Prevalence and Management of Sexually Transmitted Infections during Pregnancy in a Resource Limited Setting

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Impact of STI on Pregnancy

- Premature rupture of membranes and or preterm birth*
- Severe neonatal infections**
- Ophthalmia neonatorum***
- Abortion/pregnancy loss#
- Postpartum endometritis*

Disease | CDC Screening Recommendation
---|---
Chlamydia | Screen all pregnant women at first prenatal visit
| 3rd trimester rescreen
Gonorrhea | Screen all pregnant women at risk at first prenatal visit;
| 3rd trimester rescreen women at continued high risk
Syphilis | Screen all pregnant women at first prenatal visit;
| During 3rd trimester rescreen women who are at high risk for syphilis
Trichomoniasis | Test pregnant women with symptoms
Herpes (HSV) | Test pregnant women with symptoms
HIV | Screen all pregnant women at first prenatal visit
| Rescreening in the third trimester recommended for women at high risk for getting HIV infection

HIV and Syphilis in Kenya

- Population ~40M
  - ~1.6M living with HIV*
  - 10% children <14 years
  - 57% women
  - 6.5% of pregnant women
HIV infected*
  - PMTCT B plus implemented in 2013
- Prevalence of syphilis**
  - Women - 1.7%
  - Men - 1.9%

HIV & Syphilis Counseling among pregnant women

- Counseling & testing at 1st ANC
- 2000 - PMTCT implemented
- 2012 - >9,000 facilities offering PMTCT
- Repeat testing infrequent

* Watson-Jones et al 2002; ** Schulz et al 1987; ***Schaffer et al 2001; #Holmes et al 1999

STI a Public Health Concern: Why?

- ~500 million people infected yearly
  - > 1 million people acquire STI daily

- Facilitates transmission and acquisition of HIV
- Adverse maternal and foetal outcomes

HIV prevalence among adults and adolescents aged 15-64 years by region

Counselling experience among women attending ANC – KAIS 2012

- Counselling on MTCT
- Counselling on HIV testing
- Counselling on syphilis screening
**Trends on HIV testing during pregnancy**

KCHHS 2003; #KAIS 2008; *Kinuthia et al 2010; **Kiarie et al 2011; ***KAIS 2012

**STI services in Kenya**

- **Use WHO syndromic approach**
  - ~50% have guidelines
  - ~30% of patients had genital examination

- **Laboratory support**
  - Only 1% of facilities can test for each of the four major STIs (Syphilis, gonorrhoea, trichomoniasis, and chlamydia)
  - < 25% can test for syphilis or gonorrhoea

- ~50% of facilities have medicines for the 4 major STIs

**Syndromic Approach to STI Management**

- Simple, rapid and inexpensive
- Complete care offered at first visit
- Treated for possible mixed infections
- Accessible to a broad range of health workers
- Avoids unnecessary referrals

- **Over-treatment**

- Asymptomatic infections missed

**Partner Notification**

- Important in STI management
- **Importance**
  - Prevents re-infection
  - Prevents spread
  - Prevents complications of untreated STIs
  - Locates & treats asymptomatic patients
  - Gets a partner to abstain or use condoms

- **Achieved through:**
  - Patient
  - Provider

**HIV Incidence During Pregnancy and Postpartum Study**

- Enrolled HIV-1 negative women seeking ANC
- Follow up to 9 months postpartum

<table>
<thead>
<tr>
<th>Antenatal (weeks)</th>
<th>Delivery</th>
<th>Postpartum (weeks)</th>
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<tbody>
<tr>
<td>Enroll</td>
<td>28</td>
<td>36</td>
</tr>
<tr>
<td>Questionnaires</td>
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<td>Blood samples</td>
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<tr>
<td>Genital samples</td>
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<tr>
<td>GC/CT</td>
<td>✔ ✔ ✔</td>
<td>✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔</td>
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<tr>
<td>TV/BV</td>
<td>✔ ✔ ✔</td>
<td>✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔</td>
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</table>
Methods for STI detection

- Chlamydia and Gonorrhea
  - Self-collected Vaginal Swabs
  - Polymerase Chain Reaction Technology and Gen-probe APTIMA Combo2 (GC/CT) Kits
  - University of Nairobi/Washington Research Laboratory
- Trichomonas Vaginalis
  - Self-collected Vaginal Swabs
  - Standard Wet Microscopy in Clinic
- Syphilis
  - Rapid Plasma Reagin Tests

Prevalence of STIs among pregnant women in Kenya

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<tr>
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</thead>
<tbody>
<tr>
<td>Gonorrhoea</td>
<td>2.4</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td></td>
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<tr>
<td>Chlamydia</td>
<td>8.8</td>
<td>11</td>
<td>4</td>
<td>6</td>
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<tr>
<td>Trichomonias</td>
<td>19.9</td>
<td>26</td>
<td>16</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syphilis</td>
<td>5.3</td>
<td>7</td>
<td>3</td>
<td>1</td>
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</tbody>
</table>

HIV Acquisition During Pregnancy and Postpartum is Associated with Genital Infections and Partnership Characteristics: A Cohort Study

- 1232 person-years of follow-up.
- HIV incidence - 2.31/100 person-years (95% CI: 0.71-4.10)
- Incident HIV associated with:
  - Syphilis (Hazard Ratio [HR] 9.18, 95% CI: 2.15-39.3)
  - Chlamydia (HR 4.49, 95% CI: 1.34-15.0)
  - STI history (HR 3.48, 95%, CI: 1.31-9.27)

Trichomonas Vaginalis Risk and Cofactors among Peripartum Kenyan Women: Protective Association with Male Partner Circumcision (O11.3)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>aHR</th>
<th>95% CI</th>
<th>P value</th>
</tr>
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<tbody>
<tr>
<td>Circumcised partner</td>
<td>0.35</td>
<td>0.27-0.74</td>
<td>0.006</td>
</tr>
<tr>
<td>(vs uncircumcised)</td>
<td></td>
<td></td>
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<tr>
<td>Employed (vs unemployed)</td>
<td>0.47</td>
<td>0.27-0.83</td>
<td>0.009</td>
</tr>
<tr>
<td>Recent other STIs</td>
<td>2.01</td>
<td>1.05-3.86</td>
<td>0.035</td>
</tr>
<tr>
<td>Pregnancy (vs postpartum)</td>
<td>9.27</td>
<td>4.07-21.07</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

- 166 Trichomonas Vaginalis infections detected
  - 81 prevalent at baseline
  - 85 incident during follow-up
- Only 27% of infections were symptomatic
- TV incidence was 7.8 per 100 person-years

Patient-Delivered Partner Treatment for Chlamydia, Gonorrhea and Trichomonas Infection among Pregnant and Postpartum Women in Kenya

- 67 women with STIs screened for PDPT
- 76 STIs detected
  - 9 CT (12%)
  - 9 GC (12%)
  - 58 TV (76%)
- 97% of PDPT-screened women willing to notify their partners
- 91% were willing to dispense PDPT
- 40 women returned for PDPT reassessment
  - 34 (85%) reported their partners received PDPT
Male Partner Acceptance of Home-Based Syphilis and HIV Testing for Couples During Pregnancy

- Syphilis test only, knew HIV+ status 7%
- Syphilis test only, refused HIV test 2%
- HIV test only 3%
- Refused both tests, unknown HIV status 3%

Challenges facing STI control programs

- Low priority for policy makers and planners.
  - Inadequate allocation of resources as STIs perceived to result from discreditable behavior
- Failure to recognize the magnitude of the problem.
- Control efforts concentrated on symptomatic patients (usually men) and failing to identify asymptomatic individuals (commonly women).
  - Lack of simple screening tests.
- Inadequate attention.
  - Prevention efforts.
  - Inadequate attention to structural issues which impact on STI transmission.
    - Poverty, literacy, conflict, homosexuality and prostitution.

Summary

- Prevalence of STI among HIV uninfected pregnant women still high
- STIs increase HIV incidence among pregnant women
- Need for affordable, rapid, point of care screening for infections
  - Gonorrhea
  - Chlamydia
  - Trichomonas
- PDPT highly acceptable and may be a useful strategy reduce to risk of recurrent infections and pregnancy complications

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