HIV Testing and Beyond: Promoting Linkage, Retention, and Adherence to HIV Care

Satellite Conference and Live Webcast
Wednesday, February 15, 2012
12:00 – 1:30 p.m. Central Time

Produced by the Alabama Department of Public Health Video Communications and Distance Learning Division

Faculty
Michael J. Mugavero, MD, MHSc
Associate Professor of Medicine
University of Alabama at Birmingham

Disclosures
• Grant / Research support
  – Bristol-Myers Squibb, Tibotec Therapeutics, Pfizer, Definicare
• Consulting / Advisory board
  – Bristol-Myers Squibb, Gilead Sciences, Merck Foundation
• Speaker’s bureau: None

Learning Objectives
• Explain the individual and public health benefits across the continuum of HIV care, including testing and engagement in care
• Distinguish and illustrate the processes of engagement in care:
  – Linkage, retention, and re-engagement in care

Learning Objectives
• Describe National HIV/AIDS Strategy measures and goals for HIV testing, linkage, and retention in care

21% Undiagnosed
31% Not linked / delayed
41% Not retained
19% VL<50 c/mL

HRSA Continuum of Engagement

Not in Care  →  Fully Engaged

- Unaware of HIV status
- May be receiving other medical care but not HIV care
- Entered HIV medical care but dropped out
- In and out of HIV care or infrequent user
- Fully engaged in HIV medical care

National HIV/AIDS Strategy

- Increase HIV serostatus awareness from 79% to 90%
- Increase linkage to care within 3 months of Dx from 65% to 85%
- Increase proportion of HIV Dx’d persons with undetectable VL by 20%
- Increase RW clients in continuous care from 73% to 80%

HIV Testing

- HIV testing
  - 2006 CDC recommends routine opt-out HIV testing
  - NAS
  - ↑ Serostatus awareness 79% to 90% by 2015

HIV Testing

- Rationale?
  - 21% undiagnosed and unaware
  - Number of new HIV Dx stable at 56K(!) / year in U.S.
  - Considerable stigma associated with HIV testing
HIV Testing

- HIV risk behaviors often NOT disclosed
  - Late diagnosis of HIV infection very common
  - Upwards of 50% with CD4<200 at diagnosis

  CDC. MMWR 2006;55(RR14):1-17

HIV Testing Scale Up in DC

- Testing campaign:
  - >50 provider partners
  - Rapid test expansion
  - Partnership with DC jail

HIV Testing Scale Up in DC

- Publicly funded HIV tests:
  - 2004-05: 20,000 / year
  - 2006-07: 40,000 / year
  - 2008-09: 80,000 / year

  Castel et al. CROI 2010; Abstract 34, Greenberg et al. Health Affairs 2009;28:1677-87

HIV Testing Scale Up in DC

- New HIV cases:
  - 2004-05: 1,020 / year
  - 2006-07: 1,213 / year

  Castel et al. CROI 2010; Abstract 34, Greenberg et al. Health Affairs 2009;28:1677-87

Case Presentation

- 21yr male has positive rapid HIV test at CBO-sponsored outreach event
- Notified of preliminary positive result with post-test counseling, has blood drawn for confirmatory ELISA / WB
- Appointment is scheduled for 4 weeks at local HIV clinic
- Confirmatory ELISA / WB (+), HD notified and DIS officer assigned

Median CD4 Count

<table>
<thead>
<tr>
<th>Year</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>216</td>
<td>275</td>
<td>296</td>
<td>336</td>
<td>343</td>
</tr>
</tbody>
</table>

Castel et al. CROI 2010; Abstract 34, Greenberg et al. Health Affairs 2009;28:1677-87
Question?
• Which entity bears most responsibility for facilitating linkage to HIV medical care?
  A. Community based organization
  B. HIV clinic
  C. Health department
  D. None of the above

Case Presentation
• DIS officer conducts patient interview within 2 weeks of confirmatory test
• Two weeks later, HIV clinic appointment date approaches...
  – The patient does not attend
  – Clinic attempts to reschedule appointment... “telephone not in service”

Engagement in Care
• Linkage to care
• Retention in care
• Re-engagement in care

Implications of Engagement in Care
• Individual level
  – ART receipt and adherence
  – CD4 count and viral load outcomes
  – HIV resistance mutations
  – Clinical events and survival

Implications of Engagement in Care
• Population level
  – Mediator of health care disparities
  – Role in transmission
    • Change in risk transmission behaviors
    • Impact of ART in reducing transmission

Linkage to Care
• Integration into HIV testing paradigm
• HIV testing influences on linkage to care:
  – Rapport, information and counseling provided
  – Active vs. passive referral for services
Linkage to Care

- First time testers have greater delays
- Delayed linkage seen with testing in community


Late Diagnosis Late Presentation

Overcoming Delayed Presentation

- CDC ARTAS: Multi-site RCT to test a case management (CM) intervention to improve linkage to care
  - Empowerment and self efficacy
  - Asks clients to identify internal strengths and assets
  - Up to 5 CM contacts allowed in 90 days

Overcoming Delayed Presentation

- ARTAS II effectiveness study at health departments and CBOs with similar effect size

<table>
<thead>
<tr>
<th></th>
<th>Case Management</th>
<th>Standard of Care</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 months</td>
<td>78%</td>
<td>60%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>12 months</td>
<td>64%</td>
<td>49%</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

- Intervention is efficacious, but additional steps needed to promote linkage to care...

Gardner et al. AIDS 2005;19

Overcoming Delayed Presentation

- Outcome: 1 HIV provider visit attended within:

National HIV/AIDS Strategy: Increase proportion of newly diagnosed pts linked to clinical care w/in 3 months of HIV diagnosis 65% to 85% by 2015

Linkage to Care: UAB 1917 Clinic

- Problem identified
  - Scheduled new patient visits often not attended
    - “No show”
- Study of patients calling to establish HIV care at UAB 1917 Clinic, 2004-2006
Linkage to Care: UAB 1917 Clinic

- 31% of patients (160 of 522) failed to attend a clinic visit within 6 months of initial call


“No Show” Phenomenon

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>“Show” Group (n=362, 69%)</th>
<th>“No Show” Group (n=160, 31%)</th>
<th>OR (95%CI) for “No Show”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>39.3 ± 9.6</td>
<td>37.1 ± 9.5</td>
<td>0.84 (0.68-1.04)</td>
</tr>
<tr>
<td>White male</td>
<td>125 (80%)</td>
<td>32 (20%)</td>
<td>1.0 (Reference)</td>
</tr>
<tr>
<td>Minority male</td>
<td>154 (67%)</td>
<td>76 (33%)</td>
<td>1.75 (1.05-2.91)</td>
</tr>
<tr>
<td>White female</td>
<td>31 (61%)</td>
<td>20 (39%)</td>
<td>2.72 (1.30-5.68)</td>
</tr>
<tr>
<td>Minority female</td>
<td>52 (62%)</td>
<td>32 (38%)</td>
<td>2.39 (1.27-4.52)</td>
</tr>
<tr>
<td>Private insurance</td>
<td>127 (83%)</td>
<td>26 (17%)</td>
<td>1.0 (Reference)</td>
</tr>
<tr>
<td>Public insurance</td>
<td>77 (69%)</td>
<td>34 (31%)</td>
<td>1.91 (1.03-3.54)</td>
</tr>
<tr>
<td>Uninsured</td>
<td>158 (61%)</td>
<td>100 (39%)</td>
<td>2.62 (1.56-4.39)</td>
</tr>
<tr>
<td>Days from call to appointment</td>
<td>25.6 ± 13.8</td>
<td>30.2 ± 13.4</td>
<td>1.32 (1.14-1.53)</td>
</tr>
</tbody>
</table>

Data presented as mean ± SD or n (row %)
Age OR per 10 years, Days from call OR per 10 days


Project CONNECT

- Program launched January 1, 2007
- New patient orientation within 5 days of call to clinic
- Coordinated by Social Work services
  - Replaced intake visit conducted on date of first medical visit

CONNECT: Program Evaluation

<table>
<thead>
<tr>
<th>Time Period</th>
<th>“No Show”</th>
<th>Unadjusted OR (95%CI)</th>
<th>Adjusted OR (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-CONNECT (n=522)</td>
<td>30.7%</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Post-CONNECT (n=381)</td>
<td>17.7%</td>
<td>0.48 (0.35-0.68)</td>
<td>0.54 (0.38-0.76)</td>
</tr>
</tbody>
</table>

* Multivariable model controls for age, race, sex, insurance, location of residence, and time from call to scheduled visit

Project CONNECT

- Client Oriented
- New patient
- Navigation to Encourage
- Connection to Treatment
- Semi-structured interview, psychosocial questionnaire, and baseline labs
- Expedited referral for SA / MH services
Linkages to Care for Newly Diagnosed Individuals Who Test HIV+ in Nonprimary Care Settings

- Case study of 7 LTC programs in 5 jurisdictions
- Barriers
  - System/community
  - Organizational
  - Clinician/staff
  - Individual/client

“One of the key findings of this study is that LTC programs vary widely based on the needs, resources, partnerships, organizational structures, leadership, target populations, and policies of each setting.”

Boyd Gilman, PhD; Julia Hidalgo, ScD; Cicely Thomas MSc; Melanie Au, MPP; Margaret Hargreaves, PhD

AIDS Pt Care STDS 2012; e-pub

LTC: Testing in Nonprimary Care Settings

Key characteristics

<table>
<thead>
<tr>
<th>Low cost</th>
<th>Paraprofessional staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensive</td>
<td>Significant time investment</td>
</tr>
<tr>
<td>Time-limited</td>
<td>LTC services of short duration</td>
</tr>
<tr>
<td>Unique</td>
<td>Distinct from medical case management</td>
</tr>
<tr>
<td>Flexible</td>
<td>Tailored to community needs/resources</td>
</tr>
</tbody>
</table>

Gilman. AIDS Pt Care STDS 2012; e-pub

LTC: Testing in Non-primary Care Settings

Core Components

<table>
<thead>
<tr>
<th>Dedicated linkage staff</th>
<th>Training in MI counseling, HIV, and local healthcare and HIV resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active referral</td>
<td>Client education and skill building, assistance scheduling/attending visits</td>
</tr>
<tr>
<td>Person centered</td>
<td>Focus on client “assets”</td>
</tr>
<tr>
<td>Cultural concordance</td>
<td>Cultural and linguistic concordance of linkage workers with population served</td>
</tr>
</tbody>
</table>

Gilman. AIDS Pt Care STDS 2012; e-pub

LTC: Testing in Non-primary Care Settings

Operational Factors

<table>
<thead>
<tr>
<th>Protocol adherence</th>
<th>Developing/adhering to LTC protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of LTC staff</td>
<td>Personality, cultural background, experience, and interpersonal skills</td>
</tr>
<tr>
<td>Execution of LTC program</td>
<td>Coordination and integration of services across and within organizations</td>
</tr>
<tr>
<td>Program sustainability</td>
<td>Coordination of federal, state, local resources from multiple funders</td>
</tr>
</tbody>
</table>

Gilman. AIDS Pt Care STDS 2012; e-pub

Retention in Care

- First year of outpatient HIV medical care is a dynamic, formative, and vulnerable time
- Poor early retention in care associated with:
  - Delayed / failed antiretroviral therapy (ART) receipt
Retention in Care

- Delayed time to VL suppression and greater cumulative HIV burden
- Increased sexual risk transmission behaviors
- Increased risk of long-term adverse clinical events


Expanding the Spectrum of Adherence

Table 2: Characteristics of Patients Lost to Follow-up During 2 Years of Follow-up of Adults Lost to Care

<table>
<thead>
<tr>
<th>Patient</th>
<th>Missed Visits</th>
<th>Appt. Adherence</th>
<th>Visit Constancy</th>
<th>Gap in Care</th>
<th>HRSA HAB Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Yes; 1</td>
<td>80%</td>
<td>100%</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>B</td>
<td>Yes; 4</td>
<td>33%</td>
<td>50%</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>No; 0</td>
<td>100%</td>
<td>75%</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>D</td>
<td>Yes; 1</td>
<td>67%</td>
<td>25%</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Re-engagement in Care**
- Most challenging aspect of engagement
- Less well studied than linkage and retention
- Typically focuses on patients with prior HIV care lost to follow-up

**Accessing ART After Prison Release**
- Study of 1,215 HIV-infected inmates in Texas on ART at time of release (January 2004 – December 2007)
  - 10 day supply of ART
  - List of HIV providers in home community
  - Copy of recent HIV labs

**HRSA SPNS Outreach Initiative**
- 10 demonstration projects
  - Non-randomized design without comparison or control groups in most studies
  - Focus on linkage to care, retention of sporadic users and re-engagement of patients LTFU

**Accessing ART After Prison Release**
- ADAP application form and toll-free phone number
- ADAP medication certification signed by physician
- Evaluated proportion of patients with ART filled at 10, 30, and 60 days following release

**Re-engagement in Care**
- Other priority populations for re-engagement
  - Recently incarcerated
  - Recently hospitalized

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*Zaller, J Health Care Poor Underserved 2008;19, Draine AIDS Care 2011;23, Wohl et al. AIDS Behav 2011;15, Metsch et al. AJPH 2009;99,*

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Accessing ART After Prison Release

- % w/ ART Filled

![](chart.png)

Adapted from Baillargeon et al. *JAMA* 2009;301

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HRSA SPNS Outreach Initiative

- Factors associated with loss to HIV care
  - Illicit drug use and alcohol use
  - Unstable housing
  - Unmet needs including mental health and substance use treatment
  

HIV System Navigation

- Patient navigation shares features with advocacy, health education, and case management
- Distinctive features:
  - Concerned with individuals vs. system as a whole
  - Less pro-active in addressing knowledge gaps

HIV System Navigation

- Use principles of CM but don’t have a “home agency”
- Usually do not have nursing or SW degrees, although apply strengths-based principles
- Navigators often peers or near-peers with shared cultural background

  - Bradford. AIDS Pt Care STDS 2007;21:S49

Research and Practice Considerations

- Data sources to measure NAS goals?
  - Reliability, role and agreement
  - Surveillance vs. patient self-report vs. clinic (cohort) data
  - Use of publicly reported HIV biomarkers as proxy for outpatient HIV medical care?

Research and Practice Considerations

- Integration of surveillance and clinic (cohort) data to improve measurement?

Key Points

- Beyond HIV testing
  - Importance of integration of engagement in care in the testing paradigm
- Engagement in care
  - Linkage, retention and re-engagement
Key Points

- Effective programs, core components, and operational strategies provide a framework
- National HIV/AIDS Strategy provides goals
  - Integration essential for our collective success

National HIV/AIDS Strategy

- Increase HIV serostatus awareness from 79% to 90%
- Increase linkage to care within 3 months of Dx from 65% to 85%
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