Management of STIs in HIV-Infected and At-Risk Patients

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*No commercial disclosures or conflicts of interest
Objectives

• Discuss shifts in STI/HIV epidemiology
• Review STI screening and treatment in HIV-infected and at-risk patients
  – Focus upon newer diagnostics
  – Focus upon non-bacterial STIs where treatment in HIV-infected patients is different than HIV-non-infected patients
• Discuss condom messaging and partner management to prevent reinfection
How many cases of infectious syphilis have you seen in the past 2 years (2013-14)?

1. 0-2
2. 3-5
3. 6-10
4. >10
How many cases of infectious syphilis did you see in the 2 years before 2013 (2011-12)?

1. 0-2
2. 3-5
3. 6-10
4. >10
HIV and Syphilis Rates in MSM

- Numerator based upon national 2008 surveillance data on new HIV and syphilis diagnoses
- Denominator based upon estimated proportion of men who engaged in same-sex behavior in past 5 years (3.9%)
- HIV diagnosis rate = 672/100,000 MSM
  - 67x rate of other men
  - 58x rate for women
- $1^{o}$ and $2^{o}$ syphilis diagnosis rate = 154/100,000 MSM
  - 71x rate of other men
  - 96x rate for women

Purcell et al., *Open AIDS J*, 2012
HIV and Syphilis Diagnoses Have Increased in Young MSM

- $1^o$ and $2^o$ syphilis rates increased in 70% of areas
- Average increases in young black men
  - HIV: 68%
  - Syphilis: 203%

STD/HIV Co-infection Is Common

- 557 HIV+ adults in primary HIV care in 4 U.S. cities
- Screened/treated for STD initially and at 6 mths
- 13% with STD at baseline; 7% new STD at 6 mths
  - Other than trichomoniasis (14% women at baseline, 3% women at 6 mths), 94% of incident STDs were in MSM (mostly diagnosed at extragenital sites)
- 20% of all MSM diagnosed with an STD at baseline or by 6 months

Mayer, *Sex Transm Dis* 2012
Trichomoniasis and HIV

- HIV-infected women
  - Prevalence of TV infection ranging up to 53% (Cu-Uvin 2002, Miller 2008)
  - Higher incidence of TV compared with HIV-uninfected women (Mullins 2013)
  - Associated with PID (Moodley 2002)
  - Treatment associated with significant decreases in genital tract viral load and vaginal HIV viral shedding (Kissinger 2009, Anderson 2012)
Likelihood of HIV Transmission

Cohen & Pilcher. JID 191:1391-2, 2005
Blood HVL ≠ Semen HVL

- 83 HIV-infected men (mostly MSM) on stable ART
  - 21 (25%) with detectable virus in semen despite undetectable HIV in blood
    - Attributed to presence of STIs or urethritis in 10%, genital inflammation in 24%

- 304 HIV-infected men seeking assisted reproduction between 2002-11
  - 20 (7%) with detectable virus in semen despite undetectable HIV in blood
    - All 20 on continuous suppressive ART > 6 mths, none had concomitant STI
    - Prevalence of blood/semen results unchanged over time
    - Not related to specific antiretrovirals used

Politch JA et al. AIDS 2012
Lambert-Niclot S et al. AIDS 2012
Why Bother Screening?
Many Infections in MSM are Asymptomatic

Rectal Infections
- Chlamydia: 86%
  - Asymptomatic: 86%
  - Symptomatic: 42%
  - n=316
- Gonorrhea: 84%
  - Asymptomatic: 84%
  - Symptomatic: 10%
  - n=264

Urethral Infections
- Chlamydia: 42%
  - Asymptomatic: 10%
  - Symptomatic: 90%
  - n=315
- Gonorrhea: 10%
  - Asymptomatic: 10%
  - Symptomatic: 90%
  - n=364

Ask Screen Intervene
Kent, CK et al, Clin Infect Dis July 2005
What proportion of CT/GC infections may be missed if extragenital sites in MSM are not screened?

1. 25%
2. 50%
3. Over 75%

✓ 3. Over 75%
Proportion of CT and GC infections **MISSED** among 3398 asymptomatic MSM if screening only urine/urethral sites, San Francisco, 2008-2009

Marcus et al, STD Oct 2011; 38: 922-4
**STI Screening in HIV+ Patients:**

**FIRST VISIT**

- **All patients**
  - Ask about STD symptoms
  - Syphilis: serology, chlamydia, gonorrhea
  - Hepatitis A/B/C status

- **Patients who report receptive anal sex**
  - Rectal gonorrhea
  - Rectal chlamydia

- **Patients who report receptive oral sex**
  - Pharyngeal gonorrhea

*CDC/HRSA/NIH/IDSA Recommendations*
STI Screening in HIV+ Patients:

FIRST VISIT

• Women
  – Chlamydia: routinely test all sexually active women especially those ≤25 years;
  – Gonorrhea: routinely test all sexually active women
  – Trichomonas
  – Pregnancy: ask a woman of childbearing age if she suspects pregnancy or has missed her period

*Identify possible current pregnancy, interest in future pregnancy, or sexual activity without reliable contraception*
STI Screening in HIV+ Patients: SUBSEQUENT VISITS

• Periodic retesting for all sexually active patients
• Annually for all, more frequent (every 3-6 months) depending on risk:
  – Multiple or anonymous sex partners
  – Unprotected vaginal or anal intercourse with partner with negative or unknown HIV status
  – Sex or needle-sharing partner with above risks
  – “Life changes” associated with increased risk

CDC/HRSA/NIH/IDSA Recommendations
# Tests Recommended for STI Screening

<table>
<thead>
<tr>
<th>STI</th>
<th>TEST</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syphilis</td>
<td>Serology with nontreponemal tests (RPR or VDRL) or treponemal EIA</td>
<td>Confirm positive result with serum treponemal test (FTA-ABS, TPPA)</td>
</tr>
<tr>
<td>Trichomonas</td>
<td>Saline microscopy of vaginal fluid, culture, antigen detection test, or NAAT</td>
<td>NAAT is now commercially available</td>
</tr>
<tr>
<td>Genital herpes</td>
<td>Type-specific serology (consider)</td>
<td>Genital herpes increases genital HIV shedding</td>
</tr>
</tbody>
</table>

*CDC/HRSA/NIH/IDSA Recommendations*
What is your usual first-line screening test for syphilis?

1. RPR
2. Syphilis EIA
3. Not sure
Syphilis Serology

Nontreponemal: VDRL & RPR
- Antibody to cardiolipin-lecithin-cholesterol antigen; not specific to *T. pallidum*
- Quantitative: titer measured
- Used to follow treatment response (always use same test)

Treponemal: TP-PA, FTA-ABS, EIA/CIA
- Qualitative
- Confirmatory
Serologic reactivity in syphilis patients
Newer Treponemal Screening Tests

- Enzyme immunoassays (EIA)
  - Trep-Sure IgM/IgG, CAPTIA Syphilis G (Trinity Biotech) – wild type treponemal antigens
- Chemiluminescence immunoassays (CIA)
  - LIAISON IgM/IgG (Diasorin) – recombinant TpN17
- Microbead immunoassays (MBIA)
  - BioPlex 2200 Syphilis IgM and IgG (BioRad) – recombinant TpN15, TpN17, TpN47
  - AtheNA Multi-Lyte T. pallidum IgG (Zeus Scientific) – recombinant *T. pallidum* antigen p17kDa

Sena at al., CID 2010
Syphilis Screening Paradigm

Treponemal tests (e.g., EIA, CIA, MBIA)
- SPECIFIC TO TP
- QUALITATIVE
- REACTIVITY PERSISTS OVER LIFETIME
- REACTIVITY DECLINES WITH TIME

Non-treponemal tests (e.g., RPR, VDRL)
- NON-SPECIFIC ANTIBODY TO LIPOIDAL ANTIGENS
- QUANTITATIVE
- REACTIVITY DECLINES WITH TIME

reflex to
Why switch to EIA/CIA?

180 tests per hour, no manual pipetting
Is EIA/CIA Screening Cost-Effective?

• Canadian CE analyses:
  – EIA-based algorithm (EIA, RPR, immunoblot) was cost saving
  – Canadian –$461 compared to RPR/TPPA based algorithm

  Chuck A et al Int J STD AIDS, 2008, 19(6) 393-399

• US cost efficacy analyses:
  – EIA-based algorithm $1671 vs $1621 per case detected via traditional RPR-based algorithm
  – EIA based algorithm would create 3x as many follow-ups as an RPR-based algorithm, and more over-treatment

  Owusu-Edusei K et al STD, 2011 Jan;38(1):1-7
Which algorithm?

- **Traditional algorithm**
  - Detects active infection
  - High rate of biologic false positives
    - Confirmation with treponemal test
      - Use of both tests results in a high positive predictive value
  - Can miss early primary and treated infection

- **Reverse sequence algorithm**
  - Detects early primary and treated infection that might be missed with traditional screening
  - Nontreponemal test needed to detect active infection
  - Ideally, EIAs and CIAs should have perfect specificity
    - EIAs and CIAs are nonspecific
    - High rate of false positive results
    - Varies by risk of population
CDC-Recommended Algorithm for Reverse Sequence Syphilis Screening

Radolf JD et al. *MMWR*, 2011

Probable false positive EIA
- If high risk: repeat RPR in several weeks

Assess for hx of treated syphilis, sx/signs
- If treated, no further action
- If untreated, consider tx for latent syphilis
CDC Recommendations

• All reactive EIA/CIAs should be reflexed to a quantitative non-treponemal test (e.g. RPR, VDRL)
  • Confirm reactive EIA/CIA
  • Detect active infection
• Discordant specimens (e.g. EIA+/RPR-) should be confirmed with a 2nd treponemal test
• Confirmatory treponemal test should ideally be similarly sensitive and more specific than EIA/CIA
  • TP-PA recommended
  • FTA-ABS test not recommended (lower specificity than other treponemal tests and probably lower sensitivity; also requires trained personnel and a dedicated fluorescence microscope)
• Results of all 3 tests (EIA, RPR, TP-PA) should be reported simultaneously to provider
Unanswered questions re: Treponemal EIA/CIA

• Does a 2\textsuperscript{nd} treponemal test need to be performed for all cases of discordant EIA/CIA serology?
  – Could index values be used in lieu of 2\textsuperscript{nd} treponemal test (e.g. like using Hep C Ab index values) (Park et al., *JID* 2011)

• Are EIA/CIA more sensitive in early syphilis than traditional serologic tests?
  – Head-to-head test performance of EIAs, CIAs, TP-PA, FTA-ABS, and microbead immunoassay?

• Optimal management of special populations with discordant serology?
  – Studies still need to be done in HIV-infected, or prenatal populations
Trichomoniasis: Diagnosis

- Saline Wet Mount
  - Motile trichomonads
  - pH > 4.5 (usually)
  - Whiff test may be positive
- Culture (InPouch TV Test, BioMed Diagnostics)
- Point-of-care tests
  - OSOM trichomonas rapid test (Genzyme)
  - Affirm VP III (BD)
- New: Modified Nucleic Acid Amplification Tests
  - Roche Amplicor
  - Gen-Probe APTIMA Analyte Specific Reagents
## Tests Recommended for Chlamydia & Gonorrhea Screening

<table>
<thead>
<tr>
<th>GENDER</th>
<th>TEST</th>
<th>COMMENT</th>
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<tbody>
<tr>
<td>Women</td>
<td>NAAT -- vaginal swab preferred</td>
<td>NAAT includes PCR, SDA, TMA; most sensitive tests (&gt;90% vs. 70%)</td>
</tr>
<tr>
<td>Men</td>
<td>NAAT – urine preferred</td>
<td>For NAAT, collect first 15-30 cc of urine stream without cleansing urethral meatus</td>
</tr>
<tr>
<td>Both</td>
<td>NAAT -- rectal (for gc/chl) or pharyngeal swab (for gc only) preferred*</td>
<td>Depends on reported sexual exposure at these sites</td>
</tr>
</tbody>
</table>

*Though not FDA-approved for these samples, now generally available through validated assays.

**CDC/APHL Recommendations**
Do you have access to rectal/pharyngeal NAAT for gc/chl?

1. Yes
2. No
3. Not sure
NAAT Testing, Extragenital Sites

- Not FDA-cleared for rectal or pharyngeal specimens, but preferred over culture

Chlamydia and Gonorrhea Nucleic Acid Amplification Testing

...still not FDA-cleared for rectal or pharyngeal specimens but now the preferred testing method over culture
But …

- Validation procedures can be done by labs to allow use of a non-FDA-cleared test or application
  - Test panel of known positive & negative samples against the cleared test technology to demonstrate good performance
- Many public health laboratories and at least two national commercial labs currently provide gc/chl NAAT for rectal/pharyngeal specimens
  - Quest and LabCorp are two national commercial labs
  - List of labs offering this type of testing is on the NNPTC website [http://depts.washington.edu/nnptc/PHLabs.html](http://depts.washington.edu/nnptc/PHLabs.html)
NAAT Laboratory Ordering and Billing Codes

<table>
<thead>
<tr>
<th>Company-Specific Ordering Codes for Combined GC/CT Nucleic Acid Amplified Tests (NAATs)</th>
<th>Company-Specific Ordering Codes for CT test only</th>
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</thead>
<tbody>
<tr>
<td>LabCorp*</td>
<td>Quest*</td>
</tr>
<tr>
<td>Rectal</td>
<td>188672</td>
</tr>
<tr>
<td>Pharyngeal</td>
<td>188698</td>
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</tbody>
</table>

NAATs are offered at (or from) any location in the country with these two codes.

For information on specimen collection and transportation, clinicians should contact the local reference laboratory representative.

CPT Billing Codes

<table>
<thead>
<tr>
<th>CPT Billing Codes</th>
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<tbody>
<tr>
<td>CT detection by NAAT</td>
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<tr>
<td>GC detection by NAAT</td>
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CLIA verified labs* for non-genital NAATs: [www.nnptc.org/PHLabs.html](http://www.nnptc.org/PHLabs.html)

*CDC does not endorse these laboratories, however, they represent the largest laboratories nationally. There may be other private laboratories that have verified rectal and pharyngeal testing with NAATs. Many PHLs have also verified rectal and pharyngeal testing.
Treatment of STI in HIV-infected persons

- CDC STD Treatment Guidelines highlight specific regimens for HIV-infected persons when appropriate
- In general, treatment guidelines are similar between HIV-infected and non-infected patients
- Because re-infection rates are high, patients with chlamydia or gonorrhea, possibly also trichomoniasis, should be re-tested 3 months after treatment

www.cdc.gov/std/treatment
18 yo HIV-infected MSM well-controlled on ART, with rash of secondary syphilis. What treatment regimen do you recommend?

1. 2.4 MU IM benzathine pcn G x 1 dose
2. 2.4 MU IM benzathine pcn G x 3 doses
3. Other
SYPHILIS - TREATMENT

PENICILLIN

Primary, secondary and early latent syphilis
Benzathine PCN 2.4 million units IM x 1 dose
(Jarisch-Herxheimer reaction can occur during tx of secondary syphilis)

PCN allergy – If compliance can’t be assured, desensitize, treat with PCN
(instructions in 2010 STD Treatment guidelines)
– Doxycycline or tetracycline for 14 days
– Ceftriaxone 1 g daily for 10-14 days
– Azithromycin 2 g, one dose (but failures/resistance reported – therefore do not use with MSM or pregnant women)

Late latent disease
Benzathine PCN 2.4 million units IM once a week x 3 doses

Neurologic/ocular syphilis
LP, ocular slit-lamp exam, and formal ophthalmic/otologic eval indicated if related clinical symptoms exist (cognitive dysfunction, motor or sensory deficits, ophthalmic or auditory symptoms, cranial nerve palsies, or meningitis)
Aqueous crystalline penicillin G 18–24 million units per day for 10–14 days
Consider benzathine PCN 2.4 million units IM once a week for up to 3 weeks as chaser

Follow titers q3 mths for a year
Syphilis in HIV: Penicillin

- Most studies report data on multiple tx regimens for various stages of syphilis, resulting in small numbers for each category; sometimes only aggregate data reported

- **Early syphilis** - range of probabilities for serologic failure at 6 mths following 2.4 MU IM benzathine pcn G
  - 7% (3-14%) – 22% (12-37%), n = 197 from heterogeneous studies

- **Late latent syphilis** - range of probabilities for serologic failure at 12 mths following 7.2 MU IM benzathine pcn G
  - 19% (12-29%) – 31% (22-41%), n = 245 from heterogeneous studies

- **Neurosyphilis** - range of probabilities for serologic failure at 12 mths or lack of improvement in CSF WBC, protein, or VDRL following 18-24 MU IV aqueous pcn
  - 27% (6-61%) – 28% (14-45%), n = 68 from heterogeneous studies
  - This rate is much higher than historical estimates of 3-10% in HIV-uninfected patients – why?
    - Pcn is less effective?
    - Slower serological response (most studies didn’t follow to 24 months)?
    - Baseline CSF abnormalities unrelated to syphilis?

Blank et al., STI 2011
Syphilis in HIV: Non-penicillin

- **Doxycycline 100 mg PO bid x 14 days**
  - Early syphilis: 20 total cases across literature
    - Impossible to draw substantive conclusions
- **Azithromycin 2 g PO x 1 or 2 doses**
  - Few data in HIV-infected
  - Most trials pre-date emergence of azithromycin resistance which is increasing and more commonly found in MSM
    - single A to G mutation, position 2058 of 23S rRNA gene of *T. pallidum*
- **Ceftriaxone 1-2 g IM or IV daily for 10-21 days**
  - Neurosyphilis: 19 total cases across literature, plus 1 new obs. study adding 12 patients (Spornraft-Ragaller et al., Eur J Med Res 2011)
  - More promising – few serologic failures at 12-24 mths

Blank et al., STI 2011
Spornraft-Ragaller et al., Eur J Med Res 2011
Syphilis: Evaluation of CNS in the HIV-Infected Patient

- CNS invasion occurs in early syphilis regardless of HIV or neurologic symptoms (protein, pleocytosis)
  - Clinical significance unknown (HIV+/-)
  - Clinical and CSF consistent with neurosyphilis associated with RPR ≥ 1:32 and/or CD4 ≤ 350
    - Criteria likely sensitive, but non-specific (many negative LPs)
    - Unless neurologic symptoms present, CSF exam has not been associated with improved clinical outcomes

Quantitative non-treponemal serologic tests should be repeated MORE FREQUENTLY
- 3, 6, 9, 12, and 24 months after primary and secondary syphilis
- 6, 12, 18, and 24 months after latent syphilis

Neurosyphilis - LP should be repeated q6mths if CSF pleiocytosis was present initially, until cell count normalizes
- If not decreased after 6 mths or if CSF not normal after 2 yrs, re-tx should be considered
- Changes in CSF-VDRL or CSF protein occur more slowly, persistent abnormalities may be less clinically important

Re-treat for syphilis (and re-consider neurosyphilis) if
- Titers increase four-fold during this time
- Titer fails to decline at least 4-fold within 6-12 months of tx for early syphilis, or 12-24 months of tx for late syphilis
- New signs or symptoms of syphilis appear
Gonorrhea Treatment, 2006

Recommended regimens for urogenital infections:
- Ceftriaxone 125 mg IM x 1
- Cefixime 400 mg PO x 1
- Ciprofloxacin 500 mg PO x 1
- Ofloxacin 400 mg PO x 1
- Levofloxacin 250 mg PO x 1

Alternative regimens:
None

Recommended regimens for pharyngeal infections:
- Ceftriaxone 125 mg IM x 1
- Ciprofloxacin 500 mg PO x 1

Alternative regimens:
None
Gonorrhea Treatment, 2007

Recommended regimens for urogenital infections:
- Ceftriaxone 125 mg IM x 1
- Cefixime 400 mg PO x 1
- Ciprofloxacin 500 mg PO x 1
- Ofloxacin 400 mg PO x 1
- Levofloxacin 250 mg PO x 1

Alternative regimens:
None

Recommended regimens for pharyngeal infections:
- Ceftriaxone 125 mg IM x 1
- Ciprofloxacin 500 mg PO x 1

Alternative regimens:
None
Gonorrhea Treatment, 2010

Recommended regimens for urogenital infections:

- Ceftriaxone **250 mg** IM x 1
- OR if ceftriaxone unavailable,
  - Cefixime 400 mg PO x 1
  - Other single dose injectable ceph.
  - Ciprofloxacin 500 mg PO x 1
  - Ofloxacin 400 mg PO x 1
  - Levofloxacin 250 mg PO x 1

Alternative regimens:

None

Co-treat w/ azithromycin 1 g PO or doxycycline 100 mg PO bid x 7 days
Gonorrhea Treatment, 2012

Recommended regimens for urogenital infections:
- Ceftriaxone 250 mg IM x 1
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- Other single dose injectable ceph.
  - Ciprofloxacin 500 mg PO x 1
  - Ofloxacin 400 mg PO x 1
  - Levofloxacin 250 mg PO x 1

Alternative regimens:
- Cefixime 400 mg PO x 1
- Azithromycin 2 g PO x 1

Co-treat w/ azithromycin 1 g PO* or doxycycline 100 mg PO bid x 7 days

*Azithromycin preferred because of high prevalence of tetracycline resistance amongst GISP isolates.
Trichomoniasis Treatment

Recommended regimen:
- Metronidazole 2 g PO x 1
- Tinidazole 2 g PO x 1

Alternative regimen:
- Metronidazole 500 mg PO BID x 7d

Cure rates:
- Metronidazole: 90-95%
- Tinidazole: 86-100%

Pregnancy Category C, do NOT use!
Avoid EtOH x 72 hrs after tx
If breastfeeding, consult guidelines

Safe at all stages of pregnancy
Avoid EtOH x 24 hrs after tx
If breastfeeding, consult guidelines
What If Trichomoniasis AND:

**Pregnant?**
- Metronidazole 2 g orally in a single dose
- Safety of tinidazole not well established

**HIV-positive?**
- More treatment failure with single dose regimens
- Consider multidose Metronidazole 500 mg twice daily x 7d
Trichomonas Treatment in HIV

- 270 women enrolled (New Orleans, Houston, Jackson; HIV-infected, positive for TV by culture)
  - Randomized to either MTZ 2 g PO x 1 or 500 mg PO bid x 7 days
    - 255 women evaluated for test of cure (~1 mth)
    - 152 women negative or didn’t return at TOC were eval. at ~3 mths

<table>
<thead>
<tr>
<th></th>
<th>TV+ rate overall, %</th>
<th>7-day dose, %</th>
<th>Single dose, %</th>
<th>RR (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOC visit (~1 mth)</td>
<td>12.5</td>
<td>8.5</td>
<td>16.8</td>
<td>0.50 (0.25, 1.00)</td>
<td>0.045</td>
</tr>
<tr>
<td>3 month visit</td>
<td>17.8</td>
<td>11.0</td>
<td>24.1</td>
<td>0.46 (0.21, 0.98)</td>
<td>0.03</td>
</tr>
</tbody>
</table>

- Secondary analysis: lack of single dose treatment efficacy found only among women with asymptomatic BV

Kissinger et al., *JAIDS* 2010
Treatment:
First Clinical HSV Episode

- Acyclovir 400 mg PO tid
- Acyclovir 200 mg PO 5x per day
- Famciclovir* 250 mg PO tid
- Valacyclovir** 1 g PO bid

for 7-10 days or until clinical resolution

*not licensed for <18 yrs
**not licensed for pre-pubertal
Treatment: Episodic Recurrent HSV

- Acyclovir 400 mg PO tid
- Acyclovir 800 mg PO bid
- Famciclovir* 125 mg PO bid
- Valacyclovir** 1 g PO qd

all for 5 – 10 days, OR

- Valacyclovir** 500 mg PO bid for 3 days, OR
- Acyclovir 800 mg PO tid for 2 days, OR
- Famciclovir* 1 g PO bid for 1 day
- Famciclovir* 500 mg PO x 1 dose, then 250 mg PO bid x 2 days

Start during prodrome or within 1 day of lesion onset

*not licensed for <18 yrs
**not licensed for pre-pubertal

Short course therapy not advised for HIV-infected
Treatment: Daily Suppressive HSV Therapy

- Efficacious in decreasing clinical manifestations of HSV in HIV-infected persons

- Regimens for persons with HIV
  - Acyclovir 400 - 800 mg PO bid to tid
  - Famciclovir* 500 mg PO bid
  - Valacyclovir** 500 mg PO bid

*Discuss need to continue therapy annually with patient

*not licensed for <18 yrs
**not licensed for pre-pubertal
• Analysis of National HIV Behavioral Surveillance Data 2004/2008/2011 corroborated with SF HD data
• Significant changes
  – Declining unrecognized HIV infection
  – Declining methamphetamine use
  – Increasing HIV testing
  – Increased ART usage
• Stable prevalence of HIV
  – Implies decreasing incident infection given declining mortality
• BUT increasing STIs implies continued increases in hi-risk sexual behavior
  – Increasing male syphilis, and male rectal gc and chl reported to HD
• Discrepant changes in directionality of HIV vs. other STI rates could be explained by
  – High-level of serosorting
  – High-level of ART use

Raymond et al. JAIDS, 2013
Condoms: Brief Messaging to Increase Use

• Contextualize in patient’s current use
  – Getting *towards* 100% (motivational interviewing)
    • 0% user - latex allergy? polyurethane, polyisopene, nitrile
    • 50% user - teasing out why/when/with who, influencing myth-perceptions
    • 100% user - Plan B back up

• Tap into behavioral research
  – What’s your flavor? Take a “risk” (normal development)
  – Empowerment messages (DiClemente et al.)
    • GYT Campaign - screen, screen, and then screen some more

• Get practical
Expedited Partner Therapy

- EPT is supported by the CDC and permissible in over 30 states
- EPT has been shown to be safe and effective in the treatment of sex partners
- Most states with long-standing EPT programs also have had no reports of adverse events
PDPT can prevent reinfection of index case and has been associated with a higher likelihood of partner notification...”
Conclusions

- Shifts have occurred in STI epidemiology
  - syphilis and HIV in MSM in the last decade
- Routine STI screening and treatment in HIV-infected patients is critical
  - individual patient benefit
  - reduction of HIV transmission and acquisition: this is part of HIV prevention!
Sexually Transmitted Diseases
Treatment Guidelines, 2010

Misnomer!
• Prevention
• Screening
• Counseling
• Management

AND

• Treatment Guidelines
RCT evidence for preventing sexual HIV transmission

<table>
<thead>
<tr>
<th>Study</th>
<th>Effect size (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment for prevention (HPTN 052)</td>
<td>96% (73; 99)</td>
</tr>
<tr>
<td>PrEP for discordant couples (Partners PrEP with FTC/TDF)</td>
<td>73% (49; 85)</td>
</tr>
<tr>
<td>Medical male circumcision* (Orange Farm, Rakai, Kisumu)</td>
<td>54% (38; 66)</td>
</tr>
<tr>
<td>STD treatment* (Mwanza)</td>
<td>42% (21; 58)</td>
</tr>
<tr>
<td>Microbicide* (CAPRISA 004 tenofovir gel)</td>
<td>39% (6; 60)</td>
</tr>
<tr>
<td>PrEP for heterosexuals (Botswana TDF2 with FTC/TDF)</td>
<td>44% (15; 63)</td>
</tr>
<tr>
<td>HIV Vaccine (Thai RV144)</td>
<td>31% (1; 51)</td>
</tr>
</tbody>
</table>

Abdool Karim SS & Q. Antiretroviral prophylaxis...Lancet 2011;378:e23-5

Slide courtesy of Ken Mayer, 2012
MSM in SF City Clinic
Diagnosed with Rectal Chlamydia or Gonorrhea 2003-05

HIV Seroconversion by Number of Prior Rectal Infections

<table>
<thead>
<tr>
<th>Rectal Chl or GC</th>
<th>Annual HIV Incidence</th>
<th>Adjusted HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>2.25%</td>
<td>--</td>
</tr>
<tr>
<td>2 or more episodes</td>
<td>15.00%</td>
<td>8.81</td>
</tr>
</tbody>
</table>

Bernstein et al. JAIDS, 2010