Reducing Missed Opportunities: Reconnecting HIV & STI Screening

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Disclosures

- Honorarium, Speaking Fees or Research Support
  - Atlas Genetics
  - BD Diagnostics
  - Beckman Coulter
  - Cepheid
  - Great Basin Scientific
  - Hologic
  - Rheonix
  - Roche Molecular Diagnostics
What you already know...

“Epidemiologic Synergy” widely used beginning in the early 1990’s by Wasserheit and others
What you already know...

Screening HIV (+) persons for syphilis can reduce serious disease progression.
Screening for Syphilis among HIV (-) persons can reduce HIV risk.
STI and HIV services are often separated by the realities of funding streams

- CDC National Center for HIV, Hepatitis, STD & TB
  - Division of Adolescent & School Health
  - Division of HIV/AIDS Prevention
  - Division of STD Prevention
  - Division of Tuberculosis Elimination
  - Division of Viral Hepatitis

- NIH National Institute of Allergy & Infectious Diseases
  - Division of AIDS
  - Division of Microbiology & Infectious Diseases
  - Division of Allergy, Immunology & Transplantation
Diagnostic Development in the US

- HIV described in 1983
  - First rapid test for field use: 1998 (15 years)

- T. pallidum first described in 1905
  - First rapid test for field use: 2011 (106 years)

- Speaks to the need for political will
Currently the only FDA Approved Syphilis Rapid Test (Treponemal Antibody Specific)
CLIA-Waived

- Uses a finger stick
- 2-step process
- 10 minute wait
- Performance correlates well to lab-based treponemal antibody tests
- This assay can be run at the same time as an HIV rapid while a client waits
Ways to take advantage of this technology

- Using a single finger-stick to drop blood on both syphilis & HIV test devices

- Counseling while waiting for test results
  - Do not be hesitant because there is no titre and you may identify old, perhaps treated infections

- Referral to local public health services if positive
  - Relationships between health agencies and CBOs is critical!
  - Use of community health navigators has been shown to be effective
But at the same time...

- Samples for CT/GC/TV screening can often be *self-collected*
  - CBO’s
  - Outreach vans
  - Health fairs
  - School-based clinics or screening events
  - Detention centers
- The days of specimen quality/transport concerns are behind us
- *If we are doing screening for HIV, let’s not forget STI!!!*
A collaboration in Birmingham, AL

- CDC funded CBO providing HIV screening
- Added rapid syphilis and CT/GC/TV testing for men (urine & rectal samples) and women (vaginal & rectal) in October 2015

To date:
- 144 STI tests
- 11 (7.6%) CT (+) (7 ano-rectal +)
- 7 (4.9%) GC (+) (3 ano-rectal +)
- 2 (1.4%) TV (+)
- 1 (0.7%) Syphilis (+) (was also diagnosed with HIV at this visit)
- 6 (4.2%) HIV (+)
Opportunities the Horizon
Even More Options

- Syphilis & HIV dual tests are available ex-US

- Point-of-Care assays for STI that can be used to Test & Treat are available ex-US
  - Chlamydia is a major focus
  - GC and TV close behind

- The non-clinical access to care and short wait for results can substantially improve provision of services
Dual treponemal & Non-Treponemal Antibody Test

Syphilis & HIV in a Single Test
<table>
<thead>
<tr>
<th></th>
<th>DPP</th>
<th>SD Bioline</th>
<th>Mupilpo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample type</strong></td>
<td>Whole blood, serum, plasma</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Assay time</strong></td>
<td>25’</td>
<td>20’</td>
<td>3’</td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
<td>Timer</td>
<td>Timer</td>
<td>None</td>
</tr>
<tr>
<td><strong>Shelf life</strong></td>
<td>24 mo ambient</td>
<td>24 mo ambient</td>
<td>18 mo ambient</td>
</tr>
<tr>
<td><strong>HIV Target</strong></td>
<td>HIV1 &amp; HIV2 Ag</td>
<td>HIV1 gp41, sub-O Ag</td>
<td>HIV1 gp41, gp120 and group O peptides</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HIV2 gp36 Ag</td>
<td>HIV2 gp36 peptide</td>
</tr>
<tr>
<td><strong>Antibody class</strong></td>
<td>IgM &amp; IgG</td>
<td>IgM, IgG &amp; IgA</td>
<td>IgM &amp; IgG</td>
</tr>
<tr>
<td><strong>Chemistry</strong></td>
<td>Solid phase immunochromatographic assay</td>
<td>Solid phase immunochromatographic assay</td>
<td><strong>Vertical Flow immunoassay</strong></td>
</tr>
</tbody>
</table>

Adapted from Humphries, et al. JCM 2014
### HIV Performance Estimates from 150 stored samples

<table>
<thead>
<tr>
<th>Test</th>
<th>Sensitivity (95% CI)</th>
<th>Specificity (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPP</td>
<td>98.9% (88.6-99.9%)</td>
<td>98.1% (88.6-99.9%)</td>
</tr>
<tr>
<td>SD Bioline</td>
<td>97.9% (92.0-99.6%)</td>
<td>100% (91.5-100%)</td>
</tr>
<tr>
<td>Muliplo</td>
<td>97.9% (92.0-99.6%)</td>
<td>94.2% (83.1-98.5%)</td>
</tr>
</tbody>
</table>

35 HIV-only (+), 62 dual (+) and 53 HIV(-) by Siemens EIA & HIV-1 WB \( \kappa = .95 \)

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Syphilis Performance Estimates from 150 stored samples

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<th>Test</th>
<th>Sensitivity (95% CI)</th>
<th>Specificity (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPP</td>
<td>95.3% (87.9-98.5%)</td>
<td>100% (92.9-100%)</td>
</tr>
<tr>
<td>SD Bioline</td>
<td>93.0% (84.8-97.1%)</td>
<td>100% (92.9-100%)</td>
</tr>
<tr>
<td>Multiplo</td>
<td>94.1% (86.3-97.8%)</td>
<td>96.9% (88.2-99.5%)</td>
</tr>
</tbody>
</table>

24 Syphilis-only (+), 62 dual (+) and 64 Syphilis(-) by Serodia TPPA \( \kappa = .93 \)

Adapted from Humphries, et al. JCM 2014
Summary

- By reintegrating STI screening with current HIV screening efforts, we can have a large impact on reducing the epidemiologic synergy between these infections.

- Political will is essential to both reintegration and to improving access to newer diagnostic methods in the US.

- We CAN do better
Cuba Eliminates Mother-to-Child Transmission of Syphilis & HIV