Syphilis Update: New Presentations of an Old Disease

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Disclosure: Bradley Stoner, MD, PhD

- No relevant financial interests

STDs in the United States
Where do we stand right now?

- Syphilis (P&S) ↑ 19.0% in US
- Gonorrhea ↑ 2.8% in US
- Chlamydia ↑ 5.9% in US

Source: CDC, STD Surveillance 2015

STDs in Iowa - 2015

<table>
<thead>
<tr>
<th>STD</th>
<th>Iowa Cases</th>
<th>Iowa Rate*</th>
<th>US National Average Rate*</th>
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</thead>
<tbody>
<tr>
<td>Syphilis (P&amp;S)</td>
<td>75</td>
<td>2.4</td>
<td>7.3</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>2,247</td>
<td>72.3</td>
<td>123.9</td>
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<tr>
<td>Chlamydia</td>
<td>12,085</td>
<td>388.9</td>
<td>478.8</td>
</tr>
</tbody>
</table>

*per 100,000 pop.

Source: CDC, STD Surveillance 2015
Syphilis - *Treponema pallidum*

Staging of syphilis

- Primary
- Secondary
- Latent
  - Early latent: < 1 year
  - Late latent: > 1 year
- Late (tertiary) - includes neurosyphilis

Primary syphilis

- The first manifestation of infection
- Characterized by development of chancre
- Incubation period
  - average 3 wks. from time of exposure
  - range 9 - 90 days
- Chancre occurs at site of bacterial invasion

Primary syphilis - chancre
Primary syphilis - chancre

Multiple chancre

Primary syphilis - chancre

Chancre of tongue

27. Syphilitic chancre
Secondary syphilis

- Evidence of systemic spread of infection
- Characterized by palmar-plantar rash – other skin and mucous membrane lesions
- Typically develops 3 - 6 weeks following development of primary lesions (chancre)
Secondary syphilis

31. Mucous patches on tongue in secondary syphilis

Condylomata lata

• Unusual presentation of secondary syphilis
  – papular lesions on moist body areas
  – coalescence of multiple discrete lesions
  – hypertrophic, granulomatous, exuberant
  – red-brown/grey, flat-topped, moist
  – postinflammatory pigmentation or depigmentation
Latent syphilis

- Serologic evidence of infection without clinical manifestations
  - positive blood test for syphilis
  - no primary or secondary lesions
  - no evidence of tertiary disease
- Early vs. late latent syphilis
  - early: infection of less than 1 year's duration
  - late: infection of greater than 1 year's duration

Tertiary syphilis

- Neurosyphilis
  - Asymptomatic
  - Meningeal
  - Meningo-vascular
    - Stroke
  - Parenchymatous
    - Long-term mental and physical decline
- Cardiovascular
  - Proximal aortitis
  - Aortic insufficiency
  - Coronary ostial stenosis
- Gummatous
  - Locally destructive lesions anywhere in the body

Parenchymatous neurosyphilis

Cardiovascular syphilis

Cardiovascular syphilis

Gummatous syphilis
Gummatous syphilis

Current trends in syphilis

- High rates among men who have sex with men (MSM)
  - many of whom are HIV+

Syphilis — Rates of Reported Cases by Stage of Infection, United States, 1941–2015

Primary and Secondary Syphilis — Rates of Reported Cases by State, United States and Outlying Areas, 2015

Primary and Secondary Syphilis — Rates of Reported Cases by Sex and Male-to-Female Rate Ratios, United States, 1990–2015

NOTE: Data collection for syphilis began in 1941; however, syphilis became nationally notifiable in 1944. Refer to the National Notifiable Diseases Surveillance System (NNDSS) website for more information: https://wwwn.cdc.gov/nndss/conditions/syphilis/.

NOTE: The total rate of primary and secondary syphilis for the United States and outlying areas (Guam, Puerto Rico, and Virgin Islands) was 7.6 cases per 100,000 population.
Primary and Secondary Syphilis — Reported Cases by Sex, Sexual Behavior, and HIV Status, 31 States*, 2015

* 31 states were able to classify ≥70% of reported cases of primary and secondary syphilis as MSW†, MSM†, or women and ≥70% of cases as HIV-positive or HIV-negative during 2015.

† MSM = men who have sex with men; MSW = men who have sex with women only.

Primary and Secondary Syphilis — Rates of Reported Cases by Age Group and Sex, United States, 2015

Current trends in syphilis

• High rates among men who have sex with men (MSM)
  • many of whom are HIV+

• Rising rates of congenital syphilis

Congenital Syphilis — Reported Cases by Year of Birth and Rates of Primary and Secondary Syphilis Among Women, United States, 2006–2015

CS rates increased 38% over a two-year period

• No prenatal care in 21% of mothers
• Among those receiving prenatal care
  • 7% never tested for syphilis
  • 17% tested negative early in pregnancy, then acquired syphilis
  • 30% inadequately treated

Congenital Syphilis — Rates of Reported Cases by Age Group, United States, 2006–2015

Primary and Secondary Syphilis — Rates of Reported Cases Among Men Aged 15–44 Years, by Age Group, United States, 2006–2015

MMWR
Morbidity and Mortality Weekly Report
November 13, 2015

CS = Congenital syphilis; P&S = Primary and secondary syphilis.
Congenital syphilis

Congenital syphilis prevention

- Screen all women in early pregnancy
- Screen again twice in third trimester “for communities and populations in which the prevalence of syphilis is high, and for women at high risk of infection”
  - Screen at 28-32 weeks
  - Screen again at delivery

Current trends in syphilis

- High rates among men who have sex with men (MSM)
  - many of whom are HIV+
- Rising rates of congenital syphilis
- Increased incidence of ocular syphilis

Ocular (ophthalmic) syphilis

- Increasingly reported among MSM
  - Most common: posterior uveitis / pan-uveitis
  - May also include
    - Anterior uveitis
    - Optic neuropathy
    - Retinal vasculitis
    - Interstitial keratitis

12 cases reported in 3 mos. (Dec. 2014 – Mar. 2015)
- 11 males (92%)
- 10 HIV+ (83%)

Symptoms included
- vision loss
- flashing lights
- blurry vision
Syphilis – other concerns

- Reverse-sequence serologic testing
- Rolling penicillin shortages
Syphilis - treatment

- Early syphilis (primary, secondary, early latent)
  - Benzathine PCN-G 2.4 mU IM x 1 dose

- Late syphilis (> 1 year or unknown duration)
  - Benzathine PCN-G 2.4 mU IM q week x 3 doses

Syphilis – penicillin allergy

- Doxycycline 100mg po bid (or tetracycline 500mg po qid)
  - Treat for 2 weeks for early syphilis
  - Treat for 4 weeks for late syphilis