The 2015 CDC STD Treatment Guidelines for Gonorrhea and Chlamydial Management and The Importance of Time to Treatment

Edward W. Hook III, M.D.
University of Alabama at Birmingham
Medicine, Microbiology and Epidemiology
Birmingham Alabama

CT/GC Infections:
A Few Daunting Facts

Global Prevalence > 140 million infections (GC 36M, CT 104M)

In 2013, the two most common infections reported to the U.S. CDC - over 1.4 million and 333,000 cases of C. trachomatis and N. gonorrhoeae, respectively.

Reported cases comprise 1/2 to 1/3 of true infections.

CT/GC are leading preventable causes of infertility and ectopic pregnancy globally.

The majority of CT/GC cases in men and women are asymptomatic.

Other than age, no historical or personal characteristics successfully identifies persons with C. trachomatis infection.

CT/GC Morbidity

Men & Women: Discharge syndromes (M>F, genital only)
Increase HIV transmission/acquisition risk

Men:
- Complications: Epididymitis, Reactive Arthritis, DGI (Rare)
- Sequelae: Few

Women:
- Complications: PID (10-15%)
  - Abscesses
  - Perinatal transmission
- Sequelae: Infertility
  - Ectopic Pregnancy

Edward W. Hook III, M.D.

Disclosures

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Consultant:
- GSK, Astra Zeneca

Speakers Bureau:
- None

Gonorrhea — Rates of Reported Cases by Sex, United States, 1993–2013

Chlamydia — Rates of Reported Cases by Sex, United States, 1993–2013
A Bacterial STI Treatment Cascade

Entire Community

At Risk

At Risk

Gonorrhea — Rates of Reported Cases by Age and Sex, United States, 2013

<table>
<thead>
<tr>
<th>Age</th>
<th>Rate (per 100,000 population)</th>
<th>Women</th>
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<tr>
<td>0</td>
<td>1.4</td>
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<td>10-14</td>
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<td>55-59</td>
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<td>60+</td>
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<tr>
<td>Total</td>
<td>102.4</td>
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Chlamydia — Rates of Reported Cases by Age and Sex, United States, 2013

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<td>20-24</td>
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<td>25-29</td>
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CT/GC Screening: U.S. Guidelines

Women:
Annual screening - sexually active women <25 yrs.
Older women: risk factor based screening

Men:
Screen high risk MSM (extragenital emphasis)
No other current guidelines

A Bacterial STI Treatment Cascade

Recommend for Testing / Perceived Risk

Infected
**CT/GC Detection Strategies**

**Men:**
- Syndromic Diagnosis
- Following referral as contacts
- Screening (underutilized)

**Women:**
- Screening
- Following referral as contacts
- Syndromic diagnosis (inaccurate)

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**Assessing The Effectiveness of CT/GC Screening**

Screening is an essential part of management and control - most CT/GC infections are asymptomatic

Test performance – no longer an issue

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**Changing Paradigms For Urogenital Specimen Collection**

**Pre-NAAT’s:**
- Specimen Quality Critical
  - Endocervical Or Urethral Swabs
  - Swab Order Impacts Test Results
  - Culture > Non-Amplified Nucleic Acid Detection > Antigen Detection

**NAAT’s:**
- More Forgiving Specimen Collection
  - Vaginal Swab > Endocervical Swab > initial Void Urine

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**Venn Diagrams of Positive NAATs in Urine Specimens from 1386 at Risk Men**

Gaydos et al., JCM 2012

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**A Bacterial STI Treatment Cascade**

**Tested / Diagnosed**

**Recommend for Testing / Perceived Risk**

**Infected**

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**Chlamydia Screening, Sexually Active U.S. Women Enrolled in Health Plans, 2007**

**Goal:** Screen all sexually active women < 25 years of age annually (Healthcare Effectiveness Data & Information Set (HEDIS))

% 16-25 Sexually Active Screened

<table>
<thead>
<tr>
<th>Region</th>
<th>Screened Percentage</th>
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<tbody>
<tr>
<td>Northeast</td>
<td>45.5%</td>
</tr>
<tr>
<td>Midwest</td>
<td>38.5%</td>
</tr>
<tr>
<td>West</td>
<td>45%</td>
</tr>
<tr>
<td>South</td>
<td>37.3%</td>
</tr>
<tr>
<td>United States</td>
<td>41.6%</td>
</tr>
<tr>
<td>Medicaid HMO</td>
<td>50.5%</td>
</tr>
<tr>
<td>Commercial HMO</td>
<td>39.6%</td>
</tr>
</tbody>
</table>

MMWR 58 | 362-365: 2009
A Bacterial STI Treatment Cascade

Receive Dx / Test Result

Tested / Diagnosed

Recommend for Testing / Perceived Risk

Infected

Chlamydia Culture Performance in Women Without Other Indications for Therapy

- Patients with positive screening cultures: 81
- Patients referred elsewhere for therapy: 3
- Patients without documented F/U or therapy: 20/78 (26%)
- PID at F/U: 2/58 (4%)

Interval to treatment (N=58)
- 7 days: 24%
- 14 days: 50%
- 21 days: 60%
- 28 days: 81%

Hook et al. JAMA 1994; 272; 867-70

Time To Treatment Following STD Screening, JCHD STD Clinic

<table>
<thead>
<tr>
<th>Condition</th>
<th>7 days</th>
<th>14 days</th>
<th>21 days</th>
<th>28 days</th>
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</thead>
<tbody>
<tr>
<td>Gonorrhea</td>
<td>28%</td>
<td>18%</td>
<td>54%</td>
<td></td>
</tr>
<tr>
<td>Chlamydia</td>
<td>35%</td>
<td>20%</td>
<td>45%</td>
<td></td>
</tr>
</tbody>
</table>

Schwebke JR et al. Sex Trans Dis 1997

A Bacterial STI Treatment Cascade

Treated

Receive Dx / Test Result

Tested / Diagnosed

Recommend for Testing / Perceived Risk

Infected

C. Trachomatis Treatment: Not All Prescriptions Lead to Treatment

- Of 795 C. trachomatis infected women seen in Family Planning Clinics:
  - 2% had no documented treatment
  - 514 (65%) received direct observed treatment
  - 264 (33%) received prescriptions for treatment
    - Only 67% of prescriptions appear to have been filled

Thus the Verified Treatment Rate was 87%

A Bacterial STI Treatment Cascade

Successfully Treated
Treated
Receive Dx / Test Result
Tested / Diagnosed
Recommend for Testing / Perceived Risk
Infected

Emerging Gonococcal Antimicrobial Resistance – Deja Vu

Pre-1937  Antiseptic Irrigation With Potassium Permanganate, Silver Salts, Mercurochrome
1937     Sulfonamide Therapy
1943     Penicillin Therapy (Mahoney et al)
1944     35% Treatment Failure With Sulfonamides
1972     Penicillin Regimen Increased to 4.8 Million Units Plus Probenecid

GONORRHEA THERAPY – HISTORICAL PERSPECTIVE

Previously Recommended Medications For Gonorrhea Therapy
- Sulfonamides
- Penicillins
- Macrolides
- Tetracyclines
- Aminoglycosides
- Spectinomycin
- Fluroquinolones

2015 CDC STD TREATMENT GUIDELINES
Uncomplicated Gonorrhea

Ceftriaxone 250 mg IM
PLUS
Azithromycin 1.0 g Single Dose or Doxycycline 100 BID x 7d
Even if chlamydia negative

Gonorrhea Treatment – What’s Next

Salvage Therapy:
- Gentamicin 240 IM/ Azithromycin 2.0g PO (IM Administration/Toxicity)
- Gemifloxacin 340 mg/Azithromycin 2.0g PO (GI Toxicity)

On The Horizon:
- Solithromycin
- Delafloxacin
- AZ D0914
- Others

JAMA 2013;309(2):163-170
Neisseria gonorrhoeae Treatment Failure and Susceptibility to Cefixime in Toronto, Canada
Cephalosporin-Resistant Gonorrhea in North America
Recommended
Azithromycin 1.0 g PO
or
Doxycycline, 100 mg PO, BID x 7d

Alternatives
Erythromycin base, 500 mg PO, QID x 7d
Ofloxacin 300 mg PO, BID x 7d, or
Levofloxacin, 500 mg PO, QD x 7

2015 CDC STD TREATMENT GUIDELINES
Chlamydia trachomatis

New U.S. Treatment Guidelines for Gonococal and Chlamydial Infections and the Importance of the Importance of Time to Treatment

1. Despite recent declines in reported cases, chlamydial and gonorrhea (CT/GC) infections remain the 2 most common reportable infections in the U.S.
3. Current screening programs for CT/GC control can be improved through use of a gonorrhea screening “cascade” to identify opportunities for process improvement and more rapid treatment.

A Bacterial STI Treatment Cascade

At Risk

Recommend for Testing / Perceived Risk

Infected

Tested / Diagnosed

Receive Dx / Test Result

Treated

Successfully Treated

At Risk

Recommend for Testing / Perceived Risk

Infected

Tested / Diagnosed

Receive Dx / Test Result

Treated

Successfully Treated