

Results from a New York City Emergency Department Rapid HIV Testing Program

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BACKGROUND

- New York State has the highest number of HIV/AIDS cases in the country.
- In 2006, 1,591 AIDS diagnoses in New York occurred within one year of HIV diagnosis, accounting for 35% of all new diagnoses.
- Based on the CDC recommendation to routinely offer HIV testing in all health care settings, the New York City Department of Health and Mental Hygiene (NYC DOHMH) has supported the expansion of HIV testing to the emergency department (ED).
- Many NYC ED testing programs continue to rely on a counselor-based model of conducting HIV testing.

OBJECTIVES

- To assess the yield of a counselor-based ED testing program in an institutional context
- To describe the patient characteristics associated with a new diagnosis of HIV
- To determine whether newly diagnosed patients were effectively linked to care

SETTING

- Columbia University Medical Center (CUMC) is an academic teaching hospital located in the primarily Hispanic neighborhood of Washington Heights in Manhattan.
- There are two emergency departments affiliated with CUMC, one at the main medical center, and one at the Allen Pavilion, an affiliated community hospital 3 miles to the north in Inwood.



THE CUMC ED HIV TESTING MODEL

- The Columbia University Medical Center Counseling and Testing Service (CTS) was created in 2002 to assist providers with HIV counseling and testing, ensure that all patients who test positive receive their results, and report newly diagnosed cases of HIV to the NYC DOHMH
- One CTS counselor is stationed in each ED during business hours Monday through Friday.
- ED staff are encouraged to refer patients for HIV testing, but counselors approach most patients without regard to the reason for the ED visit, thus patient selection occurs via both *non-targeted* and *diagnostic* testing.
- Counselors conduct point-of-care testing using the OraQuick ADVANCE® (OraSure Technologies, Bethlehem, PA) on fingerstick blood.
- Preliminary positive OraQuick results are immediately confirmed with a Western blot (WB).
- In most cases, patients return to the same CTS counselor for confirmatory results and active referrals to HIV care.
- CTS tracks patients for 3 months to ensure they have kept an appointment with an HIV provider.

METHODS

- For patients counseled and tested between January 1, 2006 and December 31, 2007, data were extracted from the CTS program database on demographics, risk factors, test location and result, new vs. known HIV diagnosis, and linkage to care, defined as either an electronic medical record (EMR) visit with an HIV provider at CUMC or patient self-report of a visit outside the institution within 90 days of the confirmatory test.
- For patients with more than one testing encounter, the result of the first test was used in the statistical analysis
- Since patients could report up to 3 risk factors, we assigned a primary risk factor based on the following hierarchy: IDU > men who have sex with men (MSM) > heterosexual > other > unknown
- A separate result to confirm their HIV status, obtain a CD4 cell count and HIV RNA EMR review was performed for patients with a preliminary positive OraQuick level within 3 months of diagnosis, and record encounters at CUMC in the year prior to diagnosis.
- We used descriptive statistics and logistic regression to assess the association between patient characteristics and receipt of a new HIV diagnosis in the ED.
- Variables with a univariate p-value <0.1 were advanced into the multivariate model and retained if the p-value remained <0.1.
- An EMR review was also performed to obtain the age, gender, race, and CD4 cell count, if available, on all new diagnosis of HIV at CUMC in 2006-2007.
- Newly diagnosed patients in the ED were compared to newly diagnosed patients in outpatient and inpatient settings.

RESULTS

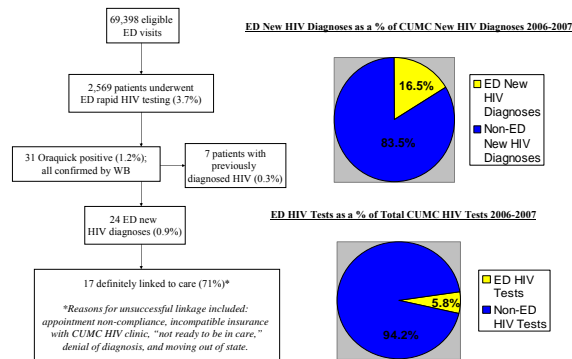


Table 1: Characteristics of Patients Undergoing Rapid HIV Testing in the ED in 2006-2007

Total	Total Tested n (%)	HIV+ Rapid Test n (% of total with positive test result)	P (χ ² test)
	2,562	24 (0.9)	
Age categories			0.008
13-29 years	964 (37.6)	4 (0.4)	
30-44 years	850 (33.2)	15 (1.8)	
≥45 years	748 (29.2)	5 (0.7)	
Gender			0.002
Female	1,326 (51.8)	5 (0.4)	
Male	1,236 (48.2)	19 (1.5)	
Race/Ethnicity			0.07
Hispanic	1,994 (77.8)	14 (0.7)	
Black	353 (13.8)	8 (2.3)	
White	132 (5.2)	1 (0.8)	
Asian	37 (1.4)	0 (0.0)	
Other	44 (1.7)	1 (2.3)	
Unknown	2 (0.08)	0 (0.0)	
Risk Factor	2,388 (93.2)	16 (0.7)	<0.001
Heterosexual	74 (2.9)	8 (10.8)	
MSM	29 (1.1)	0 (0.00)	
IDU	43 (1.7)	0 (0.0)	
Other*	28 (1.1)	0 (0.0)	
Unknown/Missing			
Zip code			0.5
Washington Heights/Inwood	1,157 (45.2)	14 (1.2)	
Brox	805 (31.4)	4 (0.5)	
Harlem	232 (9.0)	3 (1.3)	
Other	331 (12.9)	3	
Missing	37 (1.4)	0	

Multivariate Logistic Regression on Factors Associated with a New Diagnosis of HIV in the ED 2006-2007*

Variable	OR	95% CI	p-value
Age Category 13-29 years	0.6	0.16, 1.3	0.5
Age Category 30-44 years	2.5	0.88, 7.03	0.08
Male	2.5	0.85, 7.11	0.1
Black	2.5	1.03, 6.13	0.04
MSM	11.4	4.34, 30.15	<0.001

*Note: Reference group for Age Category is >=45 years of age. Interaction terms for black race and male gender, as well as black race and MSM risk factor, were not significant

CUMC Care in the Previous Year for ED New HIV Diagnoses

Previous CUMC visit: 10/24 (42%)
 -At least one ED visit: 9/24 (38%)
 -Only ED visits: 7/24 (29%), mean 1.7 ED visits

CD4 cell counts within 3 months of new HIV diagnosis at CUMC 2006-2007

Total Number of New Diagnoses	CD4 count data available	Mean CD4 (cells/uL)	p-value
n=152 (100%)	n=122 (80%)		
ED	25* (16.5%)	17 (68%)	216
Inpatient	61 (40.1%)	55 (90.2%)	177
Outpatient	66 (43.4%)	50 (72.7%)	428

*Includes one person who tested newly HIV positive on a subsequent ED visit.

CONCLUSIONS

- Our analysis suggests that an ED rapid HIV testing program can contribute substantially to the HIV testing efforts of a large, urban, academic medical center
- Although the greatest number of ED new HIV diagnoses occurred among heterosexual Hispanic men, the odds of being newly diagnosed were higher among blacks and MSM who tested.
- ED rapid HIV testing programs may identify persons with previously undiagnosed HIV infection who may not access care in other medical settings
- CD4 cell counts at the time of diagnosis may be lower than in outpatient settings
- 100% linkage to HIV care may be difficult, despite extensive testing program outreach

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