Gonorrhea and Chlamydia Infections: Best Practices for Testing, Treatment, and Partner Treatment

Ina Park, MD, MS
California STD/HIV Prevention Training Center
Associate Professor, Department of Family and Community Medicine, UC San Francisco
Disclosure Information

Ina Park MD, MS

- I have no financial relationships to disclose
- I will discuss off label use of nucleic acid tests
Overview

- Clinical syndromes
- Screening recommendations and diagnostics
- Treatment updates
- Partner treatment
- Retesting and screening
Chlamydia

- **Incidence:** nearly 1.5 million
  - Intracellular bacterium that infects columnar epithelium
  - Incidence highest among adolescents and young adults

- **Causes a range of clinical syndromes**
  - Cervicitis, urethritis, epididymitis, proctitis, PID
  - Majority of infections are asymptomatic
  - Screening essential to prevent complications
Gonorrhea

- **Incidence:** over 350,000 cases

- Causes a range of clinical syndromes
  - Cervicitis, urethritis, epididymitis, proctitis, PID, disseminated infection
  - Often asymptomatic in cervical, oral, and rectal infections
  - Can cause PID and sequelae in women

- Has evolved resistance to multiple classes of antibiotics
Clinical Syndromes
Cervicitis, Urethritis, and PID

*STD Atlas, 1997*
Pharyngitis, Epididymitis, & Proctitis

Mosby *STD Atlas, 1997*
Conjunctivitis

STD Atlas, 1997
Disseminated Gonococcal Infection
Reactive Arthritis
Conjunctivitis, Oligoarthritis, Circinate Balanitis

DOIA Website, 2000
Mosby STD Atlas, 1997
Neonatal Conjunctivitis and Pneumonitis
Screening Recommendations
<table>
<thead>
<tr>
<th>Group</th>
<th>Screening Recommendations</th>
</tr>
</thead>
</table>
| Females             | - < 25 annually, 25+ if at risk  
                      | - Pregnant – first trimester, GC if risk |
| MSM                 | - At least annually  
                      | - Exposed sites: genital, rectal, throat |
| Hetero males        | - High prevalence settings |
| HIV +               | - At least annually  
                      | - All exposed sites |
| Pts on HIV PrEP     | - Every 6 months |
| Post-Tx             | - All patients, 3 months after treatment |

CDC 2015 STD Tx Guidelines [www.cdc.gov/std/treatment](http://www.cdc.gov/std/treatment)  
Plus: Guidelines for HIV care and PrEP
Why screen?

- Highly prevalent
- Frequently asymptomatic
- Reduces transmission
- Prevents complications, such as PID
- HEDIS measure: chlamydia screening in females under 25 years old
- Standard of care
Chlamydia Prevalence Monitoring, Percent Positive for Females of Selected Age Groups, by Health Care Setting, California, 2013

* This venue targets adolescents primarily.

Source: California Department of Public Health, STD Control Branch (excludes data from Los Angeles and San Francisco Infertility Prevention Projects)
Which women over age 25 should be screened?

- Infection with CT or GC in past 2 years
- > 1 sex partner in past 12 months
- New partner in past 3 months
- Concurrency:
  - Belief that a partner in the past 12 months may have had other sex partners at the same time
- Pregnancy
- Contact to STD
- New STD diagnosis
Case Scenario

- 18yo female presents for college physical exam
- You plan to test for gonorrhea and chlamydia.
Case Scenario: 18yo female presents for college physical exam. You plan to test for gonorrhea and chlamydia. What is the optimal GC/CT test in this scenario?

When poll is active, respond at PollEv.com/captc2

Text CAPTC2 to 22333 once to join

Cervical swab for nucleic acid amplification tests (NAAT)

Cervical swab for culture

Urine NAAT

Vaginal swab for culture

Vaginal swab for NAAT
Major conclusions

Nucleic acid amplification tests (NAATs) are recommended for detection of genital tract infections in men and women – with and without symptoms
- highly sensitive and specific compared to culture
- less dependent on specimen collection and handling

Optimal specimen types are:
First catch urine for men
Self collected vaginal swabs from women

NAATs are recommended for: detection of rectal and oropharyngeal infections
- not FDA-approved for rectal or pharyngeal specimens but remain the preferred testing method over culture
Case Scenario

- 18 year male presents for STD screening
- He reports exclusively male partners, 3 in past 6 months, insertive and receptive oral sex, occasionally anal sex, 1 anonymous partner
- Good health, no complaints, h/o GC last year
- Recent HIV test negative last week
- Has had Hepatitis A and B vaccines
What STD screening would you offer this patient?

When poll is active, respond at PollEv.com/captcha2
Text CAPTC2 to 22333 once to join

- Syphilis testing
- Urine NAAT for GC/CT
- Rectal NAAT for GC/CT
- Pharyngeal NAAT for GC
- All of the above

0%
STD Screening for MSM

- HIV
- Syphilis
- Urethral GC and CT
- Rectal GC and CT (if RAI)
- Pharyngeal GC (if oral sex)

- HSV-2 serology (consider)
- Hepatitis B (HBsAg, frequency not specified)
- Hepatitis C (HIV+ MSM at least annually)

Anal Cancer in HIV+ MSM: Data insufficient to recommend routine screening, some centers perform anal Pap and HRA

* At least annually, more frequent (3-6 months) if at high risk (multiple/anonymouse partners, drug use, high risk partners)

CDC 2015 STD Treatment Guidelines
Proportion of MSM* Attending STD Clinics with Primary and Secondary Syphilis, Gonorrhea or Chlamydia by HIV Status†,
STD Surveillance Network (SSuN), 2013

*MSM = men who have sex with men.
† Excludes all persons for whom there was no laboratory documentation or self-report of HIV status.
‡ GC urethral and CT urethral include results from both urethral and urine specimens.
Majority of Rectal Infections in MSM are Asymptomatic

Rectal Infections

- Chlamydia
  - Asymptomatic: 86%
  - Symptomatic: 4%
  - Total: 316

- Gonorrhea
  - Asymptomatic: 84%
  - Symptomatic: 16%
  - Total: 264

Urethral Infections

- Chlamydia
  - Asymptomatic: 42%
  - Symptomatic: 58%
  - Total: 315

- Gonorrhea
  - Asymptomatic: 10%
  - Symptomatic: 90%
  - Total: 364

Kent, CK et al, Clin Infect Dis July 2005
Proportion of CT/GC **MISSED** if screening only performed at urethral site (urine), San Francisco, 2008-2009
n=3398 patient visits

Among asymptomatic MSM

*Marcus et al, STD Oct 2011; 38: 922-4*
### Positivity of Extragenital Screenings (CT/GC) of Diamond Head Health Center STD Clinic MSM Patients October 2014-December 2014

<table>
<thead>
<tr>
<th></th>
<th>Urethral Symptomatic</th>
<th>Urethral Asymptomatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral GC</td>
<td>19% (11/58)</td>
<td>12% (7/58)</td>
</tr>
<tr>
<td>Rectal GC</td>
<td>17% (10/58)</td>
<td>7% (4/58)</td>
</tr>
<tr>
<td>Rectal CT</td>
<td>22% (13/58)</td>
<td>17% (10/58)</td>
</tr>
</tbody>
</table>

*Slide courtesy of Luke Hasty, PhD*
Major conclusions

NAATs recommended for detection of genital tract infections in men and women – with and without symptoms

Optimal specimen types are:
  First catch urine for men
  Self collected vaginal swabs from women

NAATs recommended for: detection of rectal and oropharyngeal infections
  - not FDA-approved for rectal or pharyngeal specimens but remain the preferred testing method over culture
Chlamydia and Gonorrhea NAA Testing - Rectal and Pharyngeal Sites

- Commercially-available NAATs have not been cleared by FDA for these indications
- They can be used by laboratories that have undergone validation procedures and met all regulatory requirements for an off-label procedure
- 2 commercial labs provide GC/CT NAAT for rectal/pharyngeal specimens
- No resistance testing with NAAT

## 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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rectal</strong></td>
<td><strong>Pharyngeal</strong></td>
</tr>
<tr>
<td>LabCorp*</td>
<td>Quest*</td>
</tr>
<tr>
<td>188672</td>
<td>16506</td>
</tr>
<tr>
<td>188698</td>
<td>70051</td>
</tr>
<tr>
<td>188706</td>
<td>188714</td>
</tr>
</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

<p>| | |</p>
<table>
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<tr>
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<tbody>
<tr>
<td><strong>CT detection by NAAT</strong></td>
<td><strong>GC detection by NAAT</strong></td>
</tr>
<tr>
<td>87491</td>
<td>87591</td>
</tr>
</tbody>
</table>

*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.*

*Bolan, CDC webinar March 2011*
What about chlamydia screening among heterosexual men?

- Not routinely recommended
- Consider for certain venues with high prevalence: corrections, STD clinics, teen clinics

CDC Consultation 2006
CT/GC Treatment
Chlamydia Treatment
Adolescents and Adults

**Recommended regimens (non-pregnant):**
- Azithromycin 1 g orally in a single dose
- Doxycycline 100 mg orally twice daily for 7 days

**Recommended regimens (pregnant*):**
- Azithromycin 1 g orally in a single dose
- Amoxicillin 500 mg po TID x 7 days

* Test of cure at 3-4 weeks only in pregnancy

CDC 2015 STD Treatment Guidelines [www.cdc.gov/std/treatment](http://www.cdc.gov/std/treatment)
Chlamydia Treatment
Changes for 2015

**New Alternative Regimen** (non-pregnant):
- Doxycycline (delayed release) 200 mg QD x 7 d
  - Equally efficacious to doxycycline BID, ↓ GI side effects
  - More $$$

**Moved to Alternative Regimen** (pregnant*):
- Amoxicillin 500 mg po TID x 7 days
  - CT persistence documented in vitro after treatment prompted removal from recommended to alternate
Azithromycin versus Doxycycline for Treatment of Urogenital Chlamydia

• RCT comparing azithromycin with doxycycline
• Directly observed treatment of chlamydia among adolescents in youth correctional facilities
• Primary end point was treatment failure at 28 days after treatment initiation
  – Treatment failure determined on basis of NAAT, sexual history, and genotyping of CT strains
• Results: (N=155 in each group)
  – Azithromycin 97% effective
  – Doxycycline 100% effective

Is azithro adequate treatment for rectal chlamydia infection?

<table>
<thead>
<tr>
<th>Population</th>
<th>Treatment</th>
<th>Repeat positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSM in Australia</td>
<td>Azithro 1 g</td>
<td>13%</td>
</tr>
<tr>
<td>(N=85)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSM in Seattle</td>
<td>Azithro 1 g</td>
<td>22%</td>
</tr>
<tr>
<td>(N=407)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(N=95)</td>
<td>Doxy 100 BID x 7</td>
<td>8%</td>
</tr>
</tbody>
</table>

*Based on retrospective uncontrolled observational clinical data: Dummond, Int J STD AIDS 2011; 22:478 and Khosropour, STD 2014; 41:79*
Case Scenario

- 19 year old female
- Asymptomatic, no prior STDs
- STD screening done per clinic protocol
- No known drug allergies

- GC positive
- CT negative
What regimen would you use to treat Gonorrhea?

When poll is active, respond at PollEv.com/captc2
Text CAPTC2 to 22333 once to join

- Cefixime 400 mg PO plus azithromycin 1 gm PO
- Ceftriaxone 250 mg IM
- Azithromycin 2 gm PO
- Ceftriaxone 250 mg IM plus azithromycin 1 gm PO
- Ceftriaxone 125 mg IM plus azithromycin 1 gm PO
Gonorrhea Dual Therapy
Uncomplicated Genital, Rectal, or Pharyngeal Infections

Ceftriaxone 250 mg IM in a single dose

PLUS*

- Regardless of CT test result

Azithromycin 1 g orally (preferred)
or
Doxycycline 100 mg BID x 7 days

CDC 2015 STD Treatment Guidelines
www.cdc.gov/std/treatment
What does dual therapy mean?

- Ceftriaxone and azithromycin administered on the same day
- Preferably simultaneously and under direct observation
What if the patient had a severe ceftriaxone allergy (anaphylaxis)?

- Treat with Levofloxacin 500 mg for 7 days
- Desensitize her so she can be treated with ceftriaxone
- Azithromycin 2 gm PO
- Gemifloxacin 320 mg orally + azithro 2 gm PO
- Gentamicin 240 mg IM + azithro 2 gm PO
What if the patient had a severe ceftriaxone allergy (anaphylaxis)?

- A: Treat with Levofloxacin 500 mg for 7 days
- B: Desensitize her so she can be treated with ceftriaxone
- C: Azithromycin 2 gm PO
- D: Gemifloxacin 320 mg orally + azithro 2 gm PO
- E: Gentamicin 240 mg IM + azithro 2 gm PO

2012 rec
What if the patient had a severe ceftriaxone allergy (anaphylaxis)?

- Treat with Levofloxacin 500 mg for 7 days (A)
- Desensitize her so she can be treated with ceftriaxone (B)
- Azithromycin 2 gm PO (C)
- Gemifloxacin 320 mg orally + azithro 2 gm PO (D)
- Gentamicin 240 mg IM + azithro 2 gm PO (E)

Respond at PollEv.com/captc2 or text CAPTC2 to 22333 once to join, then A, B, C, D, or E.
ALTERNATIVE CEPHALOSPORINS:

- Cefixime 400 mg orally once

**PLUS**

- Dual treatment with azithromycin 1 g (preferred) or doxycycline 100 mg BID x 7 days, regardless of CT

IN CASE OF SEVERE ALLERGY:

- Gentamicin 240 mg IM + azithromycin 2 g PO
  OR
- Gemifloxacin 320 mg orally + azithromycin 2 g PO

Doxy removed as co-treatment (unless azithro allergy)

CDC 2015 STD Treatment Guidelines [www.cdc.gov/std/treatment]
Alternative Urogenital GC Regimens: AVOID MONOTHERAPY

- NIH-sponsored non-comparative randomized trial in adults with urethral or cervical gonorrhea
  1. gentamicin 240 mg IM + azithromycin 2 g PO, or
  2. gemifloxacin 320 mg PO + azithromycin 2 g PO

- Per-protocol efficacy:
  - gentamicin + azithromycin = 100% (202/202)
  - gemifloxacin + azithromycin = 99.5% (198/199)

Kirkcaldy, CID 2014;59:1083-91.
Any downside to the alternative regimens?

<table>
<thead>
<tr>
<th></th>
<th>Gentamicin Regimen</th>
<th>Gemifloxacin Regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Route</strong></td>
<td>IM or IV</td>
<td>Oral</td>
</tr>
<tr>
<td><strong>Nausea</strong></td>
<td>27%</td>
<td>37%</td>
</tr>
<tr>
<td><strong>Vomiting (&lt;1 hour)</strong></td>
<td>3%</td>
<td>7%</td>
</tr>
<tr>
<td><strong>Availability</strong></td>
<td>OK</td>
<td>FDA reported shortage in May 2015</td>
</tr>
<tr>
<td><strong>Volume</strong></td>
<td>Need 6 cc (40mg/cc)</td>
<td></td>
</tr>
</tbody>
</table>
Who needs a test of cure for GC?

- Patients with pharyngeal GC treated with an alternative regimen
  - Obtain test of cure 14 days after treatment, using either culture or NAAT
- Cases of suspected treatment failure (culture and simultaneous NAAT)
- Consider if using non-recommended or monotherapy

CDC 2015 STD Treatment Guidelines [www.cdc.gov/std/treatment](http://www.cdc.gov/std/treatment)
Antibiotic-Resistant Gonorrhea
Neisseria gonorrhoeae causes gonorrhea, a sexually transmitted disease that can result in discharge and inflammation at the urethra, cervix, pharynx, or rectum.

**Resistance of Concern**

N. gonorrhoeae is showing resistance to antibiotics usually used to treat it. These drugs include:
- cefixime (an oral cephalosporin)
- ceftriaxone (an injectable cephalosporin)
- azithromycin
- tetracycline

**Public Health Threat**

Gonorrhea is the second most commonly reported notifiable infection in the United States and is easily transmitted. It causes severe reproductive complications and disproportionately affects sexual, racial, and ethnic minorities. Gonorrhea control relies on prompt identification and treatment of infected persons and their sex partners. Because some drugs are less effective in treating gonorrhea, CDC recently updated its treatment guidelines to slow the emergence of drug resistance. CDC now recommends only ceftriaxone plus either azithromycin or doxycycline as first-line treatment for gonorrhea. The emergence of cephalosporin resistance, especially ceftriaxone resistance, would greatly limit treatment options and could cripple gonorrhea control efforts.

In 2011, 321,849 cases of gonorrhea were reported to CDC, but CDC estimates that more than 800,000 cases occur annually in the United States.

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
<th>Estimated number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gonorrhea</td>
<td>820,000</td>
<td></td>
</tr>
<tr>
<td>Resistance to any antibiotic</td>
<td>30%</td>
<td>246,000</td>
</tr>
<tr>
<td>Reduced susceptibility to cefixime</td>
<td>&lt;1%</td>
<td>11,480</td>
</tr>
<tr>
<td>Reduced susceptibility to ceftriaxone</td>
<td>&lt;1%</td>
<td>3,280</td>
</tr>
<tr>
<td>Reduced susceptibility to azithromycin</td>
<td>&lt;1%</td>
<td>2,460</td>
</tr>
<tr>
<td>Resistance to tetracycline</td>
<td>23%</td>
<td>188,600</td>
</tr>
</tbody>
</table>

Source: The Gonococcal Isolate Surveillance Project (GISP) 5,000 isolates tested for susceptibility in 2011. For more information about data methods and references, please see technical appendix.
Percentage of isolates in which minimal inhibitory concentrations (MICs) of cefixime were 0.25 μg per milliliter or higher, 2005–2011.

Susceptibility to cefixime was not tested in 2007 or 2008. From the Gonococcal Isolate Surveillance Project.
Figure 26. Neisseria gonorrhoeae — Percentage of Isolates with Elevated Ceftriaxone Minimum Inhibitory Concentrations (MICs) (≥0.125 μg/ml), Gonococcal Isolate Surveillance Project (GISP), 2006–2014
Neisseria gonorrhoeae — % of Urethral Isolates with Elevated Ceftriaxone Minimum Inhibitory Concentrations (MICs) ($\geq 0.125 \mu g/ml$) by Reported Sex of Sex Partner, Gonococcal Isolate Surveillance Project (GISP) 2007–2014

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

*MSM* = men who have sex with men; *MSW* = men who have sex with women only.
Figure 28. *Neisseria gonorrhoeae* — Distribution of Azithromycin Minimum Inhibitory Concentrations (MICs), Gonococcal Isolate Surveillance Project (GISP), 2010–2014

![Histogram showing the distribution of MICs for *Neisseria gonorrhoeae* from 2010 to 2014.](image-url)
Cephalosporin Treatment Failures

• Oral cephalosporin treatment failures reported worldwide
  – Japan, Hong Kong, England, Austria, Norway, France, South Africa, and Canada

• Ceftriaxone treatment failures in pharyngeal gonorrhea and a few isolates with high-level ceftriaxone resistance reported
Azithromycin Treatment Failure in California

NOTE

Failure of Azithromycin 2.0 g in the Treatment of Gonococcal Urethritis Caused by High-Level Resistance in California

Severin O. Gose, DrPH,* Olusegun O. Soge, PhD,† James L. Beebe, PhD,‡ Duylinh Nguyen, MPH,* Juliet E. Stoltey, MD, MPH,§ and Heidi M. Bauer, MD, MPH§

Abstract: We report a treatment failure to azithromycin 2.0 g caused by a urethral Neisseria gonorrhoeae isolate with high-level azithromycin resistance in California. This report describes the epidemiological case investigation and phenotypic and genetic characterization of the treatment failure isolate.

index patient was treated with ceftriaxone 250 mg IM, which he tolerated well with no allergic reaction. On day 14, the index patient reported improvement in his symptoms.

The isolate’s presumptive identification was confirmed by the San Francisco Department of Public Health Laboratory based on NAAT (Aptima Combo 2; Hologic Inc, Bedford, MA) and a species-specific biochemical test (API NH; BioMérieux

Suspected GC Treatment Failure

TEST WITH CULTURE AND NAAT:
- If GC culture not available, call your local health department

REPEAT TREATMENT:
- Gemifloxacin 320 mg + AZ 2g OR Gentamicin 240 mg IM + AZ 2g
- If reinfection suspected, repeat treatment with CTX 250 + AZ 1g

REPORT:
- To your local health department within 24 hours

TEST AND TREAT PARTNERS:
- Treat all partners in last 60 days with same regimen

TEST OF CURE (TOC):
- TOC 7-14 days with culture (preferred) and NAAT
Partner Treatment

It takes two (or more) to tango…
Partner Management

- Clinical evaluation is first-line option
  - Partner should be examined and counseled and treated for STD of exposure
CT/GC Partner Management Options:

All sexual contacts in past 60 days need treatment

- Health department referral
- Provider or clinic-based referral
- Expedited partner treatment (EPT)

Patient referral

- Suggest patient bring partner to clinic for concurrent treatment (“CPPT”)
- Ask patient to notify partner and ensure treatment
- Internet-based anonymous notification
Sexually Transmitted Diseases (STDs)

Sexually Transmitted Diseases

Diseases & Related Conditions
Life Stages and Populations
Laboratory Information
Prevention
Publications & Products
Program Management & Evaluation Tools
Projects & Initiatives
Data & Statistics
Training
Treatment
STD Tx App
Expedited Partner Therapy
- Gonorrhea Guidance
- Legal Status of EPT
- Additional Resources
- Archive
About the Division of STD Prevention

Sexually Transmitted Diseases > Treatment

Expedited Partner Therapy

Expedited Partner Therapy (EPT) is the clinical practice of treating the sex partners of patients diagnosed with chlamydia or gonorrhea by providing prescriptions or medications to the patient to take to his/her partner without the health care provider first examining the partner.

Review and Guidance
- Guidance on the Use of Expedited Partner Therapy in the Treatment of Gonorrhea (November 19, 2012)
- Expedited Partner Therapy in the Management of Sexually Transmitted Diseases (February 2, 2006)

Effective clinical management of patients with treatable sexually transmitted diseases (STDs) requires
The Effectiveness of Expedited Partner Treatment on Re-Infection Rates

**GONORRHEA**
- Usual Care: 11%
- EPT: 3%

**P = .02**

**CHLAMYDIA**
- Usual Care: 13%
- EPT: 11%

**P = .17**

Legal Status of EPT in the U.S.

38 states are Permissible.
8 states are Uncertain.
4 states are Prohibited.

CDC EPT Legal Status Updated June 2015

www.cdc.gov/std/ept
EPT for GC

Is DUAL oral treatment adequate for pharyngeal GC?

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N</th>
<th>% w Repeat Positive Test</th>
<th>Study Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceftriaxone IM dual tx</td>
<td>62</td>
<td>11</td>
<td>Seattle STD pts</td>
</tr>
<tr>
<td>Oral ceph + azithro</td>
<td>115</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Oral ceph only</td>
<td>57</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Oral ceph + doxy</td>
<td>42</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceftriaxone IM</td>
<td>33</td>
<td>9</td>
<td>UK GUM pts</td>
</tr>
<tr>
<td>Cefixime + azithro</td>
<td>24</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Cefixime alone +/- doxy</td>
<td>31</td>
<td>19</td>
<td></td>
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</tbody>
</table>

Based on retrospective uncontrolled observational clinical data.
Estimates inflated since re-infection not ruled out.
Concurrent Patient and Partner Treatment (CPPT)

- N=241 pregnant women with CT or GC
  - 45 received CPPT
  - 196 standard patient referral
- CPPT recipients less likely to have a positive TOC (OR = 0, p<0.001) or repeat infection (OR=0, p <0.12)
- No repeat infections among CPPT group compared to 19 infections in standard referral group

Mmeje et al. STD 2012
Online Anonymous Partner Referral

Patients use website to notify partners:
- anonymous
- free
- referrals for testing

inspot.org

sotheycanknow.org

dontspreadit.com
CT Partner Management Strategies Used in California Family Planning Clinics

- Patient Referral: 54%
- Concurrent Patient and Partner Tx (CPPT): 14%
- Patient-Delivered Partner Treatment (PDPT): 20%
- None/Unknown: 12%

N=743 female patients

Partner Management: Take home points

Clinical evaluation first-line option
Concurrent patient-partner therapy can be effective for those with one primary partner
Offer expedited partner treatment (EPT) CT/GC if partner cannot be promptly treated
  – Use of prepackaged medication is recommended
  – Dual therapy (cefixime 400 mg + azithromycin 1 g) is crucial if EPT is used for GC
  – CDC recommends EPT for heterosexuals

CDC 2015 STD Treatment Guidelines: www.cdc.gov/std/treatment
CT/GC Partner Management Strategies

Gaps:
- Not eliciting all partners
- Patient referral

What works:
- Individualized partner treatment options
- Asking client to bring partner to clinic (concurrent patient-partner therapy)
- Patient-delivered partner treatment (PDPT)
CT/GC Retesting for Repeat Infection
Case Scenario

- 18yo female seen in follow up for screening results
- Vaginal swab NAAT positive for chlamydia
- She receives appropriate treatment with Azithromycin 1 gm
- She wants to stay with her partner who she uses condoms with most of the time
- She says its “possible” he may have other partners
Partner with (Possible) Other Partners
Risk for CT among Young Women

Question: “At anytime within the past 12 months, did any of your male partners have sex (of any type) with someone else while they were still in a sexual relationship with you?”

Client Answers:

- "Yes, definitely" or "Not sure, it is possible"
- "No, very unlikely"

<table>
<thead>
<tr>
<th>Age</th>
<th>% CT-Positive</th>
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<tbody>
<tr>
<td>&lt;20</td>
<td>11.1%</td>
</tr>
<tr>
<td>21-25</td>
<td>6.3%</td>
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<tr>
<td>26-30</td>
<td>7.4%</td>
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<td>21-25</td>
<td>2.7%</td>
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<td>26-30</td>
<td>5.1%</td>
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<td>26-30</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

Data source: D. Fine (Region X IPP adolescent data, 2010) and H. Howard “The Over 20 Study” (Adult data, 2003-2005): self-reported answers on sexual history forms completed by patients at clinical intake in 9 Title X-funded family planning clinics across CA.
When should she return for follow-up after CT treatment?

- One week for test of cure
- Three weeks for test of cure
- Three months for retesting
- One year for annual exam
- Not sure

When poll is active, respond at PollEv.com/captc2
Text CAPTC2 to 22333 once to join
Repeat Chlamydial Infection is Common among Females

Repeat Infection Increases the Risk of PID and Ectopic Pregnancy

CT Positivity Higher for Repeat Testing Compared with Screening, California FP clinics

Source: Family PACT and Quest Diagnostics data, 2008-09
Prepared by: CDPH STD Control Branch
Testing after an STD infection

- Women who test positive for CT/GC, or *trichomonas* should be rescreened three months following treatment.

- Men who test positive for chlamydia or gonorrhea should be rescreened at three months after adequate therapy.

- All patients with a bacterial STDs or trichomona should be tested for other STDs including CT/GC, syphilis, and HIV
She returns in a month for a URI visit. Is it ok to re-test her?

When poll is active, respond at PollEv.com/captc2
Text CAPTC2 to 22333 once to join

- Yes, she should have cleared her CT by now
- No, it's too early, she could have a false positive result
- BNot sure

0%
How soon can I retest for CT/GC?

- Need to wait at least **3 weeks** for CT to clear
- GC clearance is generally thought to be 1 week, but possibly up to 2 weeks for pharyngeal infection
- 3 months is the target, but retest opportunistically whenever patient returns in the next 1-12 months

CDC 2015 STD Tx Guidelines, [www.cdc.gov/std/treatment](http://www.cdc.gov/std/treatment)
Retesting Rates in California FP Clinics

- Only 36% of women treated for CT are retested within 6 months of treatment.
- BUT, another 24% returned to clinic but were not retested.
- These are missed opportunities!

Source: Chow J. FPACT Data, FY11-12
Strategies for Improving Retesting

- Policies & protocols; QI
- Express retesting visits
- Home-based testing
- Trigger questions on intake, history, & exam forms
- Standing orders
- Client-centered strategies

How can we get clients back in for retesting?

- Counseling at treatment visit
- Written materials
- Advance appointments
- Traditional reminder systems (telephone and postcards)
- Text message and/or email reminders

InTouch Retesting Study:
Patients’ selection of retest reminder options

- Text and/or Email only: 73%
- Postcard plus Text/Email: 8%
- Postcard only: 9%
- No Reminder: 10%

Client interview response:
“(Getting chlamydia) was a scary situation for me and being given these different options made me feel like I was more in control.”

H. Howard, STDCB, CDPH
N=774 clients in 6 clinics in 2 PP agencies, 2012-2013
It's been 2.5 months. Time for your retest. Call the Lloyd Health Center at 5551234567 to schedule an appt or to find out if you can just drop in.

Appointment and STI Retest Reminders

For more information: providers@bedsider.org
CT/GC Management in a Nutshell...

- **Screen**
- **Treat**
  - Clients (& offer HIV test)
  - Partners
- **Screen**
  - 3 months
Thank you!!

Contact information
ina.park@cdph.ca.gov