Impact of Offering Rapid HIV Testing in a High-volume Philadelphia STD Clinic

Christa L. Seidman, MSPH;
C. Victor Spain, DVM, PhD; Lenore Asbel, MD;
Veronica Hodges, MSW
What is the Problem?

- Conventional HIV testing method, Enzyme Immunoassay followed by a confirmatory Western Blot, takes 1-2 weeks for results
- Of those individuals who test positive at CDC-funded public testing sites, 31% do not return for their results (CDC)

What are the Implications?

- If HIV positive individuals do not return for their results
  - difficult to refer them for follow-up healthcare
  - lack the knowledge of their HIV status
Response to the Problem

- CDC’s *HIV Prevention Strategic Plan thru 2005*
  - Increase the proportion of HIV-infected people who know they are infected, and
  - Increase the proportion of HIV-infected people who are linked to appropriate prevention, care, and treatment services

- Rapid HIV Testing
Study Objective

- Describe changes in HIV testing demand, test outcomes, and follow-up activities after the introduction of routine rapid HIV testing in a large urban STD clinic.
Study Design

➢ Retrospective Cohort Analysis
  • Exposure = Type of HIV test offered
    (conventional vs. rapid)
  • Outcome = Decision to have an HIV test

➢ Time Frame
  • Period 1 = Conventional HIV testing
    • November 1st, 2002 to October 31st, 2003
  • Period 2 = Rapid HIV testing
    • November 1st, 2004 to October 31st, 2005

➢ HIV tests made available to:
  • Person visiting clinic specifically for an HIV test, or
  • Person visiting clinic for STD symptoms or an STD check-up and subsequently offered HIV testing
Study Setting and Population

**Setting**
- Health Care Center #1 - Philadelphia’s categorical STD clinic
  - Largest single HIV test site in the city
  - Average of 23,072 visits per year
  - Average of 8,598 HIV tests performed annually

**Population**
- 65% male, 35% female
- 77% African American
- 48% between 19 and 29 years old
- 77% single
- Reside all across Philadelphia
- 5% of patients non-Philadelphia residents
Inclusion/Exclusion Criteria

- Any clinic visit within period 1 or period 2
  - where patient offered or requested HIV testing

- 24,904 visits excluded
  - Not offered HIV testing (N=24,692)
    - Reason for visit= test results only, social services, pregnancy test, or Pap test
    - Prior positive HIV test
    - HIV test within last 6 months
  - Medical record data not available (N=12)
  - Conventional test used during rapid testing period (N=200)

- Excluded from multivariable analyses
  - Anonymous tests (N=2,432)
Candidate Confounding and Interaction (Effect Modification) Variables

- Gender
- Race/Ethnicity
  - Black, non-Hispanic
  - Hispanic
  - Other, non-Hispanic
    - Asian, Pacific Islander, or American Indian
  - White, non-Hispanic / Unknown
- Age (in years)
  - 12-14, 15-18, 19-24, 25+
- MSM (Men having Sex with Men) status
- New sexual partner within 90 days
- Positive for either chlamydia, gonorrhea, or syphilis during visit
## HIV Tests and Positivity Rates by Period and Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Period 1: Conventional Testing</th>
<th>Period 2: Rapid Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eligible Visits #</td>
<td>Tested for HIV # (%)</td>
</tr>
<tr>
<td>Male</td>
<td>6,605</td>
<td>4,269 (64.6%)</td>
</tr>
<tr>
<td>Female</td>
<td>3,602</td>
<td>2,376 (66.0%)</td>
</tr>
</tbody>
</table>
### HIV Tests and Positivity Rates by Period and Visit Type

<table>
<thead>
<tr>
<th></th>
<th>Period 1: Conventional Testing</th>
<th>Period 2: Rapid Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eligible Visits #</td>
<td>Tested for HIV # (%)</td>
</tr>
<tr>
<td>Anonymous</td>
<td>925</td>
<td>891 (96.3%)</td>
</tr>
<tr>
<td>Confidential</td>
<td>9,282</td>
<td>5,754 (62.0%)</td>
</tr>
</tbody>
</table>
### Follow-up Referral Rates for Visits with Positive HIV Test Results

<table>
<thead>
<tr>
<th></th>
<th>Period 1: Conventional Testing</th>
<th>Period 2: Rapid Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anonymous N=27</td>
<td>Confidential N=52</td>
</tr>
<tr>
<td>Did Not Receive Results</td>
<td>8 (30%)</td>
<td>18 (35%)</td>
</tr>
<tr>
<td>Offered and Accepted Referral</td>
<td>18 (67%)</td>
<td>34 (66%)</td>
</tr>
<tr>
<td>Offered and Refused Referral</td>
<td>1 (4%)</td>
<td>0</td>
</tr>
</tbody>
</table>
Follow-up Referral Time for Visits with Positive HIV Test Results

<table>
<thead>
<tr>
<th></th>
<th>Period 1: Conventional Testing</th>
<th>Period 2: Rapid Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anonymous N=18</td>
<td>Confidential N=32*</td>
</tr>
<tr>
<td>Median Time (in days)</td>
<td>14.5</td>
<td>15</td>
</tr>
<tr>
<td>Range (in days)</td>
<td>14 - 27</td>
<td>9 - 83</td>
</tr>
</tbody>
</table>

*Excludes 2 confidential visits in period 1 with positive HIV test results whose referral times were 9 months and 2 years, respectively, from date of visit.

**Excludes 1 anonymous visit in period 2 with a positive HIV test result whose referral time was 16 days from date of visit.
Are Sex, STD-status*, and HIV test-type associated with testing rates?

<table>
<thead>
<tr>
<th>Sex</th>
<th>STD-status*</th>
<th>Period 1: Conventional Testing Test Rate</th>
<th>Period 2: Rapid Testing Test Rate</th>
<th>Adjusted Odds Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Negative</td>
<td>62%</td>
<td>72%</td>
<td>1.59</td>
</tr>
<tr>
<td></td>
<td>N=5,354</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>69%</td>
<td>76%</td>
<td>1.52</td>
</tr>
<tr>
<td></td>
<td>N=976</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>Negative</td>
<td>61%</td>
<td>67%</td>
<td>1.32</td>
</tr>
<tr>
<td></td>
<td>N=9,631</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>65%</td>
<td>60%</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>N=2,252</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Positive for one or more STDs (CT, GC, Syphilis) on the same visit; persons not aware of their STD-status when deciding to have an HIV test.
Primary Effects of Rapid HIV Testing

- Crude test rate increased from 65% to 72%

- Confidential test rates increased in all but one group, STD-positive males
  - Findings of other studies:
    - When given a choice, most patients across all venues prefer rapid testing over conventional testing
    - One exception: 57.7% preferred conventional test
      (van Leent et al, 2005)

- Large increase in number of anonymous visits
  - Increased advertising by manufacturer
  - Word-of-mouth
  - Community Education
Primary Effects of Rapid HIV Testing

- Proportion of HIV-positive patients receiving results increased from 67% to 92%
  - All anonymous visits with positive HIV results received results in rapid testing period
  - Findings of other studies:
    - STD clinic: % receiving results increased from 84% to 100% (Kendrick et al, 2005)

- Proportion of HIV-positive patients referred for follow-up healthcare increased from 66% to 73%
  - Even if patients do not follow-up with HIV care providers, research has shown that knowledge of a positive HIV status often reduces risk-taking activity (Dejarlais et al, 2004)
Study Strengths and Limitations

- **Strengths**
  - Large sample size
  - Completeness of data
  - Ability to separate anonymous from confidential visits

- **Limitations**
  - Data Quality
    - 0.03% of visits that were assessed for eligibility were excluded due to unavailable medical record data
  - Misclassification
    - 0.37% of the visits included in analysis had ambiguous HIV test ordering or test result information
    - Evenly distributed across both years
Threats to Validity

**Internal Validity**
- Selection Bias
  - Minimal due to completeness of data
- Information Bias
  - Misclassification
- Historical Controls
- Residual Confounding
  - Clinic staff or procedural changes
  - Other sites offering rapid testing
  - Advertising by manufacturers

**External Validity**
- Generalizability
  - Urban setting
  - Public STD clinic
  - High-risk group
  - Primarily African American males between 19 and 29 years old
Further Analyses

- Cost-effectiveness analysis of rapid HIV testing
  - Do the benefits of rapid HIV testing outweigh the test’s higher cost?

- Other predictors of a person’s decision to test
  - Residential distance from Health Care Center #1
  - Previous positive STD history

- Impact of rapid testing on further STD incidence
Acknowledgements

- Vic Spain, DVM, PhD
- Lenore Asbel, MD
- Veronica Hodges, MSW
Questions ?