

Missed Opportunities for HIV Testing at a Large Urban Healthcare System from 2010-2015

S. Kapadia, MD; H.K. Singh, MD, MSc, S. Jones, MD; S Merrick, MD; C Vaamonde, MD
 Division of Infectious Diseases; Weill Cornell Medicine



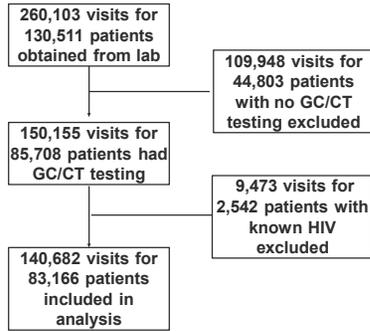
Background

- CDC and USPSTF guidelines recommend routine HIV testing for adolescents and adults.
- In 2010, New York State enacted Public Health Law 308, requiring the offer of one-time HIV testing for patients age 13-64 at inpatient, ED, and primary care sites.
- In 2011, our institution changed ED workflow to encourage routine testing.
- More frequent testing is recommended for patients defined as high-risk, including those diagnosed with or seeking testing for other sexually transmitted infections (STIs)
- The impact of expanded testing strategies is still being evaluated.
- We explored HIV testing patterns based on year and location of testing, in individuals tested for gonorrhea and chlamydia (GC/CT) at New York Presbyterian Hospital – Weill Cornell Medical College (NYP-WCMC).

Methods

- Retrospective study of all GC/CT lab test visits at NYP-WCMC ED, inpatient, and outpatient sites between 2010 and 2015.
- Data obtained from NYP-WCMC lab database
- Each visit treated as a unique observation.
- Missing data were not imputed except order location, which was treated as “outpatient” for 153 missing values.
- Primary outcome was performance of HIV test at the same visit as GC/CT testing for a patient at-risk.
- Descriptive statistics were performed and secular trend over time plotted, in total and stratified by sex of patient.
- Univariate analyses conducted using age, sex, visit location, # of prior visits for patient, prior HIV status, and result of GC/CT testing.
- Logistic regression with robust covariance for patient-level clustering was conducted for outcome of HIV Ab test concurrent with GC/CT test. Missing values are excluded for predictor variables. All included predictors were significant in univariate testing.
- Statistical testing performed in R version 3.3.1

GC/CT testing visits



Year of visit – n	Characteristics of GC/CT testing visits			
	All encounters (n = 140,682)	ED (4,869)	Inpatient (4,304)	Outpatient (131,509)
2010	6,402	228	261	5913
2011	23,384	909	897	21,578
2012	27,340	996	1,058	25,286
2013	29,153	997	834	27,322
2014	31,826	1,014	741	30,071
2015	22,577	725	513	21,339
Age of patient at visit – mean; (SD)	33.7 (9)	33.0 (10)	28.2 (11)	33.9 (9)
Female sex – n; (% of total)	122,817 (87%)	3,388 (70%)	3,717 (86%)	115,712 (88%)
GC/CT test positive – n; (% of total)	1,821 (1.3%)	223 (4.6%)	151 (3.5%)	1,447 (1.1%)
# of visits per patient – median; (IQR)	1 (1-2)	1 (1-2)	2 (2-3)	1 (1-2)

GC/CT diagnoses

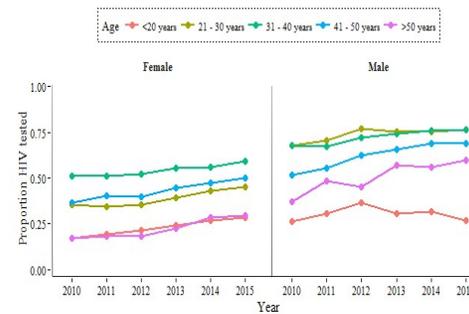
- 1,501 patients (1,821 visits) had + GC/CT test
 - Mean age at diagnosis: 27.6 years
 - Sex: 1,040 F; 460 M
 - Location: 223 ED; 151 Inpt; 1,447 Outpt
 - Result: 205 GC; 1,557 CT; 59 both
 - 713 patients were HIV tested at visit
 - 7 of these tested HIV positive

HIV diagnoses

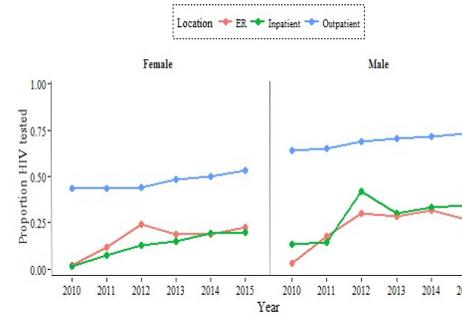
- 75 patients had new + HIV antibody
 - Mean age at diagnosis: 36 years
 - Sex: 13 F, 62 M
 - Location: 7 ED, 3 InPt, 65 OutPt

Trends in HIV testing over time

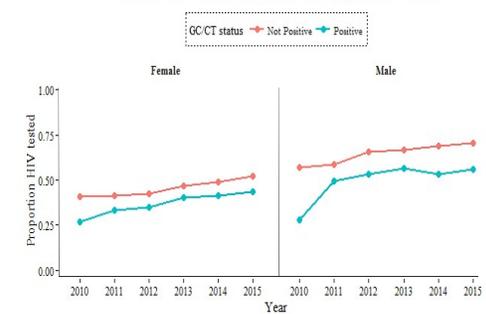
Patients HIV tested with GC/CT testing by Age



Patients HIV tested with GC/CT testing by Location



Patients HIV tested with GC/CT testing by GC/CT result



Multivariate Regression

	Odds Ratio	95% CI	p-value
Male sex	2.55	(2.43 - 2.68)	<0.001
Age (years)	1	(0.99 - 1.00)	0.21
Year of visit	1.16	(1.15 - 1.17)	<0.001
Visit Location:			
Outpatient	-	-	
Inpatient	0.18	(0.16 - 0.19)	<0.001
ED	0.19	(0.18 - 0.21)	<0.001
Visit Number*	0.83	(0.82 - 0.85)	<0.001
Prior HIV –ve**	0.98	(0.95 - 1.01)	0.36
GC Positive	0.65	(0.47 - 0.89)	0.008
CT Positive	0.87	(0.79 - 0.98)	0.03

*Indicates that the observation is the nth GCCT testing visit for that patient
 ** Prior status was either “Unknown” if no previous HIV antibody, or “Negative” if previous negative antibody test.

Conclusions

- HIV antibody testing for patients undergoing GC/CT testing improved from 2010-15, but a sizeable proportion of patients are still not being HIV tested with GC/CT testing.
- HIV test rate did not improve over time for men under age 20.
- Patients seen in the ED and inpatient setting are significantly less likely to receive concurrent HIV testing than those seen as outpatients.
- Women are significantly less likely to receive HIV testing than men, especially at outpatient sites. This likely reflects GC/CT testing at gynecology specialty practices, where it is known that some patients were tested with point-of-care testing.
- Strengths of this study include large sample size and multi-site institutional data
- Limitations include inability to discern refusal of offered testing, inability to capture tests done outside of the NYP lab setting, and low number of HIV diagnoses.
- Future directions will be to further characterize high-risk groups not receiving testing, and develop interventions to improve testing rate.

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