

RESPONDING TO SYPHILIS: AN UPDATE IN EPIDEMIOLOGY AND CLINICAL CASE MANAGEMENT

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March 19, 2007



Disclosure

- Dr. Klausner is an employee of the City & County of San Francisco and Faculty member of the University of California San Francisco

In the past 12 months:

- The NIH, CDC, University of California AIDS Research Program and Gen-Probe, Inc., has provided research funding to the City & County of San Francisco
- Communication Strategies, Inc. and King Pharmaceuticals, Inc. has supported Dr. Klausner and the City and County of San Francisco to conduct educational programs

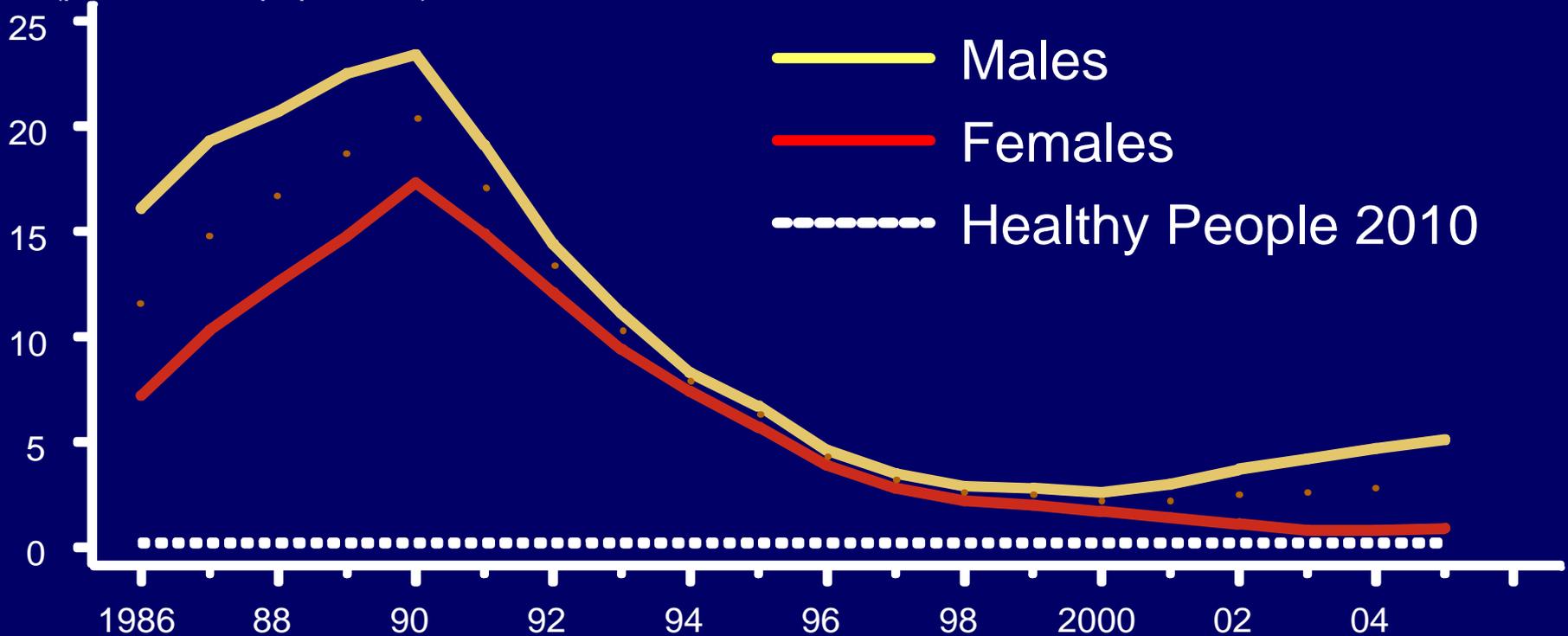
Syphilis Biology

- *Treponema pallidum*
a spirochete
bacterium spread
through sexual
contact—oral, anal
or vaginal sex
- Humans only host
- Facilitates HIV
transmission



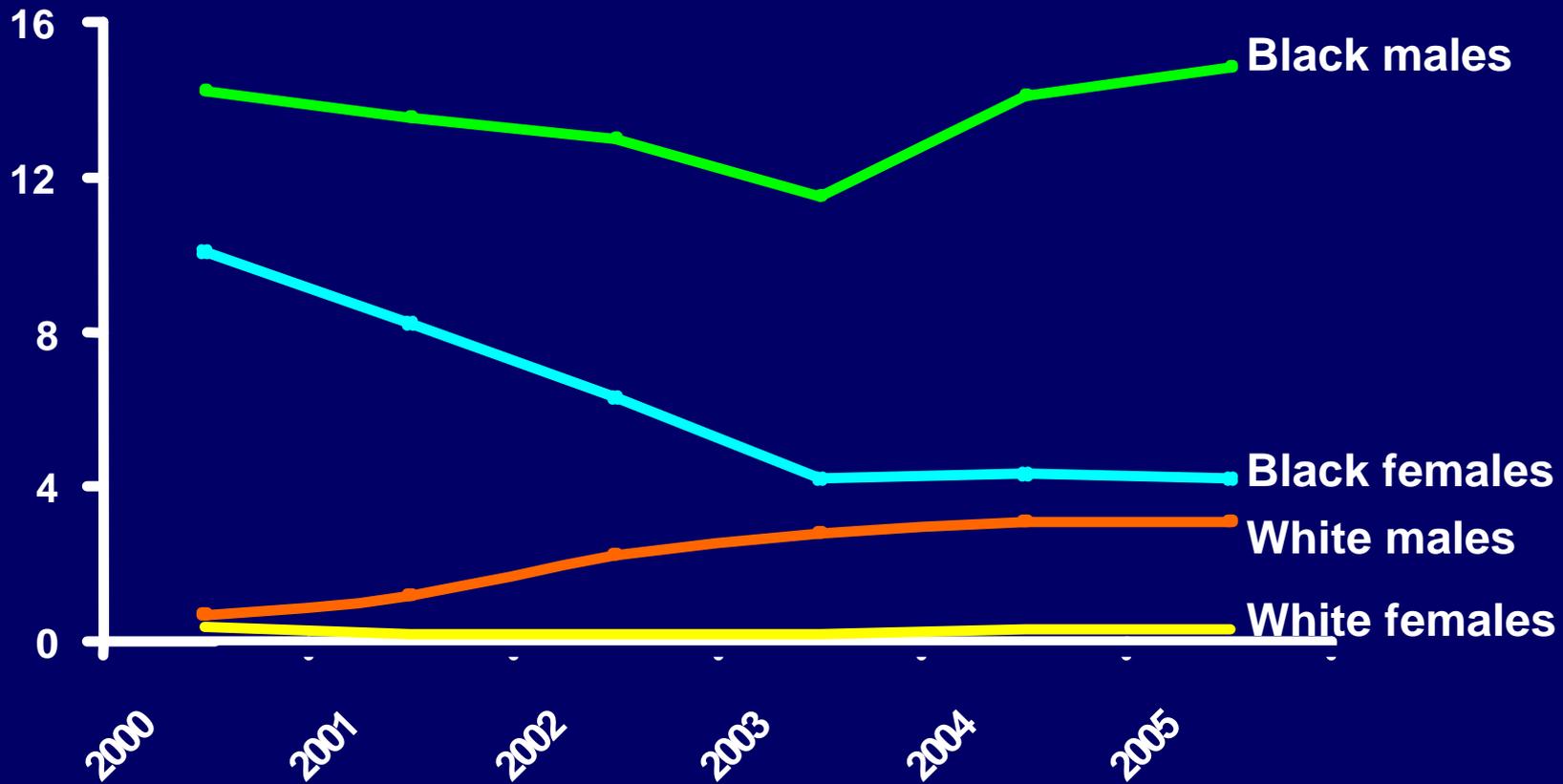
Primary and secondary syphilis — Rates by sex: United States, 1986–2005 and the Healthy People 2010 target

Rate (per 100,000 population)



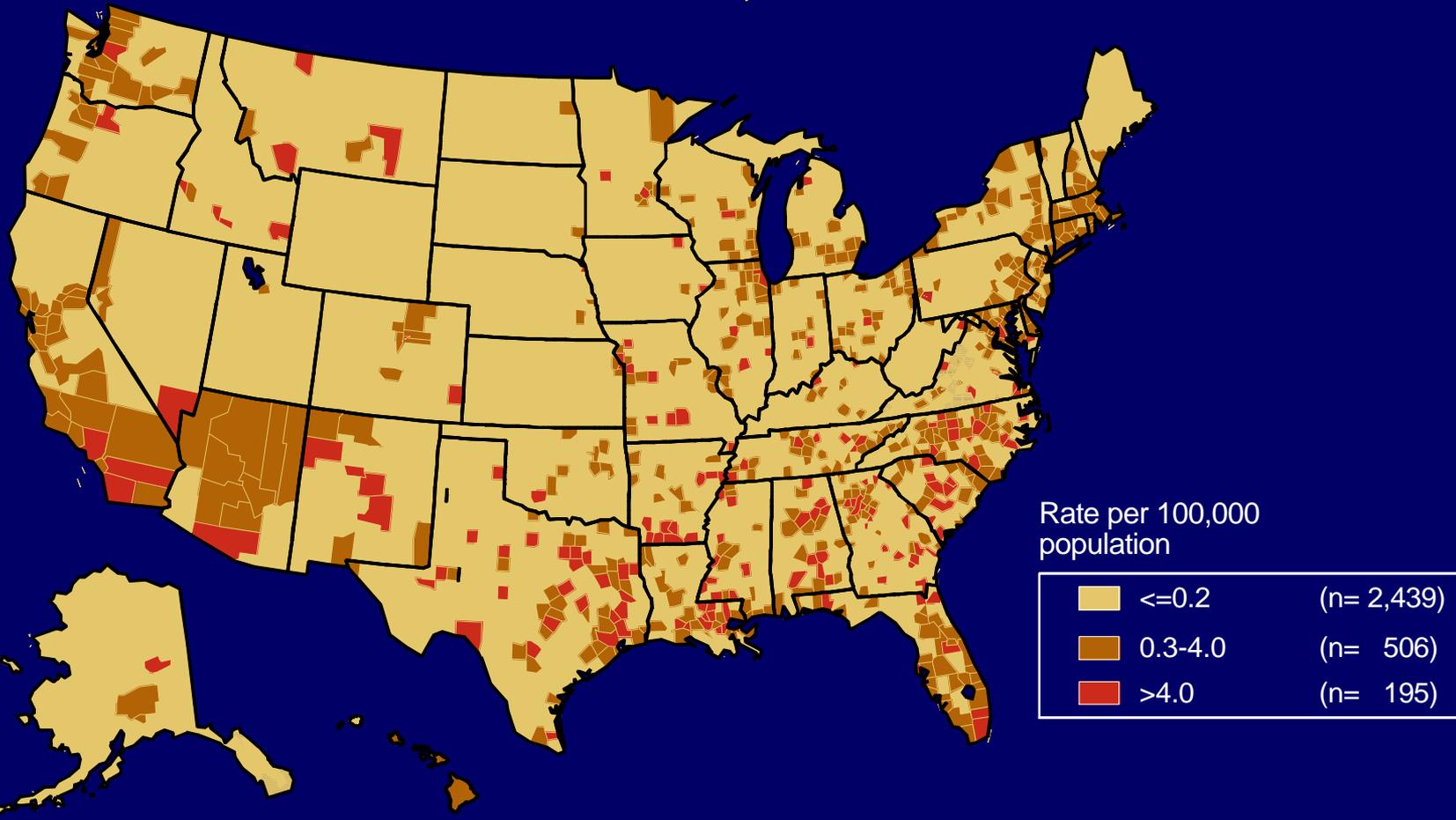
Primary and secondary syphilis: Black and White rates by sex, 2000-2005

Rate (per 100,000 population)



2005 data provisional, CDC

Primary and secondary syphilis — Rates by county: United States, 2005



Note: The Healthy People 2010 target for P&S syphilis is 0.2 case per 100,000 population. In 2005, 2,434 (77.5%) of 3,140 counties in the U.S. reported no cases of P&S syphilis.

Case 1—Abnormal Blood Test

- 45 year old man underwent screening for syphilis
- RPR* 1:32, TPPA** reactive (FTA-Abs***)

*RPR = rapid plasma reagin

**TPPA = Treponema pallidum particle agglutination

***FTA-ABS = fluorescent treponema antibody absorption

Sexual History

- “Are you sexually active with men, women or both?”
- “In the past year, how many male, female sex partners have you had?”
 - Past 3 months, past 6 months?
- “What type of sex do you have—oral, anal, vaginal?”
 - Penis in your mouth, anus?
 - Your penis in partner’s mouth, anus, vagina?

Syphilis History

- Check city, country or state syphilis registry
- Has a doctor or nurse ever told you that you had syphilis?
- Have you ever been treated for syphilis?
 - Usual treatment is 1 or 2 injections of penicillin in the buttocks, sometimes weekly for 3 weeks

Physical Examination

- General including lymph nodes
- Skin—rule out hair loss (alopecia); rule out rash
- Oropharynx—rule out chancres, mucous patches
- Penis/ scrotum—rule out chancres/ rash
- Anus—rule out *condylomata lata*

Primary syphilis—chancres



Primary syphilis—chancres



anorectal



Secondary syphilis—annular rashes



palms



scrotum

Secondary syphilis



Mucous patches



Condylomata lata

Neurologic examination

- General—including reported visual and auditory function
- Cranial nerve evaluation—rule out oculomotor (III), facial (VII), auditory (VIII) dysfunction
 - Pupillary reaction vs. accommodation
 - Argyll-Robertson pupil
 - Smile
 - Hearing assessment
- Dorsal columns
 - Vibration and position sense
- Gait and balance

Case 1--Findings

- 1 steady female partner, 1 casual male partner 6 months ago, oral sex only
- Prior syphilis test 11 months ago negative
- Asymptomatic
- Normal physical examination

Stage and management

- Early latent syphilis
 - Syphilis acquired in the past year
- Treat for early syphilis
- Test for HIV infection

Early syphilis treatment

- Penicillin G benzathine (Bicillin® L-A)* 2.4 million units (MU) intramuscular (IM) once
- **Penicillin-allergic:**
 - Non-Pregnant:
Doxycycline 100 mg PO BID x 14 days
 - Pregnant:
Test for hypersensitivity, desensitize, treat with penicillin G benzathine 2.4 MU IM once

*Do not substitute Bicillin® C-R for Bicillin® L-A in the treatment of syphilis. Bicillin® C-R is NOT indicated for the treatment of syphilis.



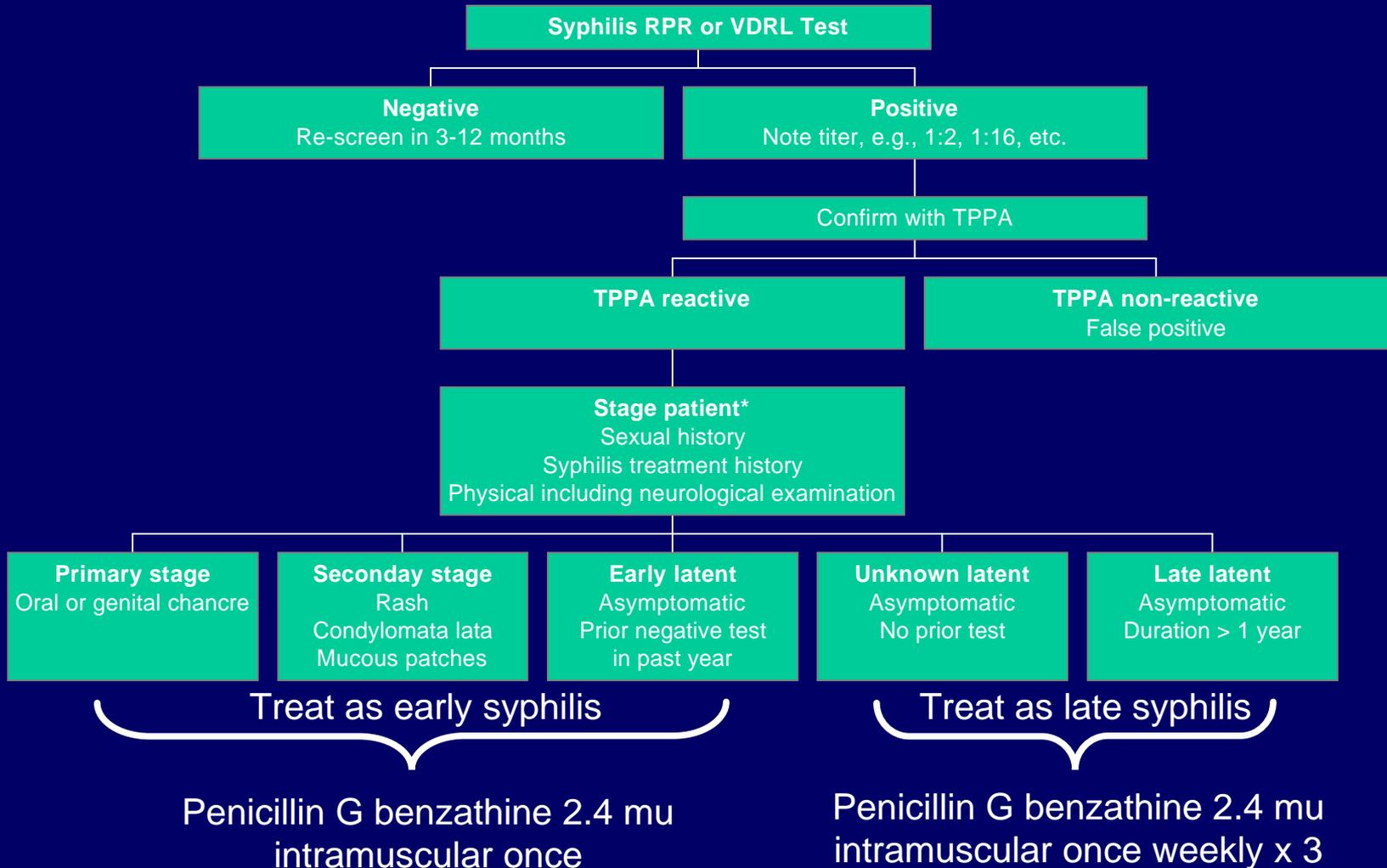
Treatment follow-up

- Repeat serologic tests at 6 and 12 months (more frequently in HIV-infected patients)
 - 4-fold titer decline consistent with cure
 - HIV-infected patients may take longer to observe 4-fold titer decline
- Repeat HIV test at 3 months

Partner management

- Notify, evaluate and provide epidemiologic treatment for recent partners
 - Male partner last sex > 6 months, test then treat
 - Female partner last sex < 3 months, treat and test

Syphilis Management



Case 2—New rash

- 36-year old HIV-infected male restaurant worker complains of rash for 3 weeks
- He noticed red lesions on his wrist and ankles
- Denies itchiness or worsening of rash at night or with warm shower

Evaluation

- Sexual history including medical history
 - History of allergies, new medications, exposures to pets, recent travel, or outdoor activity
- Syphilis history
- Physical and neurologic examination
- Serologic testing
 - Ideally stat RPR
 - Routine RPR (or VDRL) and TPPA (or FTA-ABS)

Macular rash on abdomen



Serology in Secondary Syphilis

- Rare reports of seronegative syphilis
- > 99% of patients will be seroreactive
- If seronegative, consider prozone reaction
 - Excess antibody prevents formation of antigen-antibody complex for test reactivity
 - Order repeat test with 1:10 dilution
- If seronegative, consider skin biopsy

Case 2—Serologic Test Results

RPR* 1:512, TPPA** reactive (FTA-Abs***)

*RPR = rapid plasma reagin

**TPPA = Treponema pallidum particle agglutination

***FTA-Abs = fluorescent treponema antibody absorbed

Case 2—Findings

- 15 casual male partners over the past 6 months, anal and oral sex
 - Frequent methamphetamine use with sex
- Prior syphilis test 6 months ago negative
- Macular body rash, including ankles and wrists; axillary adenopathy
- Normal neurologic examination

Stage and Management

- Secondary syphilis
 - Physical findings c/w syphilis
 - Syphilis likely acquired in the past 6 months
- Manage and treat for secondary syphilis
- Counsel and refer for substance use treatment

Secondary Syphilis Treatment

- **Penicillin G benzathine G 2.4 million units (MU) intramuscular (IM) once (Bicillin® L-A)**
- ***Penicillin-allergic:***
 - Non-Pregnant:
Doxycycline 100 mg PO BID x 14 days
 - Pregnant:
Test for hypersensitivity, desensitize, treat with penicillin G benzathine 2.4 MU IM once



Treatment Follow-up

- Repeat serologic tests for syphilis at 3, 6, 9, and 12 months
- 4-fold decline at 12-months consistent with cure

Partner Management

Secondary Syphilis

- Notify, evaluate and provide treatment for all sex partners in past 6 months
 - Partners > 3 months, test then treat
 - Partners < 3 months, treat and test
- Treat with penicillin G benzathine (Bicillin[®] L-A) 2.4 MU IM once
- ***PCN-allergic:***
 - Non-Pregnant:
Doxycycline 100 mg PO BID x 14 days
 - Pregnant:
Test for hypersensitivity, desensitize, treat penicillin benzathine G 2.4 MU IM once

Syphilis increases HIV viral load and decreases CD4 cell counts in HIV-infected patients with new syphilis infections

Kate Buchacz^{a,b}, Pragna Patel^{a,b}, Melanie Taylor^{c,d}, Peter R. Kerndt^d, Robert H. Byers^b, Scott D. Holmberg^b, Jeffrey D. Klausner^{e,f}

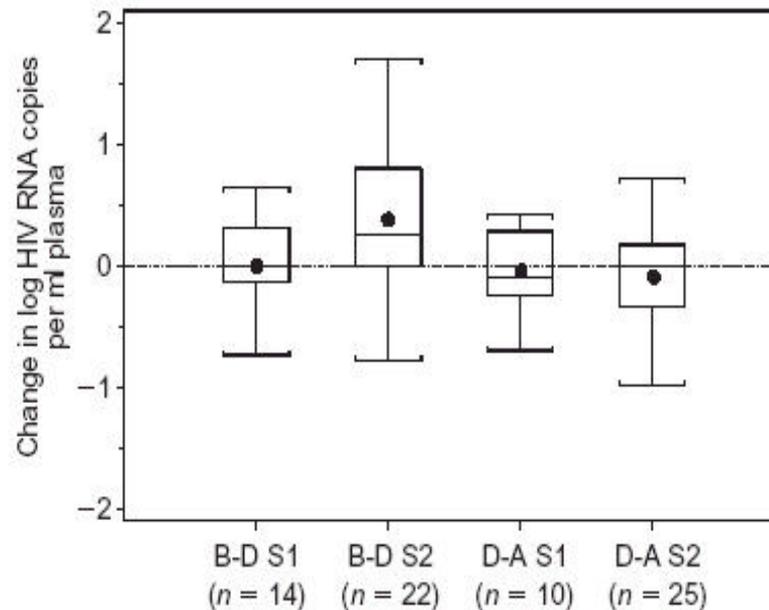


Fig. 1. Changes in HIV viral load associated with syphilis infection and syphilis treatment, according to the stage of syphilis. B-D, 'Before-to-during'; D-A, 'during-to-after'; S1, primary syphilis; S2, secondary syphilis. Boxplots show medians and upper and lower quartiles, whiskers encompass the extent of the data. Means are represented by filled circles.

Case 3—Recent Onset of Hearing Loss

- 24 year old transgender (male to female) complains of 1 week of decreased hearing in left ear
- Denies recent exposure to loud noise, music, trauma
- No headache, ear pain, discharge, or fever

Case 3—Work-up

- Medical and sexual history
- Syphilis history
- Physical and neurologic examination

Case 3—Findings

- Denies recent illness, no new or current medications
- Sexually active with one steady male partner
- Last HIV and syphilis test 3 months ago both negative
- Physical and neurologic examination normal except for decreased hearing left ear

Case 3—Rule Out Neurosyphilis

- Serologic tests for syphilis
- CSF analysis
- No current indication for CT scan or MRI

Case 3—Laboratory Findings

- RPR 1:16, TPPA reactive
- CSF analysis
 - 15 white blood cells/high power field (elevated)
 - Protein = 75 mg/dL (elevated)
 - Glucose = 90 mg/dL (normal range)
 - CSF VDRL = 1:2 (abnormal)

Case 3—Neurosyphilis

- Stage patient as early syphilis—
asymptomatic and infection < 1 year
 - Manage patient and partner for early syphilis
- Treat for neurosyphilis

Neurosyphilis Treatment

- Penicillin G IV 18-24 MU qD (3-4 MU q 4°) x 10-14 days; followed by penicillin G benzathine (Bicillin[®] L-A) 2.4 MU IM weekly x 1-3*
- *Penicillin-allergic:*
Test for hypersensitivity, desensitize, and treat with penicillin G

*Most experts recommend > 1 additional dose

Neurosyphilis Follow-up

- Repeat serologic tests 6 and 12 months
- Repeat CSF analysis at 6 months
 - Recent evidence suggests that 4-fold decline in serologic titer predicts decline in CSF titer (Marra et al., CROI, 2007)

Neurosypphilis and HIV Infection

- Currently neurosypphilis is more common in early infection (< 1 year) than late infection
- Neurosypphilis is more common in HIV-infected than HIV-uninfected patients
 - 2% versus < 1%
- CSF abnormalities may be due to HIV-infection (elevated CSF white blood cell count of protein) versus sypphilis

Indications for CSF analysis*

- 1) Neurologic findings in patients with syphilis including visual or hearing abnormalities
- 2) Syphilis treatment failure
- 3) Tertiary syphilis—cardiovascular, skeletal, etc.
- 4) Late or unknown latent in HIV-infected patients

*Centers for Disease Control and Prevention, 2006 STD Treatment Guidelines, MMWR, 2006. Available at www.cdc.gov/std

Syphilis Prevention

- Ask all patients about sexual activity, specific sexual behaviors, gender of sex partners and substance use
- Screen all sexually active male patients with male partners for syphilis; all pregnant women; and women with male partners at risk for syphilis
 - Local screening recommendations may vary
- Continue screening every 3-6 months in those with new partners or non-monogamous
- Provide risk-reduction counseling and substance use treatment services as indicated

Partner Management in Syphilis

Stage	Partner period	Management
Primary syphilis	< 90 days	Treat* and test
Secondary syphilis	< 6 months	Test and treat, if infected
Early latent syphilis	< 1 year	Test and treat, if infected

*Treat with penicillin G benzathine 2.4 MU IM once

Partner Notification

www.inSPOT.org

An anonymous or confidential STD partner notification system

inSPOT

TELL THEM | GET CHECKED | STD INFO | RESOURCES | TREATMENT

STD | INTERNET NOTIFICATION SERVICE FOR PARTNERS OF TRICKS

ABOUT THIS SITE | CONTACT US

In San Francisco, there's an easy way to tell your sex partners you have an STD. Send them a free inSPOT e-card, ANONYMOUSLY or from your email address, [right here](#).

No information will be reported to any government or private agency. Please respect the community and don't use these cards to spam.

[More About This Site](#) →
[Community Guidelines](#) →

TELL THEM

Tell your tricks, hookups, ex's, boyfriends and partners they may have been exposed to an STD.

GET CHECKED

If you've received an InSpot card, find out where to get screened and if necessary, treated, for an STD.

This site was created by I.S.I.S., Inc., a non-profit group, with funding from the San Francisco Department of Public Health.

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Summary

- Syphilis is increasing in the U.S. mostly in gay men and other men who have sex with men
- Treatment of syphilis requires use of penicillin G benzathine (Bicillin[®] L-A)
 - ***Avoid Bicillin[®] C-R, not indicated for syphilis***
- Prevention efforts must focus on new target populations, addressing meth use and enhanced partner services

Web Resources

- www.cdc.gov/std
- www.ncsddc.org
- <http://depts.washington.edu/nnptc/>
- www.stdhivtraining.org
- www.sfcityclinic.org
- www.PROPSF.org
- www.stdtest.org (SF residents)
- www.inspot.org
- www.bicillin.net

Buck Syphilis

STRENGTH

DETERMINATION

PERSEVERANCE

CONFIDENCE



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Questions?

Ask Dr. Pamplin or Klausner (“Dr. K”)

www.bicillin.net