



The Role of Rapid Testing (RT) vs. Standard Testing (ST) for HIV in In-Patients: Effects on Quality of Care

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Abstract

Background As part of the CDC 2003 initiative to prevent HIV transmission our Emergency Department (ED) has evaluated use of rapid HIV testing (RT). Because little is known about the impact of RT on patient outcomes, we assessed differences in quality of in-patient care and timeliness of outpatient follow-up for HIV+ patients newly diagnosed by RT (OraQuick) in the ED prior to admission vs. patients diagnosed by standard EIA testing (ST) during admission. **Methods** We performed a retrospective analysis of demographic and clinical data from medical records for patients admitted January 2003 through May 2004. We evaluated data by X², Student's-T and Mann-Whitney tests. **Results** We identified 103 HIV+ in-patients who had no prior HIV+ diagnosis; 79% were male, 62% African-American, 20% Hispanic, and 11% White. Mean age was 42 years. 48 patients (47%) were diagnosed by RT in the ED vs. 55 (53%) diagnosed by ST during their admission. Median CD4 counts were 43 vs. 27 cells/mm³ for RT vs. ST patients (z=1.03, p=0.31). All RT patients and their caregivers knew their diagnosis at admission; a median of 9 days passed from admit to availability of confirmed positive HIV test results for ST patients. Median length of stay was 5 days vs. 11 days for RT vs. ST patients (Z=-3.42, p=0.001). Length of stay differences remained when cases were stratified by CD4 count. Nine ST patients (16%) vs. none of the RT patients were discharged prior to notification of their HIV+ status (p=0.002). 34 (71%) of 48 RT patients vs. 31 (56%) of 55 ST patients attended our out-patient HIV clinic within 30 days of hospital discharge (X²=2.31, p=0.13). **Conclusions** Rapid HIV testing in the ED preceding admission may shorten hospital stay, increase the number of newly diagnosed HIV+ patients who are discharged from the hospital aware of their HIV status, and improve entry into out-patient care for patients admitted at the time of their initial HIV diagnosis. (Revised)

Background

■ The fact that an estimated 180,000-280,000 people with HIV are not aware of their diagnosis¹ has increased interest in improving access to HIV testing

■ Rapid, point-of-care (POC) HIV testing has improved notification rates at out-patient screening centers and enhanced diagnosis in pregnant women.^{2, 3, 4, 5}

■ Few data address the effect of rapid HIV testing on in-patient care.

■ We compared quality of care for in-patients diagnosed with HIV via POC testing in the Emergency Department (ED) versus patients diagnosed via standard testing following admission.

Methods

■ Retrospective comparison of quality of in-patients diagnosed with HIV in the ED by rapid HIV testing (RT) vs. in-patients diagnosed during admission via standard enzyme immunoassay testing (ST)

■ Study Site: John H. Stroger Hospital of Cook County

■ Electronic medical record used to identify patients with first-time positive HIV tests at John H. Stroger Hospital and concurrent hospital admission between January 1, 2003 and May 31, 2004

■ OraQuick rapid HIV-1 test (OraSure, Bethlehem, PA) was offered to ED patients not known to be HIV-infected as part of a CDC-funded study⁵

■ In-patients who had not received ED rapid testing could be offered ST by ward housestaff based on presence of HIV risk factors or clinical indications.

■ Patients with reactive RT performed in the ED or reactive ST done following admission were included in the analysis

Results

■ Demographic and clinical characteristics similar for both groups

■ Patients admitted to surgical and OB services not included

Table 1: Baseline Characteristics N=103

	RAPID TEST N=48 (47%)	STANDARD TEST N=55 (53%)	P-VALUE
Demographic Characteristics, # (%):			
Sex, male	40 (83)	40 (73)	0.20
Age in years, mean	40	43	0.13
Ethnicity			
African-American	29 (60)	35 (64)	0.65
Hispanic	12 (25)	9 (16)	
White	4 (8)	7 (13)	
Other	3 (6)	4 (7)	
Substance Abuse	17 (35)	14 (26)	0.34
HIV Risk Factor			
IDU	3 (6)	4 (7)	0.05
MSM	11 (23)	8 (15)	
Hetero	14 (29)	6 (11)	
Other	4 (8)	2 (4)	
Unknown	16 (33)	35 (64)	
Psychiatric Diagnoses	3 (6)	4 (7)	0.86
Homeless	4 (9)	1 (2)	0.12
Clinical Characteristics, # (%):			
Median CD4 Count, cells/mm ³	43	27	0.31
CD4 < 50 cells/mm ³	25 (52)	33 (60)	0.42
Opportunistic Infection Diagnosed During Admission	30 (63)	27 (49)	0.17
ICU Stay	5 (10%)	17 (31%)	0.01
Respiratory Failure Requiring Intubation	1 (2)	6 (11)	0.13
Co-morbid Conditions			
None	45 (94)	491 (89)	0.65
One or More	3 (7)	6 (11)	

Results Continued

Table 2: Quality/Utilization of Care End-Points

OUTCOME	RAPID	CONVENTIONAL	P-VALUE*
Mean # of days between admit and HIV+ diagnosis in chart	0.8 days (-0.5 to 2.0) †	6.4 days (4.7 to 8.0)	<0.001
Mean # of days between admit and placement on HIV in-patient ward service	1.4 days (-0.1 to 2.9)	6.9 (4.1 to 9.6)	<0.001
Mean # of days between admit and OI diagnosis	1.4 days (0.3 to 2.6)	2.5 days (0.8 to 4.3)	0.306
CD4<200 discharged on PCP prophylaxis‡	21/25 (84%)	33/36 (92%)	0.355
Median Length of Stay	5 days	11 days	0.001
Median Length of Stay, stratified by CD4 with lower 50% shown	6 days	12 days	0.004
Initial out-patient f/u within 30 days	34/48 (71%)	31/55 (56%)	0.129
Mean # days between discharge and initial out-patient f/u	21.4 days (11.4 to 31.5)	49.5 days (22.6 to 76.3)	0.054
# of patients discharged without knowledge of their HIV+ diagnosis	0/48	9/55 (16%)	0.002

* p-values based on Student's T-tests, Fisher exact test and Chi-squared values

† 95% confidence intervals for means

‡ based on patients with CD4 < 200 cells/mm³ determined prior to discharge

Conclusions

■ Our data show that **patients tested via the rapid HIV test** in the ED had:

- Shorter times to being recognized as HIV-infected
- Quicker placement on an in-patient HIV service
- Shorter lengths of stay, even after stratification according to CD4 count
- Less time to initial out-patient HIV clinic follow-up
- No instances of being discharged from the hospital without knowledge of their HIV status.

■ Our study showed the value of POC HIV testing for hospitalized patients and suggests that it should be incorporated into acute care HIV testing practices.

References

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