0.2	7
Native American	0	0	0
>1, other, unknown	34	7	6

	N	Col. %	Row %
<b>Transmission risk, men/boys<sup>2</sup></b>			
Heterosexual/other	109	41	9
MSM	90	34	8
IDU	66	25	14
Perinatal	2	0.8	6
<b>Transmission risk, women/girls<sup>2</sup></b>			
Heterosexual/other	133	79	7
IDU	29	17	12
Perinatal	2	1	3
Recorded as MSM	5	3	6
<b>Most recent CD4+ T-cell count (cells/uL)<sup>3</sup></b>			
	Median 469, IQR 269-689		
500 or more	194	47	7
350 to 499	82	20	9
200 to 349	63	15	9
50 to 199	57	14	12
0 to 49	16	4	14

Chronic HBV Infection defined as ever HBsAg+ OR detectable HBV viral load OR diagnosis code for chronic HBV.

<sup>1</sup>Among those presumed to be alive, N=477. <sup>2</sup>Among those with transmission risk in AIRS, N=267 men/boys, 169 women/girls.

<sup>3</sup>Among those with CD4 T-cell count available, N=412.

# **Summary data on deaths among patients with HIV**

# Deaths among patients with HIV, 1997-present (N=6,430)

## Demographic and behavioral characteristics

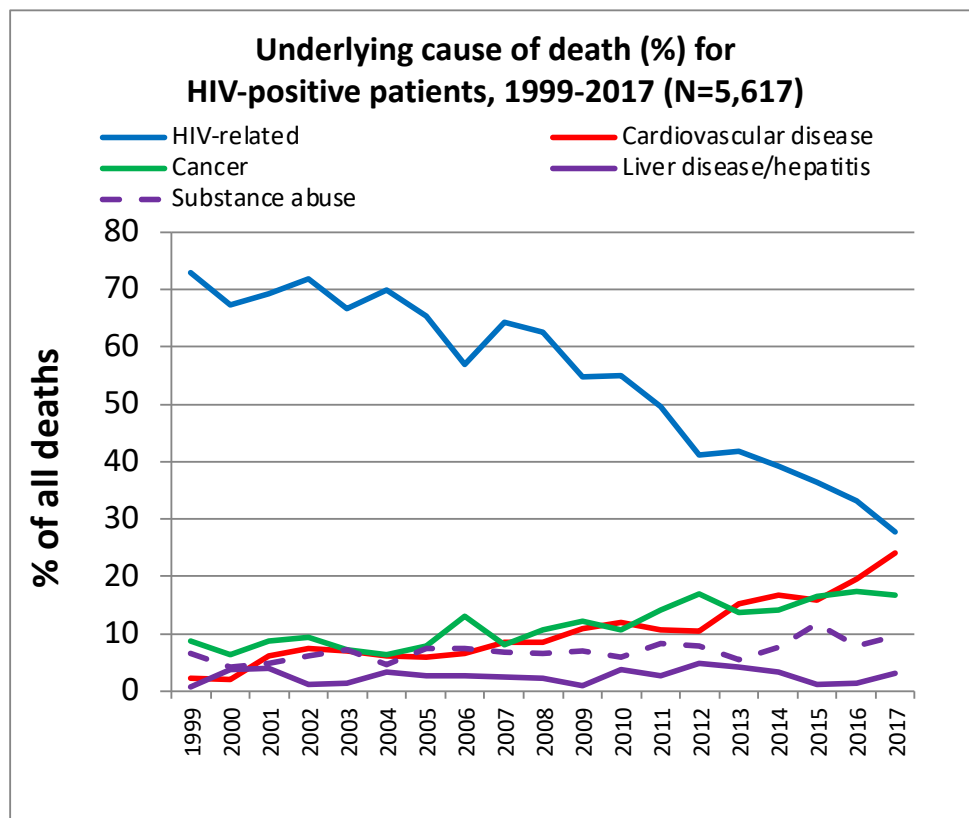
	N	%
<b>Gender</b>		
Man/boy	3,925	61
Woman/girl	2,493	39
Other/unknown/ choose not to disclose	12	0.2
<b>Age at death (years)</b>	Median 50	IQR 43-58
0-12	14	0.2
13-29	187	3
30-49	2,758	44
50+	3,387	53
<b>Race/ethnicity</b>		
Hispanic	2,005	31
Black, non-Hispanic	2,611	41
White, non-Hispanic	445	7
Asian/Pacific Islander	19	0.3
Native American	7	0.1
>1, other, unknown	1,343	21

	N	%
<b>Transmission risk, men/boys<sup>1</sup></b>		
Heterosexual/other	1,403	50
MSM	429	15
IDU	966	34
Perinatal	20	0.7
<b>Transmission risk, women/girls<sup>1</sup></b>		
Heterosexual/other	1,360	74
IDU	446	24
Perinatal	26	1.4
Recorded as MSM	15	0.8
<b>Year of earliest HIV diagnosis</b>		
2016-present	188	3
2011-2015	431	7
2006-2010	1,045	16
2001-2015	1,699	26
Before 2001	3,067	48
<b>Year of death</b>		
2016-present	1,111	17
2011-2015	1,677	26
2006-2010	1,718	27
2001-2015	1,459	23
Before 2001	465	7

<sup>1</sup>Among those with transmission risk in AIRS, N=2,818 men/boys, 1,847 women/girls.

# Deaths among patients with HIV (N=5,617\*)

## Underlying cause of death and place of residence



Place of residence at death	N	%
New York City	5,008	89
New York State	165	2.9
Florida	84	1.5
Puerto Rico	77	1.4
New Jersey	48	0.9
North Carolina	30	0.5
Pennsylvania	29	0.5
Georgia	28	0.5
Massachusetts	25	0.5
All other states	123	2.2

\*Deaths occurring 1999-2017, matched with National Death Index. Note: 2017 is incomplete.

# **Summary data on patients with confirmed HIV-negative status**

# Patients with confirmed HIV-negative status through 6/2022 (N=506,590)

## Demographic and behavioral characteristics

	N	%
<b>Gender</b>		
Man/boy	189,712	37
Woman/girl	316,684	63
Other/unknown/ choose not to disclose	194	0.04
<b>Age in 2022<sup>1</sup> (years)</b>	Median 41	IQR 31-55
0-12	1,682	0.3
13-29	103,765	21
30-49	219,341	45
50+	166,387	34
<b>Race/ethnicity</b>		
Hispanic	203,473	40
Black, non-Hispanic	161,202	32
White, non-Hispanic	37,818	7
Asian/Pacific Islander	10,110	2
Native American	1,116	0.2
>1, other, unknown	92,871	18

	N	%
<b>Transmission risk, men/boys<sup>2</sup></b>		
Heterosexual/other	16,086	93
MSM	959	6
IDU	324	2
Perinatal	7	0.04
<b>Transmission risk, women/girls<sup>2</sup></b>		
Heterosexual/other	21,648	99
IDU	143	0.7
Perinatal	6	0.03
Recorded as MSM	61	0.3
<b>Year of last negative HIV test</b>		
2020-present	123,436	24
2016-2019	168,522	33
2011-2015	133,366	26
2006-2010	61,107	12
Before 2006	20,159	4
<b>Year of last visit</b>		
2020-present	273,389	54
2016-2019	117,717	23
2011-2015	75,537	15
2006-2010	31,623	6
Before 2006	8,324	2

<sup>1</sup>Among those presumed to be alive, N=491,175. <sup>2</sup>Among those with transmission risk in AIRS, N=17,376 men/boys, 21,858 women/girls.



# Patients prescribed PrEP through 6/2022 (N=2,530)

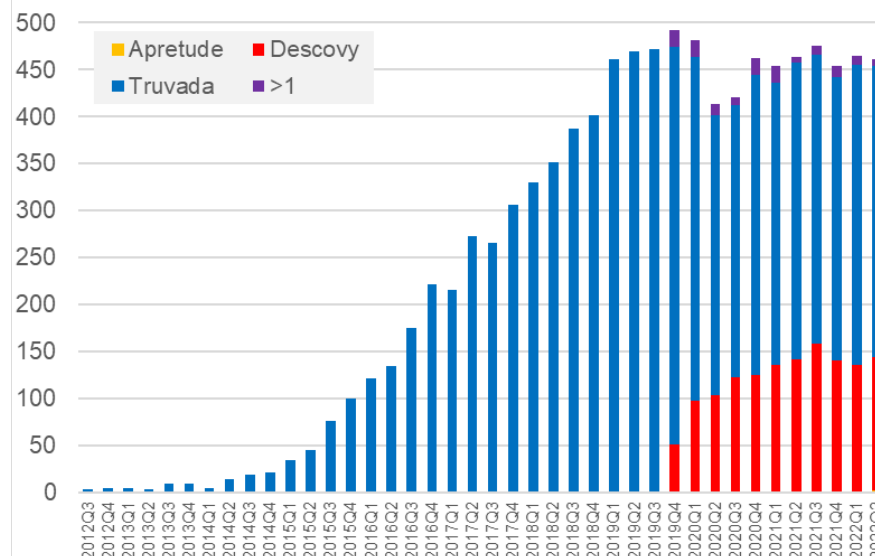
## Characteristics

	N	%
<b>Gender</b>		
Man/boy	1,822	72
Woman/girl	708	28
<b>Age at first Rx (years)</b>	Median 30	IQR 24-40
<18	44	1.7
18-29	1,188	47
30-39	624	25
40-49	351	14
50-59	250	10
60+	73	3
<b>Race/ethnicity</b>		
Hispanic	1,158	46
Black, non-Hispanic	789	31
White, non-Hispanic	206	8
Asian/Pacific Islander	51	2
>1, other, unknown	326	13

\*Among those with transmission risk in AIRS, N=450 men/boys, 190 women/girls.

	N	%
<b>Transmission risk, men/boys*</b>		
Heterosexual/other	153	34
MSM	291	65
IDU	6	1
<b>Transmission risk, women/girls*</b>		
Heterosexual/other	162	85
IDU	6	3
Recorded as MSM	22	12
<b>HIV seroconversion after PrEP Rx</b>	38	1.5

Unique PrEP patients per quarter, by regimen



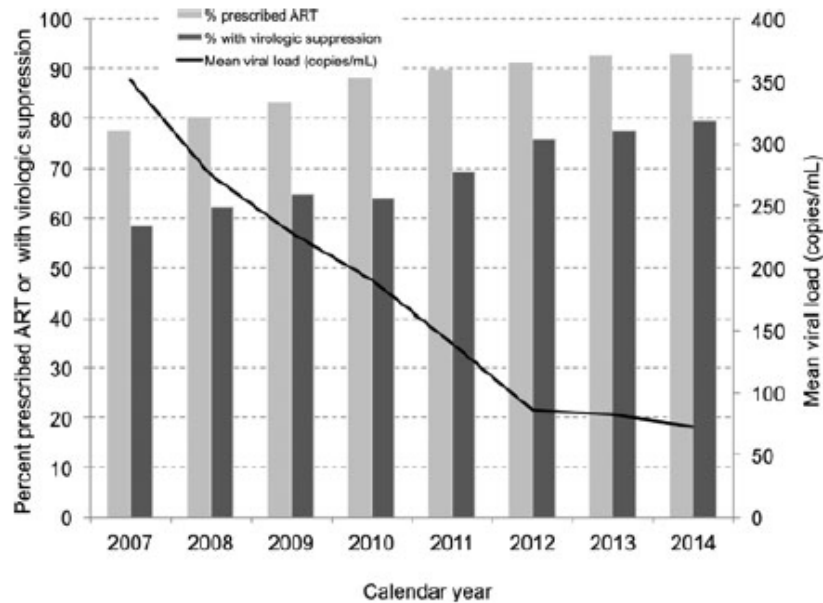
FDA approval occurred in July 2012 for TDF/FTC (Truvada), October 2019 for TAF/FTC (Descovy), and December 2021 for cabotegravir (Apretude). Excludes off-label PrEP use prior to FDA approval.

# **Selected publications**

# Increased Antiretroviral Therapy Use and Virologic Suppression in the Bronx in the Context of Multiple HIV Prevention Strategies

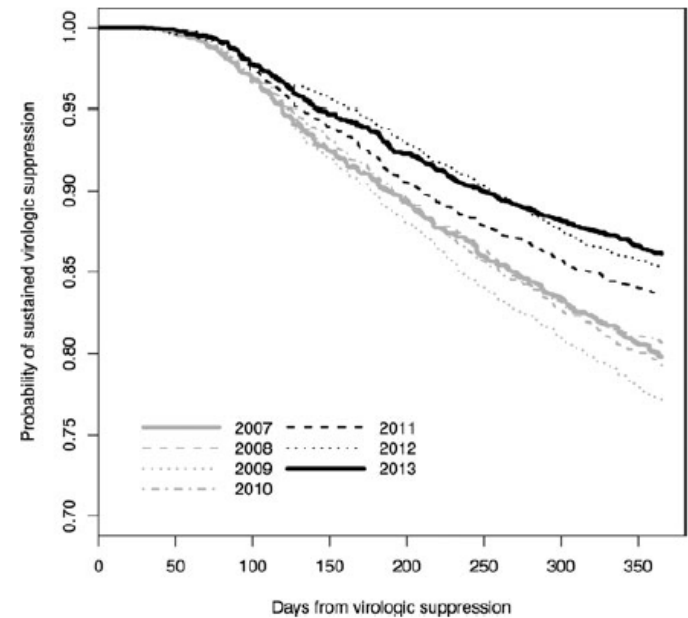
David B. Hanna,<sup>1</sup> Uriel R. Felsen,<sup>2</sup> Mindy S. Ginsberg,<sup>1</sup> Barry S. Zingman,<sup>2</sup> Robert S. Beil,<sup>2</sup>  
Donna C. Futterman,<sup>3</sup> Howard D. Strickler,<sup>1</sup> and Kathryn Anastos<sup>1,2</sup>

## ART use and virologic suppression among HIV+ outpatients, 2007-2014



ART use and virologic suppression increased, and mean viral load decreased.

## Time to virologic failure by calendar year, 2007-2013



Sustained virologic suppression improved over time.

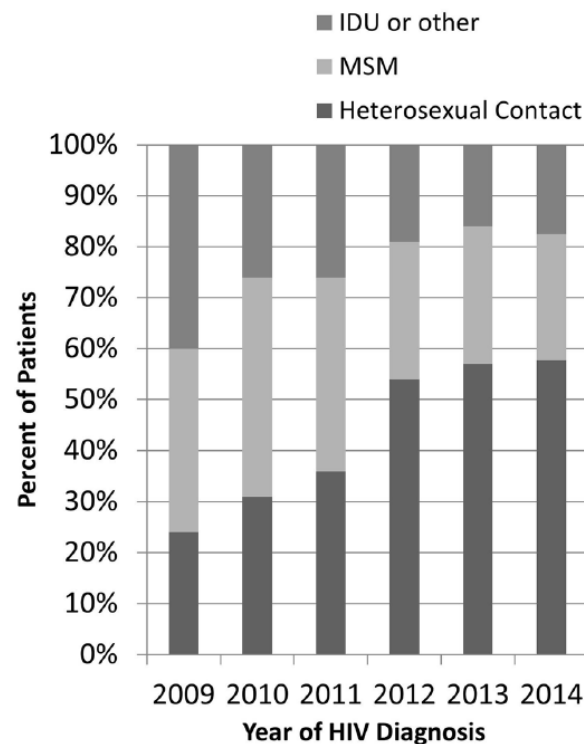


## Missed Opportunities for HIV Prevention: Individuals Who HIV Seroconverted Despite Accessing Healthcare

Francesca Cossarini<sup>1</sup> · David B. Hanna<sup>2</sup> · Mindy S. Ginsberg<sup>2</sup> · Oni J. Blackstock<sup>3</sup> · Kathryn Anastos<sup>3</sup> · Uriel R. Felsen<sup>3</sup>

- Identified a high-risk population of HIV seroconverters who were accessing care
  - 45% female (vs. 20% among new diagnoses citywide)
- HIV awareness suggested by frequent testing
  - Multiple visits occurred between last HIV negative test and first HIV positive test
- Differences according to sex:
  - Females were older at HIV diagnosis
  - Females had more potential “missed opportunities”
  - Females were more likely to be diagnosed in the context of screening
- Suggests need for overlapping HIV prevention strategies to ensure that prevention is available to heterogeneous populations at risk

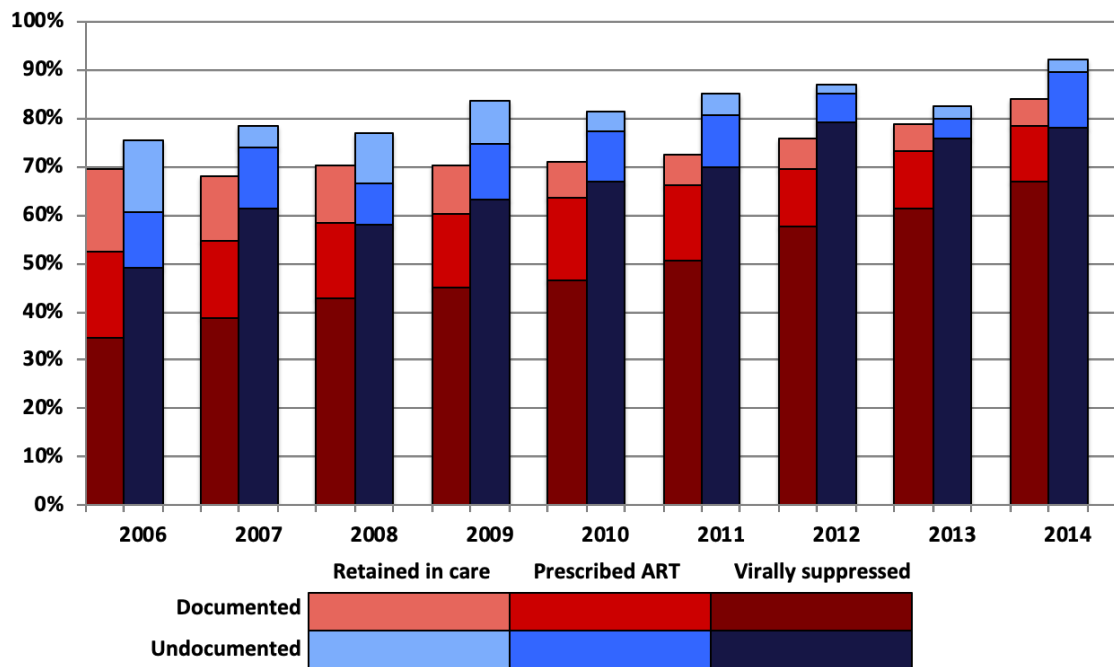
### Changes in HIV risk factors among seroconverters, 2009-2014



# Outcomes Along the HIV Care Continuum Among Undocumented Immigrants in Clinical Care

Jonathan Ross,<sup>1</sup> Uriel R. Felsen,<sup>2</sup> Chinazo O. Cunningham,<sup>1</sup> Viraj V. Patel,<sup>1</sup> and David B. Hanna<sup>3</sup>

## Proportion retained in care, prescribed ART, and virally suppressed by immigration status, 2006–2014.

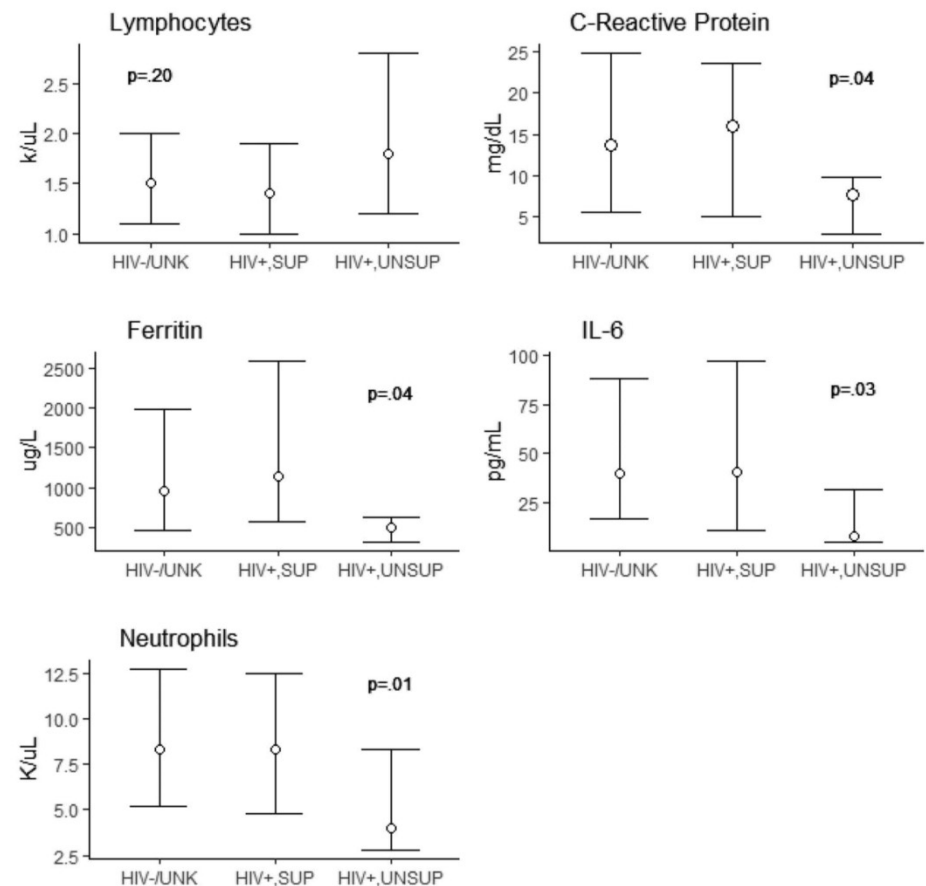


- Undocumented patients achieved clinical outcomes at modestly higher rates than documented patients, despite entering care with more advanced disease
- In a setting where insurance is available to undocumented patients, similar outcomes along the HIV care continuum may be achieved regardless of immigration status

# Clinical Outcomes and Inflammatory Markers by HIV Serostatus and Viral Suppression in a Large Cohort of Patients Hospitalized With COVID-19

*Viraj V. Patel, MD, MPH,<sup>a</sup> Uriel R. Felsen, MD, MS,<sup>b</sup> Molly Fisher, MD,<sup>c</sup> Melissa J. Fazzari, PhD,<sup>d</sup> Mindy S. Ginsberg, BS,<sup>d</sup> Robert Beil, MD,<sup>a</sup> Matthew J. Akiyama, MD, MSc,<sup>a,b</sup> Kathryn Anastos, MD,<sup>a</sup> and David B. Hanna, PhD<sup>d</sup>*

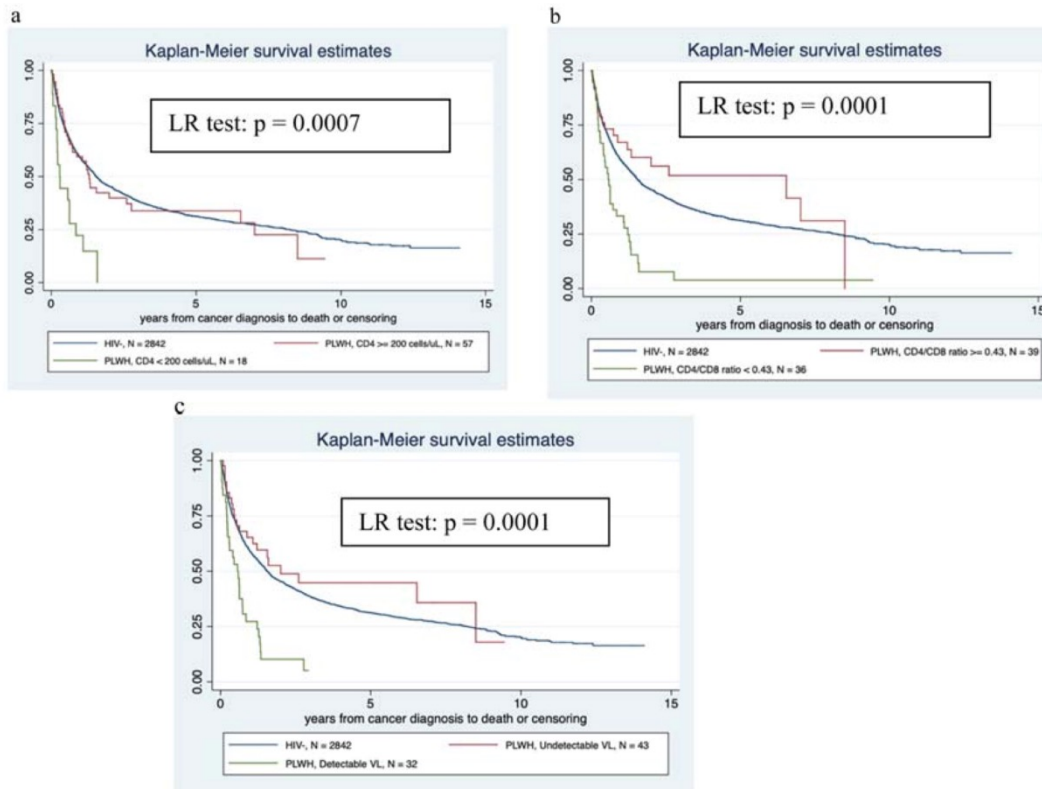
- 100 PLWH vs. 4513 patients without HIV hospitalized with COVID-19 between March and May 2020
  - HIV serostatus associated with higher intubation rates, particularly those with higher CD4 counts
  - HIV serostatus not associated with acute kidney injury, length of stay, death
- No virally unsuppressed PLWH (0/15) were intubated or died
- CRP, IL-6, neutrophil counts, ferritin were similar between virally suppressed PLWH and patients without HIV, but significantly lower for unsuppressed PLWH (Figure)



# The associations of CD4 count, CD4/CD8 ratio, and HIV viral load with survival from non-small cell lung cancer in persons living with HIV

M. Klugman <sup>a</sup>, M. Fazzari<sup>a</sup>, X. Xue<sup>a</sup>, M. Ginsberg<sup>a</sup>, T. E. Rohan<sup>a</sup>, B. Halmos<sup>b</sup>, D. B. Hanna<sup>a</sup>, J. Shuter<sup>a,c</sup> and H. D. Hosgood III<sup>a</sup>

<sup>a</sup>Department of Epidemiology and Population Health, Albert Einstein College of Medicine, Bronx, NY, USA; <sup>b</sup>Department of Medicine (Oncology), Montefiore Medical Center, Bronx, NY, USA; <sup>c</sup>Department of Medicine (Infectious Diseases), Montefiore Medical Center, Bronx, NY, USA



**Figure 1.** HIV status and survival from NSCLC diagnosis, with persons living with HIV (PLWH) stratified by (a) CD4 count, (b) CD4/CD8 ratio [median value], and (c) HIV viral load [level of detection: 75 copies/mL] at diagnosis.

- 88 PLWH vs. 2,881 without HIV, all with non-small cell lung cancer (NSCLC)
- PLWH with CD4 < 200 cells/ $\mu$ L had lower survival than HIV-neg (HR 1.86, 95% CI 0.98–3.55)
- Similar findings for low CD4: CD8 ratio, high HIV viral load
- Message: Immune status is important in NSCLC survival among PLWH



# Additional publications (1)

## Key populations and high-risk groups

- Chyten-Brennan J, Patel VV, Ginsberg MS, Hanna DB (2021). **Algorithm to identify transgender and gender nonbinary individuals among people living with HIV performs differently by age and ethnicity.** *Ann Epidemiol* 54: 73-78.
- Chyten-Brennan J, Patel VV, Anastos K, Hanna DB (2022). **Role of gender-affirming hormonal care in HIV care continuum outcomes when comparing transgender women with cisgender sexual minority men.** *JAIDS* 91: 255-260.
- Hanna DB, Felsen UR, Anastos K, Bauman LJ, Fiori KP, Ginsberg MS, Watnick D, Chambers EC (2022). **Association of unmet social needs with uncontrolled viremia in people with HIV.** *AIDS Behav* 26: 3740-3745.
- Masyukova MI, Hanna DB, Fox AD (2018). **HIV treatment outcomes among formerly incarcerated transitions clinic patients in a high prevalence setting.** *Health Justice* 6: 16.
- Ross J, Hanna DB, Felsen UR, Cunningham CO, Patel VV (2017). **Emerging from the database shadows: Characterizing undocumented immigrants in a large cohort of HIV-infected persons.** *AIDS Care* 12: 1491-1498.

## Pre-exposure prophylaxis (PrEP)

- Bien CH, Patel VV, Blackstock OJ, Felsen UR (2017). **Reaching key populations: PrEP uptake in an urban health care system in the Bronx, New York.** *AIDS Behav* 5: 1309-1314.
- Furukawa NW, Smith DK, Gonzalez CJ, Huang YA, Hanna DB, Felsen UR, Zhu W, Arnsten JH, Patel VV (2020). **Evaluation of algorithms used for PrEP surveillance using a reference population from New York City — July 2016–June 2018.** *Pub Health Rep* 135: 202-210.
- Lankowski AJ, Bien-Gund CH, Patel VV, Felsen UR, Silvera R, Blackstock OJ (2018). **PrEP in the real world: Predictors of 6-month retention in a diverse urban cohort.** *AIDS Behav* 23: 1797-1802.



# Additional publications (2)

## Cardiovascular disease

- Bortnick AE, Shahid M, Shitole SG, Park M, Broder A, Rodriguez CJ, Scheuer J, Faillace R, Kizer JR (2020). **Outcomes of ST-elevation myocardial infarction by age and sex in a low-income urban community: The Montefiore STEMI Registry.** *Clin Cardiol* 43: 1100-1109.
- Shitole SG, Kayo N, Srinivas V, Alapati V, Nordin C, Southern W, Christia P, Faillace RT, Scheuer J, Kizer JR (2016). **Clinical profile, acute care, and middle-term outcomes of cocaine-associated ST-segment elevation myocardial infarction in an inner-city community.** *Am J Cardiol* 117: 1224-1230.
- Shitole SG, Srinivas V, Berkowitz JL, Shah T, Park MJ, Herzig S, Christian A, Patel N, Xue X, Scheuer J, Kizer JR (2019). **Hyperglycaemia, adverse outcomes and impact of intravenous insulin therapy in patients presenting with acute ST-elevation myocardial infarction in a socioeconomically disadvantaged urban setting: The Montefiore STEMI Registry.** *Endocrinol Diab Metab* 3: e00089.
- Shitole SG, Kuniholm MH, Hanna DB, Boucher T, Peng AY, Berardi C, Shah T, Bortnick AE, Panagiota C, Scheuer J, Kizer JR (2020). **Association of human immunodeficiency virus and hepatitis C virus infection with long-term outcomes post-ST segment elevation myocardial infarction in a disadvantaged urban community.** *Atherosclerosis* 311: 60-66.

# Additional publications (3)

## Co-infections

- Yoon H, Hemmige VS, Lee A, Conway-Pearson LS, Pirofski L-A, Felsen UR (2022). **Cryptococcal antigen screening and missed opportunities for earlier diagnosis among people with HIV and poor virologic control in the Bronx, NY.** *JAIDS* 91: 390-396.

## Informatics

- Felsen UR, Bellin EY, Cunningham CO, Zingman BS (2014). **Development of an electronic medical record-based algorithm to identify patients with unknown HIV status.** *AIDS Care* 26: 1318-1325.

## Kidney disease

- Fisher MC, Fazzari MJ, Hanna DB, Patel VV, Felsen UR, Alahiri E, Byju A, Akiyama MJ, Ginsberg MS, Anastos K, Ross MJ (2021). **Acute kidney injury in people living with HIV hospitalized with coronavirus disease 2019: Clinical characteristics and outcomes.** *JAIDS* 87: 1167-1172.

# ERC-CFAR HIV Clinical Cohort Database

## Summary

- Provides infrastructure for observational studies
  - Published studies have examined the HIV care continuum, comorbidities (e.g., cancer, cardiovascular disease, co-infections, kidney disease), HIV prevention and PrEP, COVID-19, key populations, informatics
- Potential source of participants for clinical studies
  - Study population estimates from the Database can support grant preparation, study recruitment
  - The CTSC can provide assistance with study recruitment via our research nurse, as a core service

# How to collaborate

- For more information, see our **webpage**
  - <https://einsteinmed.edu/centers/erc-center-for-aids-research/core-facilities/clinical-and-translational-science>
- Contact our study coordinator to access the **Collaboration Concept Sheet Submission Form** and **data dictionary**
  - Ms. Yocheved Halberstam,  
[yocheved.halberstam@einsteinmed.edu](mailto:yocheved.halberstam@einsteinmed.edu)

# Acknowledgments

## Database team

- Kathryn Anastos, M.D.
- Uriel Felsen, M.D., M.S.
- Mindy Ginsberg
- David Hanna, Ph.D.
- Heidi Jones, Ph.D., M.P.H.
- Madeline Torres, R.N.
- Epidemiology Informatics and Study Management Unit (EISMU)  
Yocheved Halberstam  
Victor Kamensky  
Martin Packer

Jatin Solanki  
Allan Spielman  
Nataliya Tappen

## CTSC leadership

- ERC-CFAR CTSC Director  
Kathryn Anastos, M.D.
- ERC-CFAR CTSC Associate Directors  
Marina Caskey, M.D.  
Uriel Felsen, M.D., M.S.  
David Hanna, Ph.D.  
Heidi Jones, Ph.D., M.P.H.

The ERC-CFAR (P30-AI-124414, PI: Harris Goldstein, M.D.) is supported by the following NIH Co-Funding and Participating Institutes and Centers: NIAID, NCI, NICHD, NHLBI, NIDA, NIDDK, NIGMS, NIMH, NIMHD, NIA, FIC, and OAR.