



Rapid HIV Testing New Jersey, 2007-2014

Debbie Y Mohammed

Abdel Ibrahim, Eugene Martin, John Ryan, Barbara Bolden



Background

Challenges

- Identifying and testing at risk populations
- Poor return rates for test results
- Poor linkage to medical care
- National HIV/AIDS Strategy
 - 85% linked to medical care in 90 days by 2015
 - 85% linked to medical care in 30 days (current)
- Martin EG, et al. Use of a rapid HIV testing algorithm to improve linkage to care. *J Clin Virol* (2011),
- Piatek A et al, Single rapid HIV testing & entry into care: Experience in NJ, 2005 -2006
- National HIV/AIDS strategy (2010) : <https://www.whitehouse.gov/administration/eop/onap/nhas/>
- National HIV/AIDS Strategy, updated to 2020: <https://www.aids.gov/federal-resources/national-hiv-aids-strategy/overview/index.html>

Rapid HIV Testing in New Jersey

- HIV Antibody with Confirmatory Western Blot (2004-2012)
- Multispot (2013 - present)

2004
Rapid HIV testing with Western Blot (WB) Confirmation

2008
Two-test (Rapid-Rapid) RTA implemented at 24 NJ sites
Confirmed by WB

2012
January 12, 2012 Letter from CDC
Approval of RTA testing without a confirmatory WB

2014
CLIA waiver approved for a 4th generation rapid HIV1/2 screening test: Determine Combo

Dec 2015

Determine Combo implemented at 166 sites

Orthogonal testing available on site or at a nearby clinical site (RTA)

- Martin EG, et al. Use of a rapid HIV testing algorithm to improve linkage to care. J Clin Virol (2011),
- Clinical and Laboratory Standards Institute. Criteria for Laboratory Testing and Diagnosis of Human Immunodeficiency Virus Infection; Approved Guideline M35-A. 2011;31(13):50-53

Objectives

- Describe the characteristics of newly diagnosed residents by test-type, from 2007-2014
- Estimate the proportion of newly diagnosed residents successfully linked to medical care in ≤ 30 days
- Estimate the proportion of newly diagnosed residents successfully linked to medical care in ≤ 90 days
- Identify predictors for linkage to medical care in ≤ 30 days, 2007-2011 and 2012-2014

Methods

Data

Electronic HIV/AIDS Reporting System (eHARS)

- Laboratory reporting and case reports
- De-duplication of cases
- Vital status is updated through quarterly matches to the NJ Death Registry and yearly to the National Death Index.
- Study observations from eHARS were de-identified

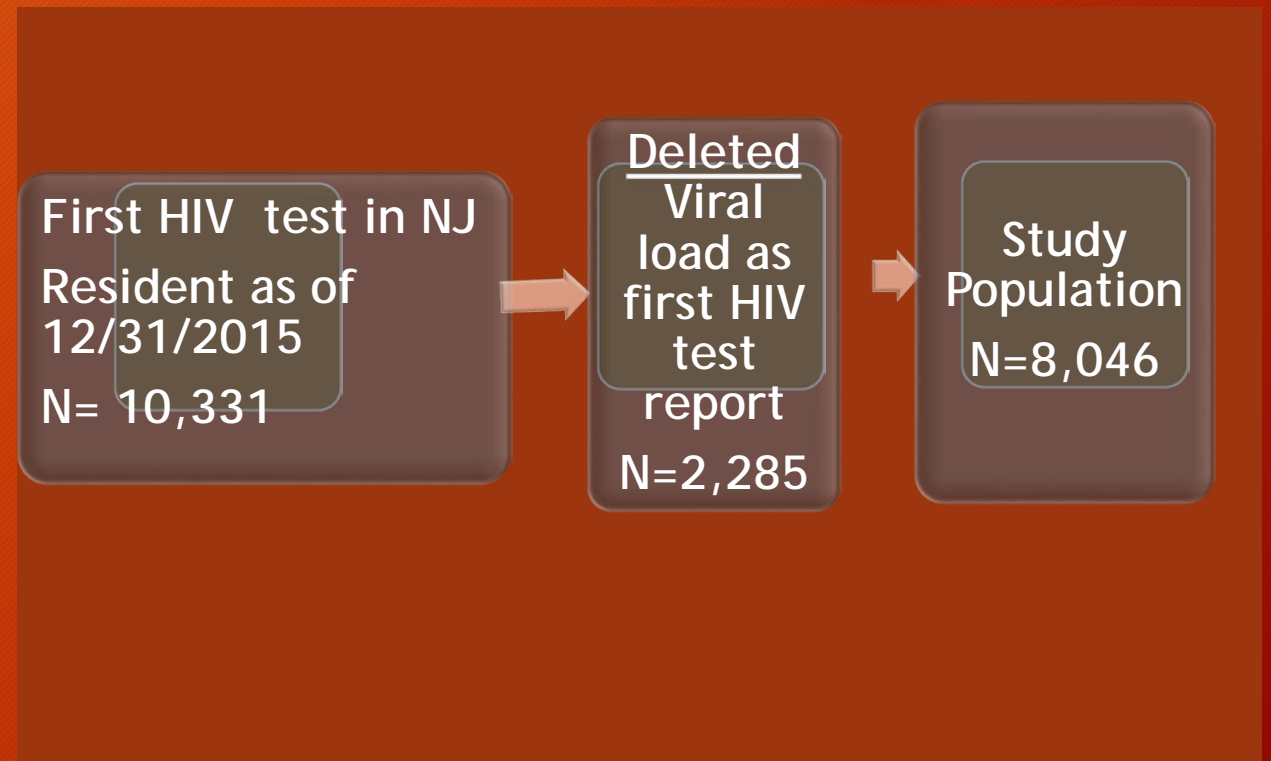
New Jersey Study Population

- Inclusion

- Resident at first HIV positive test (2007-2014)
- Resident as of 12/31/2015

- Exclusion:

- Perinatal Infection (any age)
- < 13 years at diagnosis



Outcome Measure

- Number of days to linkage to medical care
- Linkage: Presence of CD4 or HIV Viral load in eHARS

Test Types

Lab-test

EIA-WB (2007-2011)

Multispot (2012-2014)

- HIV antibody testing available since 1985
- Blood specimen by venipuncture, sent to lab
- May be 1-2 weeks before results are available

Rapid-Western Blot

1st HIV Rapid Test approved by FDA in 2003

- (Oraquik then Stat-Pak)-preliminary (+), Confirmatory WB performed
- Return for confirmatory results in 1-2 weeks

Rapid-Rapid (RTA)

2 Sequential Rapid tests

- Facilitated same day referral/linkage to care
- 2nd Rapid done at medical sites
- Immediate access to care facilitated by a linkage navigator

Association of State and Health Officials Vision Awards

1) 2006 - 'RAPID HIV TEST' PROGRAM

2) 2013 - 'PATIENT NAVIGATOR' PROGRAM

Test Site

- Clinical- correctional facilities, ED-non-CTS, inpatient medical sites, outpatient medical sites and doctors' offices.
- Community - included CTS and ED-CTS

Variables

- Age
- Gender at birth
- Race/ethnicity
 - Non-Hispanic black, Non-Hispanic white, Hispanic (any race), Other (Asian, American Indian/Alaskan native, Native Hawaiian, and multiple races).
- Transmission risk factors:
 - Gay or bisexual males
 - Injection Drug Use
 - Heterosexual
 - Unknown
- AIDS diagnosis
- IMPACT City: (Yes, No), (Intensive Mobilization to Promote AIDS Awareness through Community-based Technologies)
- Cities with the highest prevalence of HIV/AIDS
 - Atlantic City, Camden, Jersey City, Elizabeth, New Brunswick, Plainfield, Paterson, Newark, Asbury Park and Trenton.
- Time periods (2007-2011, 2012-2014)
- Location-by-Test-Type: Interaction variable created with Testsite*Test-Type

Data Analysis : Survival Methods

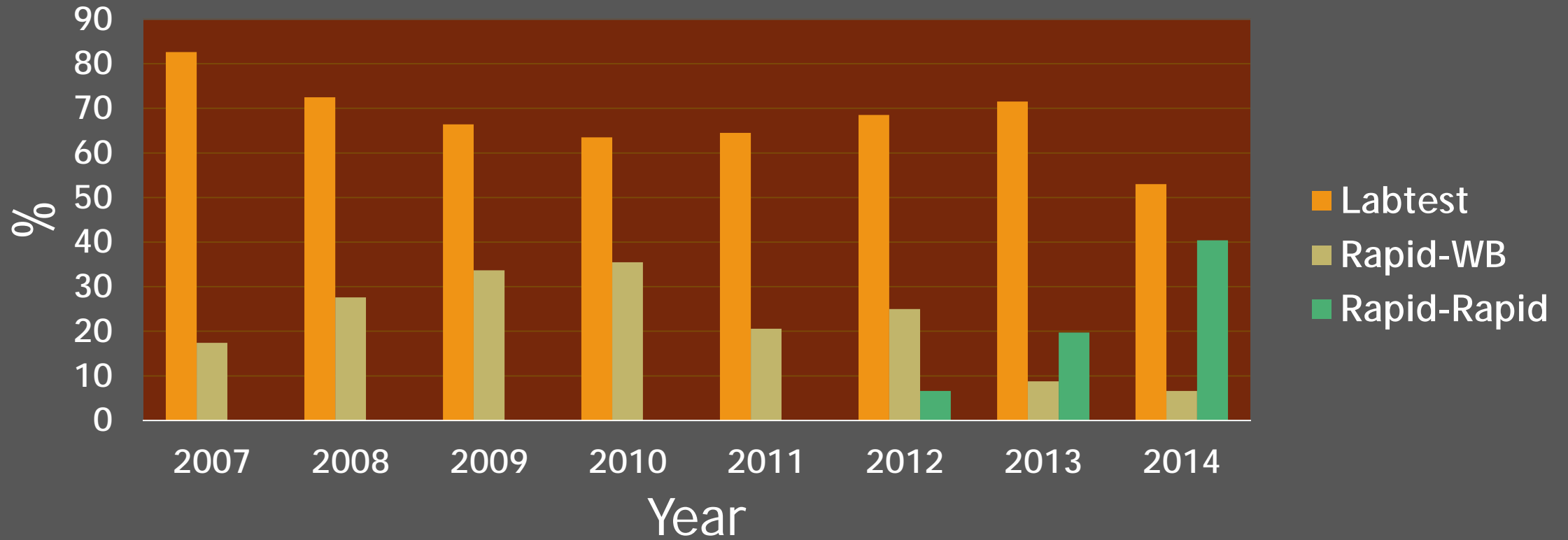
- Cumulative Incidence Curves (CIF): estimate percentages of newly diagnosed residents linked to medical care ≤ 30 days and ≤ 90 days
- Multivariate Cox Proportional Hazards modeling: predictors for linkage to medical care in ≤ 30 days
- An adjusted analysis, stratified by time periods (2007-2011, and 2012-2014) performed to account for change from Rapid-WB to Rapid-Rapid

Results

Characteristics of newly diagnosed residents, 2007-2014

Variable	Total n(%)	Lab-Test n(%)	Rapid-WB n(%)	Rapid-Rapid n(%)
Gender				
Female	2,339 (29.1)	1,664 (71.1)	542 (23.2)	133 (5.7)
Male	5,707 (70.9)	3,839 (67.3)	1,455 (25.5)	413 (7.3)
Race/ethnicity				
Black Non-Hispanic	3,840 (47.7)	2,518 (65.5)	1,054 (27.5)	268 (7.0)
White Non-Hispanic	1,314 (16.3)	1,044 (79.4)	206 (15.7)	64 (4.9)
Hispanic±	2,385 (29.6)	1,581 (66.3)	612 (25.7)	192 (8.1)
Other±±	507 (6.3)	360 (71.0)	125 (24.7)	22 (4.3)
Age				
13-24	1,379 (17.1)	763 (55.3)	474 (34.4)	142 (10.3)
25-34	2,125 (26.4)	1,337 (62.9)	620 (29.2)	168 (7.9)
35-44	1,937 (24.0)	1,355 (70.0)	459 (23.7)	123 (6.3)
45-54	1,705 (21.2)	1,306 (82.4)	317 (14.2)	82 (3.4)
>55	900 (11.2)	742 (12.8)	127 (6.5)	31 (6.5)
Transmission Risk				
Male-to-Male sex±±±	2,707 (33.6)	1,583 (58.4)	849 (31.4)	275 (10.2)
Injection drug use	584 (7.3)	367 (62.8)	189 (32.4)	28 (4.5)
Heterosexual sex	1,286 (16.0)	840 (65.3)	341 (26.5)	105 (8.2)
Unknown±±±±	3,469 (43.1)	2,713 (78.2)	618 (17.8)	138 (4.0)
IMPACT City				
Yes	3,881 (48.2)	2,451 (63.2)	1,145 (29.5)	285 (7.3)
No	4,165 (51.8)	3,052 (73.3)	852 (20.5)	261 (6.3)
AIDS				
Yes	3,681 (45.8)	2,747 (74.6)	792 (21.5)	142 (3.9)
No	4,365 (54.2)	2,756 (63.1)	1,205 (27.6)	404 (9.3)

Test-type by Year



Cumulative Proportions Linked to Medical Care, ≤ 30 and ≤ 90 days, 2007-2014

	Total	≤ 30 days	≤ 90 days	Overall	Median (IQR)
Overall	8046	57.4	69.8	90.7	20 (3-183)
Gender					
Female	2,339	54.4	67.9	90.1	23 (3-215)
Male	5,707	58.6	70.4	90.9	18 (3-169)
Race/ethnicity					
Non-Hispanic black	3,840	54.3	66.1	89.0	23 (3-297)
Non-Hispanic white	1,314	62.3	76.0	93.5	15 (4-85)
Hispanic±	2,385	59.8	71.9	91.4	19 (3-129)
Age					
13-24	1,379	55.2	68.3	91.0	21 (4-233)
25-34	2,125	56.9	68.4	89.6	21 (3-197)
35-44	1,937	58.0	69.3	90.5	20 (4-193)
45-54	1,705	57.9	71.4	91.4	19 (3-150)
≥ 55	900	59.6	72.8	92.1	16 (2-124)
Transmission Risk					
Male-to-Male sex ⁺⁺⁺	2,707	59.9	71.7	92.4	17 (3-136)
Injection drug use	584	50.4	62.4	87.7	29 (3-602)
Heterosexual sex	1,286	58.7	71.0	92.2	19 (3-160)
AIDS					
Yes	3,681	66.1	78.8	97.4	12 (1-62)
No	4,365	50.1	62.0	84.5	30 (7-566)

Linkage to medical care in ≤ 30 and ≤ 90 days, 2007-2014

Cumulative Proportion Linked to Medical Care, ≤ 30 and ≤ 90 days



Median Time to Linkage



Predictors for Linkage to Medical Care in ≤ 30 days, stratified by Time Periods

	Linked to Medical Care		2007-2011 n=5444	2012-2014 n=2,602
Location-by-Test-type	HR (95% CI)	aHR (95% CI)	aHR (95% CI)	aHR (95% CI)
Clinical-Lab-test	1.00	1.00	1.00	1.00
Clinical-Rapid-WB	0.85 (0.77-0.94)	0.84 (0.76-0.93)	0.83 (0.74-0.94)	1.00 (0.82-1.21)
Clinical-RTA	1.85 (1.56-2.20)	1.93 (1.62-2.29)		1.51 (1.26-1.82)
Community-Lab-test	0.81 (0.71-0.92)	0.86 (0.75-0.98)	0.81 (0.69-0.94)	1.22 (0.95-1.57)
Community-Rapid-WB	0.73 (0.66-0.82)	0.81 (0.74-0.89)	0.82 (0.74-0.92)	1.08 (0.88-1.33)
Community-RTA	1.35 (1.18-1.55)	1.58 (1.38-1.82)		1.25 (1.07-1.45)
AIDS				
Yes	1.00	1.00	1.00	1.00
No	0.64 (0.60-0.67)	0.63 (0.59-0.67)	0.60 (0.56-0.65)	0.61 (0.55-0.67)
Age group (in years)				
13-24	0.89 (0.80-1.00)	0.99 (0.89-1.13)	0.87 (0.75-1.01)	1.23 (1.02-1.49)
25-34	0.93 (0.84-1.03)	1.00 (0.90-1.11)	0.90 (0.78-1.02)	1.19 (1.00-1.41)
35-44	0.95 (0.86-1.06)	1.01 (0.91-1.12)	0.91 (0.80-1.03)	1.18 (0.99-1.41)
45-54	0.95 (0.86-1.06)	0.97 (0.87-1.08)	0.90 (0.80-1.03)	1.07 (0.89-1.28)
≥ 55	1.00	1.00	1.00	1.00

Labtest: EIA-WB
EIA Screening then
Western
Blot/Multispot

WB- Western Blot,
HR-Hazard Ratios,
aHR- adjusted
Hazard Ratios

Adjusted model
included:
gender,
race/ethnicity,
transmission
risk, IMPACT
city

Conclusions

- From 2007 to 2014, linkage to medical care improved to 84% in ≤ 90 days and 74% in ≤ 30 days
- In 2012-2014, those with
 - ✓ Rapid-WB or lab-testing were as likely to be linked to medical care in ≤ 30 days in clinical and community sites.
 - ✓ Rapid-Rapid vs. lab-testing were more likely to be linked to medical care in clinical and community sites
 - ✓ Non-AIDS diagnosis remained less likely to link to medical care
 - ✓ Those aged 13-24 appear to be more likely to link to medical care.