STD / HIV Update

Patricia R Jennings DrPH, PA-C
Professor
University of Alabama at Birmingham

“The Hidden Epidemic”

- In the United States, more than 65 million people are currently living with an incurable sexually transmitted disease (STD).
- An additional 15 million people become infected with one or more STDs each year.
- Yet, STDs are one of the most under-recognized health problems in the country today.

Sexual Transmission

- The most reliable way to avoid transmission of STD’s is to abstain from sexual intercourse (i.e. oral, vaginal, anal) or to be in a long-term mutually monogamous relationship with an uninfected partner.
- Counseling that encourages abstinence from sexual intercourse is crucial.
  - Both partners should be tested for STD’s, including HIV before initiating sexual intercourse.

HIV/STD Potential Interactions

STDs as markers for HIV risk
STDs as risk factors for HIV/acquisition transmission
Alterations of clinical +/or laboratory manifestations of STDs due to coexistent HIV infection
Decreases susceptibility to STD therapy due to coexistent HIV infection
Acceleration of HIV natural history due to coexistent or intercurrent STDs

Sexual History

The 5 “P”s

- Partners
- Practices
- Protection from STDs
- Past history of STDs
- Prevention of pregnancy

Sexual History

- Are you sexually active?
- Oral, anal, or vaginal intercourse?
- Men, women or both?
- Have you ever paid for sex? (exchanged sex for drugs or exchanged sex for money)
- Consensual versus non-consensual?
- Resident in a correctional facility?
- History of sexually transmitted diseases?
- Has your judgement ever been impaired by the use of alcohol or drugs?
**Screening for STD’s (CDC)**

- All sexually active females aged <25 years visiting health-care providers for any reason should be screened for chlamydia and gonorrhea at least once per year.
- All young, sexually active men should be screened routinely for chlamydial and gonococcal infections in settings or sub-populations in which the prevalence is >2%.
- Older individuals should be screened yearly if they are high risk.

**High Risk Individuals: (any age)**

- Individuals who abuse substances including alcohol and recreational drugs.
- Individuals who have a history of STD’s.
- Individuals who have more than one sex partner/yr
- Commercial sex workers
- Long distance truck drivers
- Military recruits
- Individuals in correctional facilities.
- Resident of a community with high rates of STDs.
- Individuals already infected with HIV.

**Risk behaviors contributing to major morbidity (STD/HIV, pregnancy) in adolescents**

- 50.3% of Kentucky 9-12th graders ever had sexual intercourse (45.9% U.S.)
- 7.8% had intercourse before age 13 (6.0% U.S. mean)
- 14.4% had four or more sex partners (13.8% U.S. mean)
- 59% of Kentucky sexually active teens used a condom at last sexual intercourse (38% U.S.)
- 14.9% of Kentucky teens reported ever experiencing forced sexual behavior (11.8% U.S. mean)
- 8.6% of Kentucky teens reported ever using cocaine (7.4% U.S. mean)

2007 Youth Risk Behavior Survey

**Jelly Bracelets**

- This new social phenomenon involves "snapping" the bracelet off the wearer, enabling the snapper to earn a sexual favor from the snappee based on the color of the snapped off bracelet.

**The colors each have a coded meaning as follows:**

- Yellow - indicates the wearer is willing to HUG
- Pink - indicates the wearer is willing to give a hickey
- Orange - indicates the wearer is willing to KISS
- Purple - indicates the wearer is willing to kiss a partner of either sex
- Red - indicates the wearer is willing to perform a LAP DANCE
- Green - indicates that ORAL SEX can be performed on a girl
- Clear - indicates a willingness to do "whatever the snapper wants"
- Blue - indicates ORAL SEX performed on a guy

- Black - indicates that the wearer will have regular "missionary" sex
- White - indicates the wearer will "FLASH" what they have
- Glittery Yellow - indicates HUGGING and KISSING is acceptable
- Glittery Pink - willing to "flash" (show) a body part
- Glittery Purple - wearer is willing to French (open mouth) kiss
- Glittery Blue - wearer is willing to perform anal sex
- Glittery Green - indicates that the wearer is willing to "69" (mutual oral sex)
- Glittery Clear - indicates that the wearer will let the snappee “feel up” or touch any body part they want
CDC Surveillance Figures from 2006 (Syphilis)

1. Louisiana
2. Alabama
3. Georgia
4. Nevada
5. Maryland
6. California
7. Texas
8. Tennessee
9. New Mexico
10. Florida
11. New York
12. North Carolina

RATES: Kentucky ranked 29 among 50 states, DC, and 3 territories with 1.7 cases per 100,000 population compared to the total rate of 3.6 cases per 100,000 population.
Syphilis

- Primary stage: Infectious disease caused by *Treponema pallidum*.
- Painless ulcer with clean base and firm indurated borders
- Regional lymphadenopathy

After the organism inoculates and penetrates the mucosal surfaces or abraded skin, a primary lesion develops in approximately 2-6 weeks.
- It typically begins as a painless papule, whose surface necroses to form a hard-based, well circumscribed, ulcerated lesion (chancre) that is loaded with treponemes.
- It should be noted that a primary lesion does not develop in every case or it may go unnoticed.
- Without treatment, the lesion heals in 3-6 weeks

Syphilis

Secondary stage
- One or more areas of the skin break into a rash that usually does not itch.
- Rash often appears as rough, red or reddish brown spots both on the palms of the hands and on the bottoms of the feet.
- Even untreated, rashes clear up on their own.
- Manifestations of secondary syphilis can develop while the chancre is still present
Neurosyphilis

It is important to note that because the central nervous system (CNS) is often invaded during the septicemic phase, neurological manifestations can occur during ANY phase or stage of the disease.

**Serologic Tests for Syphilis**

**Nontreponemal Tests (VDRL, RPR)**
- Quantitative: relatively easy to perform and inexpensive, however, lack specificity and cannot be automated. (requires subjective interpretation)

**Treponemal Tests (FTA-ABS, MHA-TP)**
- Treponemal Antigens
- Qualitative: technically more difficult to perform and more expensive. (requires subjective interpretation)

**Sensitivity of Serological Tests in Untreated Syphilis**

<table>
<thead>
<tr>
<th>Test</th>
<th>Primary (Percent Positive)</th>
<th>Secondary (Percent Positive)</th>
<th>Latent (Percent Positive)</th>
<th>Tertiary (Percent Positive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDRL</td>
<td>78 (74-87)</td>
<td>100</td>
<td>95 (88-100)</td>
<td>91 (37-94)</td>
</tr>
<tr>
<td>RPR</td>
<td>86 (77.99)</td>
<td>100</td>
<td>98 (95-100)</td>
<td>93</td>
</tr>
<tr>
<td>FTA-ABS*</td>
<td>84 (70-100)</td>
<td>100</td>
<td>100</td>
<td>96</td>
</tr>
<tr>
<td>Treponemal Agglutination*</td>
<td>76 (69-90)</td>
<td>100</td>
<td>97 (97-100)</td>
<td>94</td>
</tr>
<tr>
<td>TPA</td>
<td>82</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

*FTA-ABS and TP-PA are generally considered equally sensitive in the primary stage of disease.*
CAPTIA Syphilis-G EIA

- Assesses immunoglobulin G (IgG) antibodies specific to *T. pallidum*, and can be automated (producing an objective result)
- This test detects treponema-specific antibodies.
- Because the sensitivity in detecting untreated primary infection was 82% (lowest value), it was considered unsuitable as a replacement for the VDRL screening test.

*Journal of Clinical Microbiology, Oct. 1999 Vol.37, No.10*

J Clin Pathol 1992;45:37-41

---

**Causes of False-Positive Reactions in Serologic Test for Syphilis**

<table>
<thead>
<tr>
<th>Disease</th>
<th>RPR/VDRL</th>
<th>FTA-ABS</th>
<th>TP-PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Syphilis, Syphilis, Undetermined Disease</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Hepatitis</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Polyarteritis</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pemphigus</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Other STD</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Drug Abuse</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Recent Immunizations</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Pregnancy</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Recent Interventions</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>STD other than Syphilis</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

*May cause increase in titer in women previously successfully treated for syphilis*

Source: Syphilis Reference Guide, CDC/National Center for Infectious Diseases, 2002

---

**Syphilis Therapy: Goals**

- **Cure of disease**: improvement of clinical signs and symptoms; prevention of disease progression
- **Prevention** of disease transmission
- **Reduction** of risk for HIV acquisition

---

**2006 CDC STD TREATMENT GUIDELINES**

**Early Syphilis**

- **Recommended**
  - Benazethine Penicillin G, 2.4 Mu IM
  - Doxycycline 100 mg PO, BID x 14d

- **Limited Data**
  - Ceftriaxone 1.0 g IM or IV x 8-10d
  - Azithromycin 2.0g PO

---

**Syphilis Therapy: Response to Therapy**

- **Primary or Secondary Syphilis** – Fourfold (2 dilution) or greater decline in RPR or VDRL titers by time of 3 month follow-up
- **Early Latent Syphilis** – Fourfold (2 dilution) or greater decline in RPR or VDRL titers by time of 6 month follow-up

- Compared with HIV-negative patients, HIV-positive patients who have early syphilis may be at increased risk for neurological complications and may have higher rates of treatment failure with currently recommended regimens.
- However, once the diagnosis of syphilis has been established, HIV-infected patients should be treated utilizing the same protocol as with HIV-uninfected patients.
- Careful follow-up after therapy is essential.
Partner Therapy

- Current CDC guidelines suggest that individuals (known contacts) who were exposed to syphilis within the 90 days preceding the diagnosis of primary, secondary or early latent syphilis in a sex partner be treated presumptively, even if the individual (known contact) is seronegative for syphilis.

CDC Surveillance Figures from 2006 (Gonorrhea)

<table>
<thead>
<tr>
<th>State</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mississippi</td>
<td>257/100,000</td>
</tr>
<tr>
<td>South Carolina</td>
<td>234/100,000</td>
</tr>
<tr>
<td>Louisiana</td>
<td></td>
</tr>
<tr>
<td>Alabama</td>
<td>234/100,000</td>
</tr>
<tr>
<td>Georgia</td>
<td></td>
</tr>
<tr>
<td>North Carolina</td>
<td></td>
</tr>
<tr>
<td>Delaware</td>
<td></td>
</tr>
<tr>
<td>Missouri</td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td></td>
</tr>
<tr>
<td>Tennessee</td>
<td></td>
</tr>
<tr>
<td>U.S. Total</td>
<td>120/100,000</td>
</tr>
</tbody>
</table>

N. Gonorrhoeae

- Urethritis
- Cervicitis
- Proctitis
- Pharyngitis
- Prostatitis
- Other extragenital sites

Gonorrhoeae DNA probe (tests for both N. gonorrhoeae and C. trachomatis)
- NEW: BDProbeTec™ ET Amplified DNA assay
  - endocervical swabs, male urethral swabs and urine specimens (do not urinate for one hour prior to test)
- Culture: plate immediately (bedside) Thayer Martin), refrigerate.
- Gram stain helpful. Diagnostic in symptomatic males.

Gonorrhea

- Antimicrobial resistance remains an important consideration. Overall, 28.1% of isolates collected by the Gonococcal Isolate Surveillance Project (GISP) were resistant to penicillin, tetracycline, or both.
- Ciprofloxacin resistance is a growing problem.
- Studies have shown that gonorrhea can facilitate HIV transmission.

Gonococcal Urethritis
Site of Infection is Important

Gonococcal Conjunctivitis
- Ceftriaxone 1g IM in a single dose, and lavage the infected eye with saline solution once. Refer to an ophthalmologist.

Disseminated Gonococcus

CDC Surveillance Figures from 2006 (Chlamydia)
1. Alaska
2. Mississippi
3. South Carolina
4. New Mexico
5. Alabama (502/100,000)
6. Hawaii
7. Georgia
8. Delaware
9. Tennessee
10. Illinois
11. US Total 347/100,000

Chlamydia rate per 100,000 women in 2006
Kentucky: 500/100,000
US: 300/100,000

Chlamydia trachomatis
- The most frequently reported STD in the U.S.
- 75% of women and 50% of men have no symptoms.
  - The majority of cases therefore go undiagnosed and unreported.
Chlamydia
- CDC estimates that more than 3 million new cases occur each year.
  - Overall rate reported was four times higher in women than men. The lower rates among men suggest that many of the sex partners of women with chlamydia are not diagnosed or reported.
  - As many as 1 in 10 adolescent girls tested for chlamydia is infected. CDC fact sheet.
  - 15-19 y.o. represent 46% of infections; 20-24 y.o. represent 33% of infections.

Chlamydia
- Chlamydia may be one of the most dangerous sexually transmitted diseases among women today. Up to 40% of women with untreated chlamydia will develop pelvic inflammatory disease (PID) and 1 in 5 women with PID becomes infertile.
- Women infected with chlamydia are 3-5 times more likely to become infected with HIV, if exposed.

Laboratory Testing
- Culture: costly, requires 3-7 days, 70-90% sensitive.
- Antigen detection - 50-90% sensitive.
- NEW: BDProbeTec™ ET Amplified DNA assay
  - endocervical swabs, male urethral swabs and urine specimen both men and women (first void portion, do not urinate for 1 hour prior to test)
  - Improved sensitivity when compared to the antigen detection (GenProbe).

Chlamydia Conjunctivitis

Follow up
- Test of cure not routine.
  - Except in pregnancy
  - Adolescents should be re-screened in 3-4 months
- Severe cases of urethritis/cervicitis should be seen in clinic 3 days after therapy initiated.
- Sexual partners need to be evaluated and treated empirically.
- Non-resolution or recurrence of symptoms should be re-evaluated ASAP
- Re-screen all women within 12 months

Non-gonococcal Urethritis
- Etiologies (common)
  - Chlamydia
  - Mycoplasma hominis
  - Ureaplasma
  - Mycoplasma genitalium
Herpes

Herpes simplex virus type two is one of the most common sexually transmitted diseases in the United States. (At least 50 million persons)

Only 2.6% of the above (roughly 130 thousand) report history of genital herpes

One out of five persons (adolescents/adults) in the United States are infected with HSV-2.

Many such persons have mild or unrecognized infections but shed virus intermittently in the genital tract.

Male to female transmission is more efficient.

Herpes

Most genital herpes infections are transmitted by persons unaware that they have the infection or who are asymptomatic when transmission occurs.

Herpes Simplex Virus

Both viral types (HSV-1 or HSV-2) can cause either genital or oral infections.

50 million people, ages 12 and older, are infected with HSV-2.

HSV-2 prevalence among 12-19 year old whites is now five times higher than it was 20 years ago.

Complications include: urinary retention, acute renal insufficiency.
**STDs in the U.S.**

**Estimated Incidence**

<table>
<thead>
<tr>
<th>STD</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human papillomavirus</td>
<td>6,500,000</td>
</tr>
<tr>
<td>Trichomonas vaginalis</td>
<td>5,000,000</td>
</tr>
<tr>
<td>Chlamydia trachomatis</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Herpes simplex virus</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Neisseria gonorrhoeae</td>
<td>650,000</td>
</tr>
<tr>
<td>Hepatitis B virus</td>
<td>77,000</td>
</tr>
<tr>
<td>Treponema pallidum</td>
<td>70,000</td>
</tr>
<tr>
<td>Human immunodeficiency virus</td>
<td>20,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16,300,000</strong></td>
</tr>
</tbody>
</table>

**Trichomonas Vaginalis**

Malodorous, copious foamy discharge, vulvar irritation. Flagellated organisms

**Prevalence of Trichomoniasis**

JCDH STD Clinic 1996-2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>25%</td>
</tr>
<tr>
<td>2007</td>
<td>30%</td>
</tr>
</tbody>
</table>

**Rates of Gonorrhea and Urogenital Trichomoniasis in Different Age-groups**

(n = 29,239)

- Age Group In Years: 15-19, 20-24, 25-30, 30+
Treatment

- Metronidazole and Tinidazole are the only oral medications available in the U.S. for treatment of trichomoniasis.
  - Metronidazole 2 grams po as a single dose
  - Metronidazole 500mg po bid x 7 days
- Treat male sexual partners
  - Metronidazole 2 grams po as a single dose

Questions?