

# Characteristics of patients who become HIV Infected despite accessing healthcare: Implications for HIV prevention strategies

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## Background

- Pre-Exposure Prophylaxis (PrEP) and early initiation of antiretroviral therapy are important strategies in HIV prevention
- Identifying individuals at risk for HIV and engaging them in care remains a challenge
- For individuals who undergo HIV testing more than once and have a positive result after having a previous negative HIV test (seroconverters), the time of infection can be approximated more closely than for those with no prior negative test
- Understanding the risk factors and behavioral characteristics of seroconverters might provide valuable insight for developing prevention strategies
- The aim of the study was to describe demographic, clinical and behavioral characteristics of seroconverters within a large healthcare system in the Bronx, New York, a region of high HIV prevalence.

## Methods

### SETTING

- Montefiore Health System (MHS), the largest provider of healthcare in the Bronx, NY
- >50,000 unique patients tested annually
- Local HIV prevalence is 2%.

### DATA SOURCE

- Einstein-Rockefeller-CUNY Center for AIDS Research's HIV Clinical Cohort Database
- Contains clinical and demographic information on patients tested for HIV within MHS since 1997
- Additional data collected via structured medical record review

### PATIENTS

- Age ≥ 18
- At least one negative HIV test followed by a positive test
- Restricted to those with positive test between 2009 and 2014.

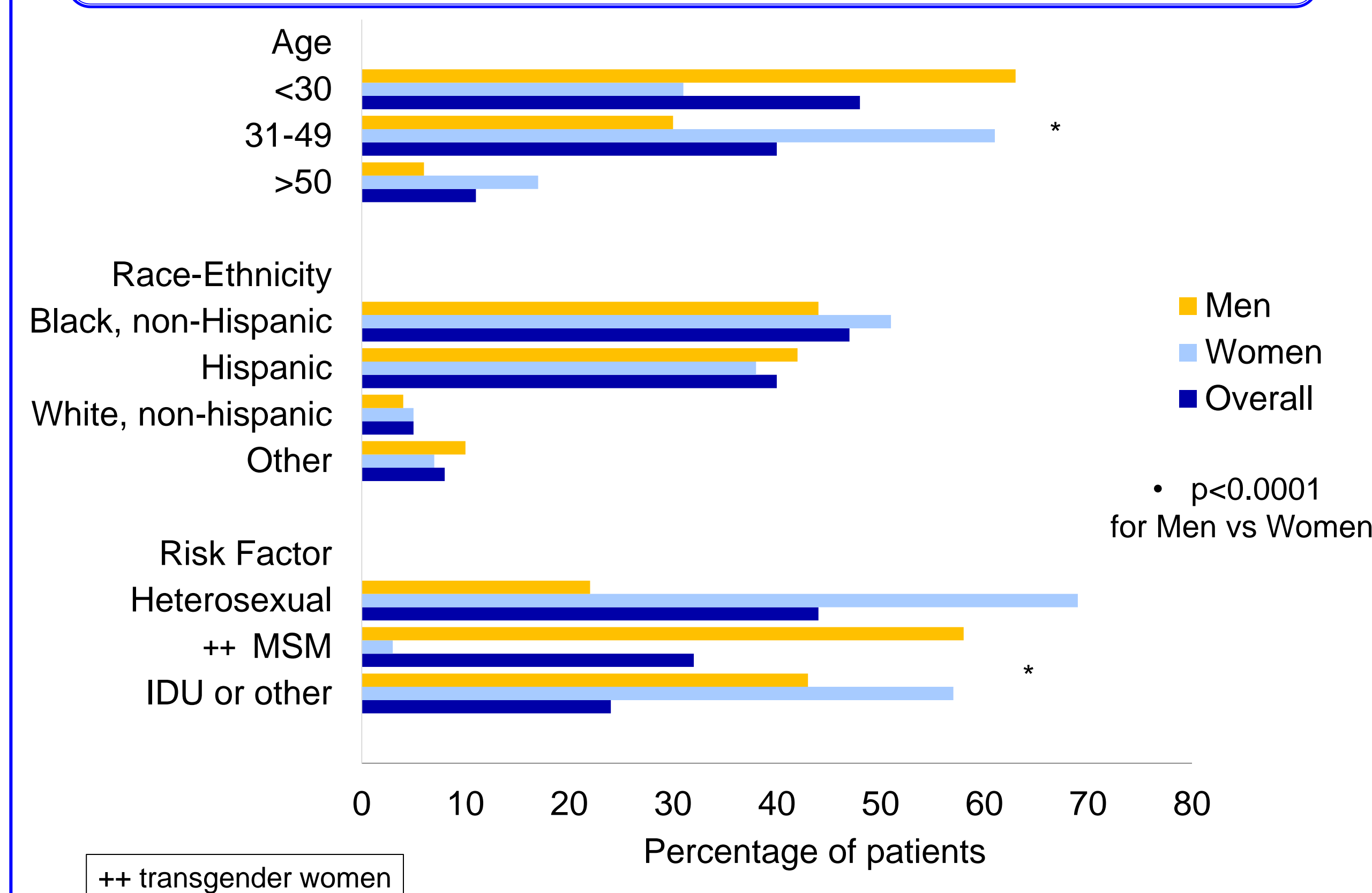
### ANALYSES

- Associations between categorical variables were assessed with Chi-Square tests or Wilcoxon as appropriate

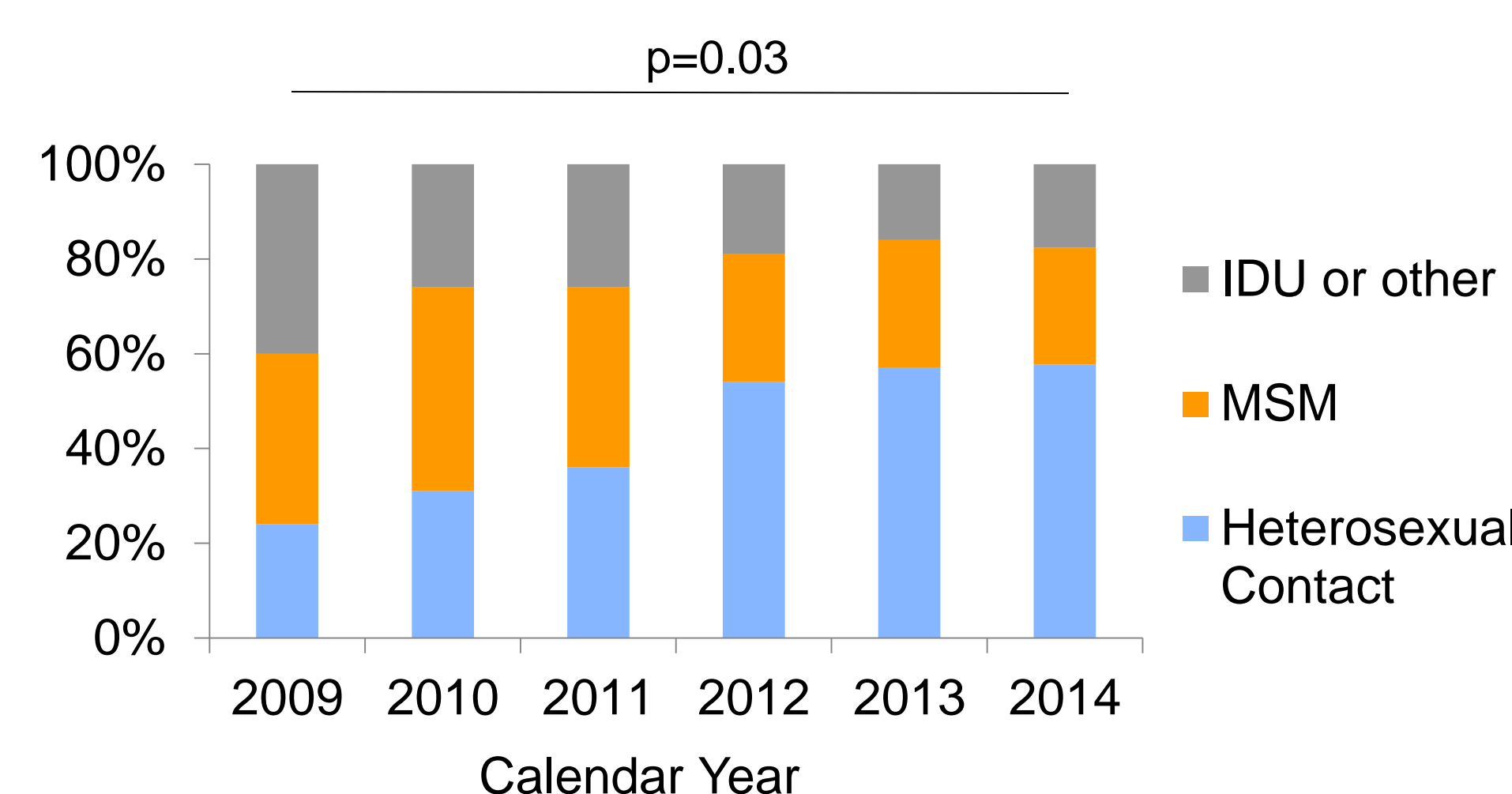
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### Demographics of HIV seroconverters 2009-2014 N= 220



### Risk factors for HIV infection over time



### SUMMARY OF KEY FINDINGS

- We identified 220 seroconverters over 6 years.
- Most seroconverters were Black or Hispanics and 46% were women.
- Women were older than men at the time of diagnosis (p<0.0001).
- The most common risk factor for HIV acquisition was heterosexual contact and its proportion increased

## Results

### Testing Behaviors

	Overall N=220 N (%) or Median (IQR)	Women N=105 N (%) or Median (IQR)	Men N=115 N (%) or Median (IQR)	p value
Total number of negative tests				0.045
1	108 (49)	58 (55)	50 (43)	
2-4	92 (42)	35 (33)	57 (50)	
>5	20 (9)	12 (11)	8 (7)	
Years between negative tests	1.03 (0.6-1.7)	0.97 (0.6-1.4)	1.1(0.7-1.8)	0.284
Number of visits between last negative and positive test	3 (1-5)	4 (1-7)	2 (0-4)	<0.001

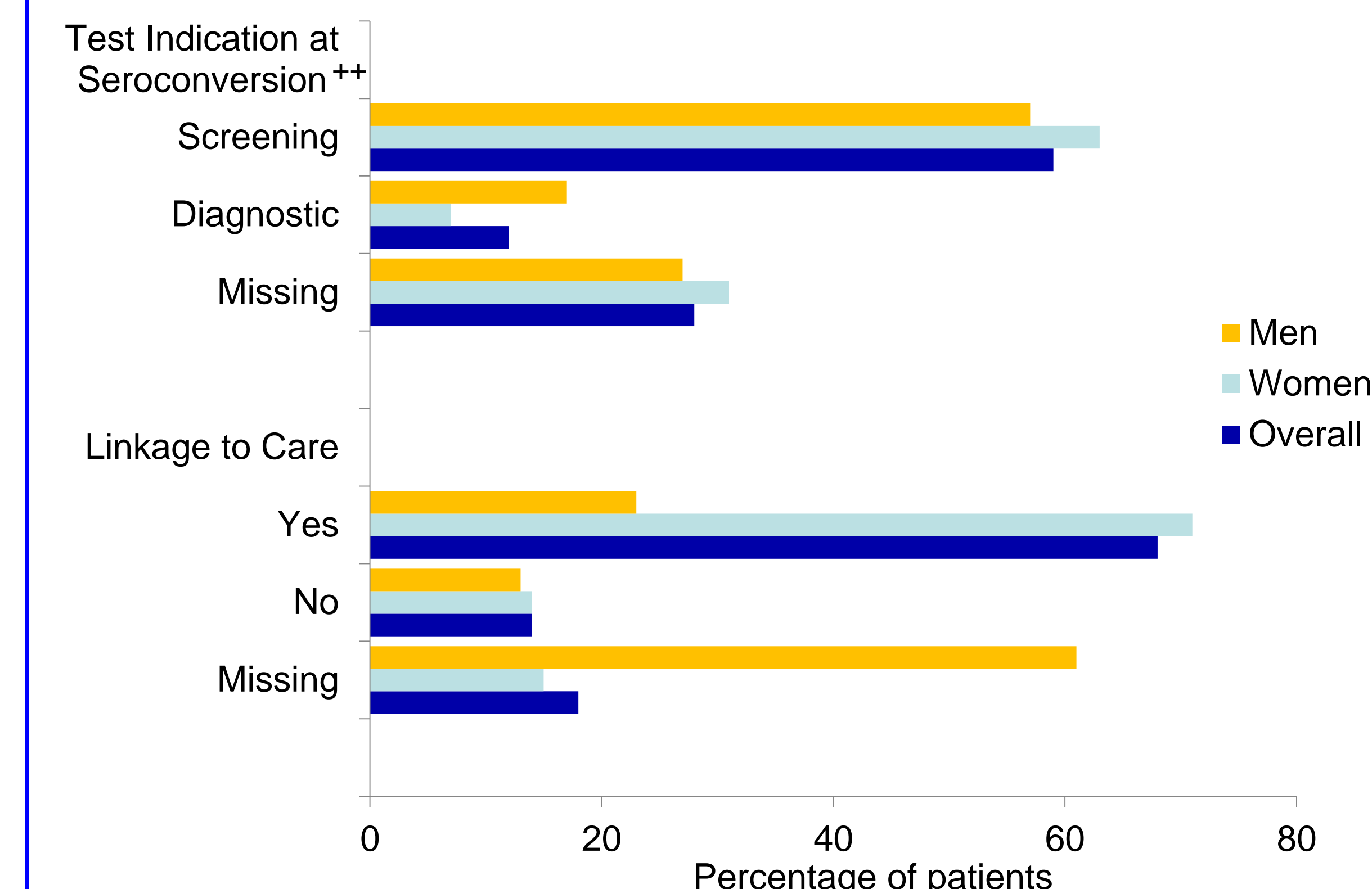
### Behavioral Characteristics

	Overall N=220 N (%) or Median (IQR)	Women N=105 N (%) or Median (IQR)	Men N=115 N (%) or Median (IQR)	p value
STDs prior to HIV seroconversion				0.617
Yes	86 (39)	40 (38)	46 (40)	
No	118 (54)	59 (56)	59 (51)	
Missing	16 (7)	6 (6)	10 (9)	
Illicit Drug use prior to seroconversion				0.021
Yes	81 (37)	29 (28)	52 (45)	
No	102 (46)	54 (52)	48 (42)	
Missing	37 (17)	22 (21)	15 (13)	
Mental Illness prior to seroconversion				0.794
Yes	25 (11)	13 (12)	12 (10)	
No	174 (79)	81 (77)	93 (81)	
Missing	21 (10)	11 (10)	10 (9)	

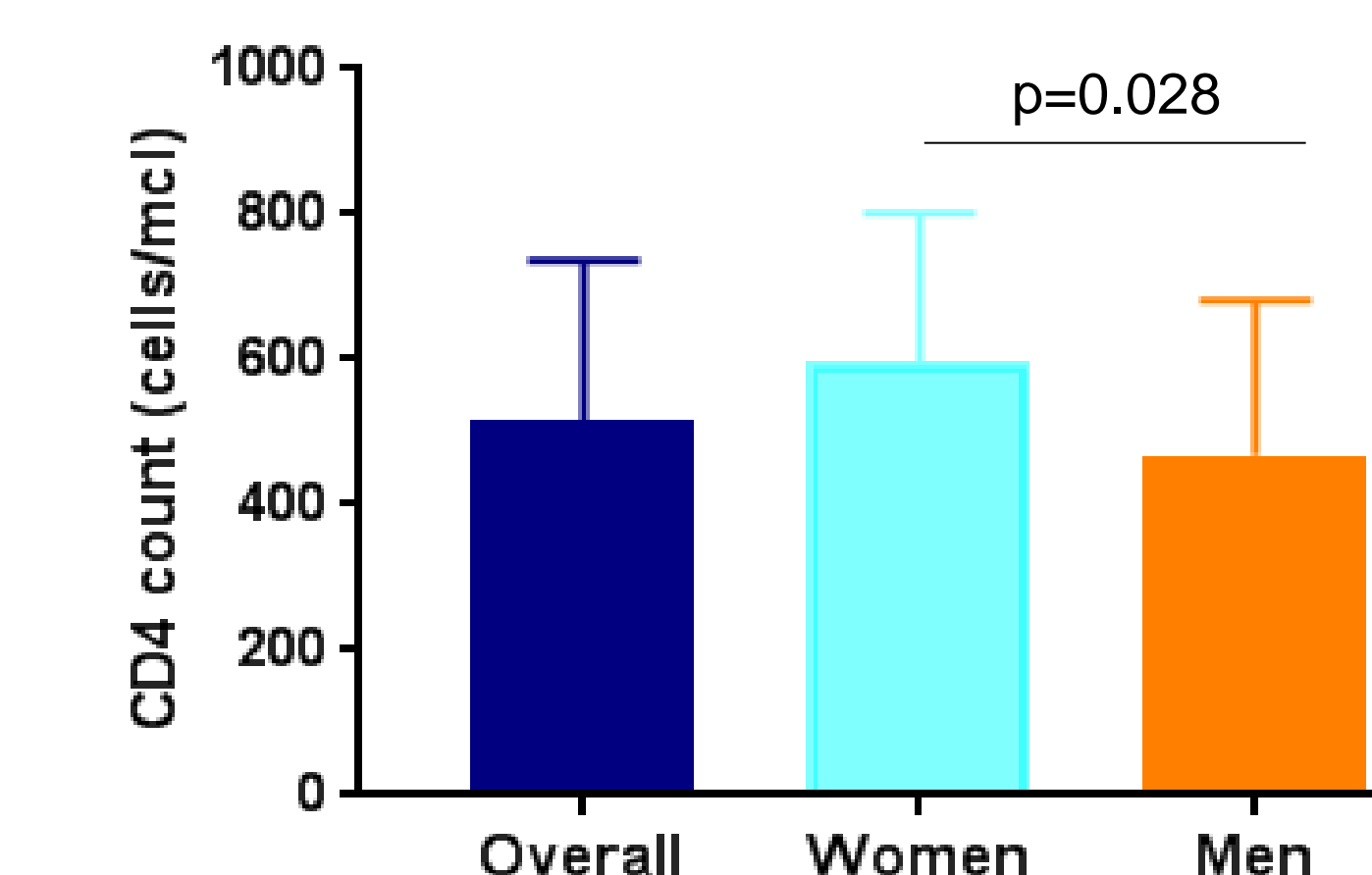
### SUMMARY OF KEY FINDINGS

- Overall, patients were tested almost annually.
- Women a greater number of visits between their last negative and the positive HIV test as compared to males
- Women were less likely to have a history of non-IV illicit drug use prior to being diagnosed with HIV

### Testing indication and linkage to care among HIV seroconverters at the time of diagnosis



### CD4 at the time of HIV diagnosis



### SUMMARY OF KEY FINDINGS

- HIV was diagnosed by routine screening for the majority of patients.
  - 9 patients were diagnosed during acute HIV infection and 3 in the setting of an opportunistic infection.
- Screening tended to be the indication for testing at the time of HIV diagnosis more frequently for females compared to males (p=0.077).
- No patient received pre-exposure prophylaxis during the study period.
- Women had a higher CD4 count at the time of diagnosis compared to men.

## Conclusions and Clinical Implications

- Distinct from the highest risk populations identified in both local and national HIV surveillance, our population of seroconverters was almost half female and the proportion of seroconverters with heterosexual sex as a risk factor increased over time.
- Most seroconverters had multiple healthcare encounters between their last negative and first positive test suggesting missed opportunities for prevention
- Health systems must recognize at-risk populations that are actively accessing care despite not fitting the traditional risk profile and should tailor prevention strategies accordingly