

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

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## 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.

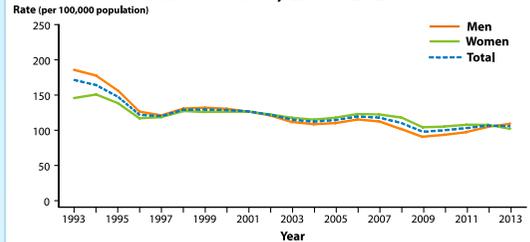
Reported cases comprise 1/2 to 1/3 of true infections.

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

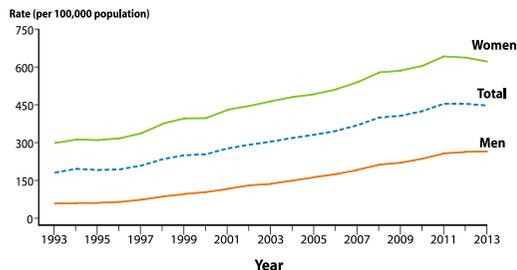
The majority of CT/GC cases in men and women are asymptomatic

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

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



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



NOTE: As of January 2000, all 50 states and the District of Columbia have regulations that require the reporting of chlamydia cases.



## 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

## A Bacterial STI Treatment Cascade

Entire Community

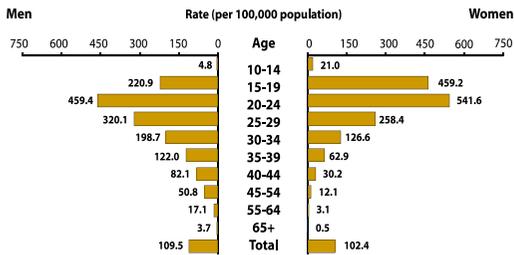
At Risk

## A Bacterial STI Treatment Cascade

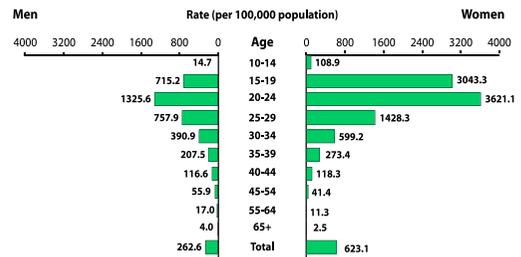
Infected

At Risk

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



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



## 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)

## Assessing The Effectiveness of CT/GC Screening

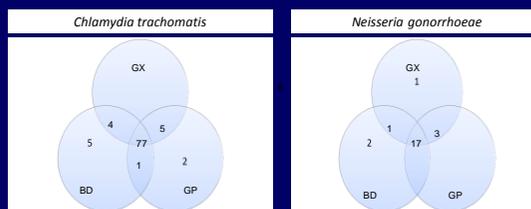
Screening is an essential part of management and control- most CT/GC infections are asymptomatic

Test performance – no longer an issue

## 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

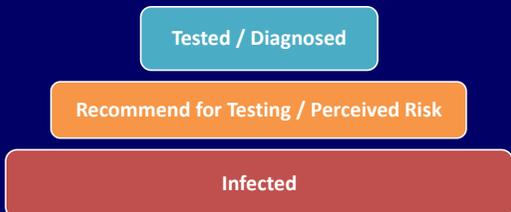
## Venn Diagrams of Positive NAATs in Urine Specimens from 1386 at Risk Men



GX = GeneXpert; BD = Becton Dickinson Probe Tec ET; GP = Gen-Probe Aptima Combo 2

Gaydos et al., JCM 2012

## A Bacterial STI Treatment Cascade



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

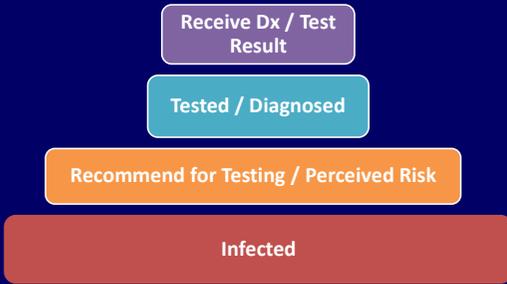
Goal: Screen all sexually active women < 25 years of age annually (Healthcare Effectiveness Data & Information Set (HEDIS))

% 16-25 Sexually Active Screened

Northeast	45.5%
Midwest	38.5%
West	45%
South	37.3%
United States	41.6%
Medicaid HMO	50.5%
Commercial HMO	39.6%

MMWR 58 ; 362-365; 2009

## A Bacterial STI Treatment Cascade

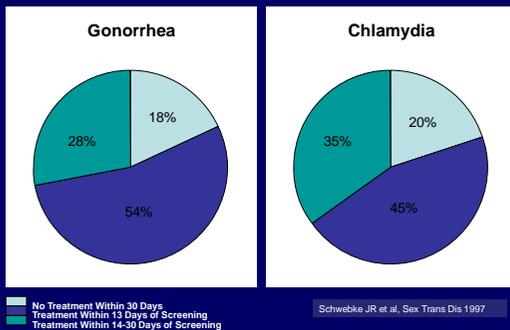


## Chlamydial Culture Performance in Women Without Other Indications for Therapy

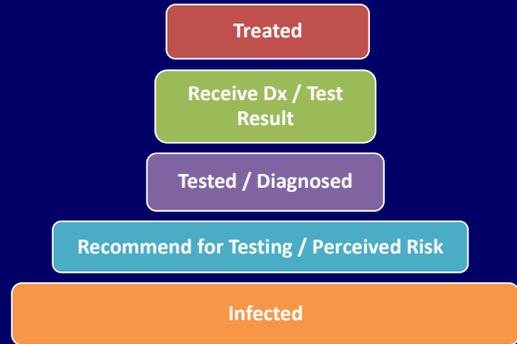
Patients with positive screening cultures	81
Patients referred elsewhere for therapy	3
Patients without documented F/U or therapy (26%)	20/78
PID at F/U	2/58 (4%)
Interval to treatment (N=58)	
7 days	24%
14 days	50%
21 days	60%
28 days	81%

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

## Time To Treatment Following STD Screening, JCHD STD Clinic



## A Bacterial STI Treatment Cascade



Supplement to  
Centers for Disease Control and Prevention  
**MMWR**  
Morbidity and Mortality Weekly Report  
Recommendations and Reports / Vol. 64 / No. 3  
June 5, 2015

### Sexually Transmitted Diseases Treatment Guidelines, 2015

## C. Trachomatis Treatment: Not All Prescriptions Lead to Treatment

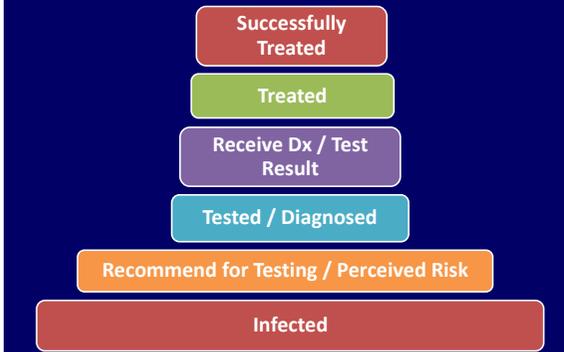
Of 795 *C. trachomatis* infected women seen in Family Planning Clinics:

- 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%

Douglas L, Feldman C, Baker S, et al. Sex Trans Dis. 2014. V 41 (S1), pp 537-8.

## A Bacterial STI Treatment Cascade



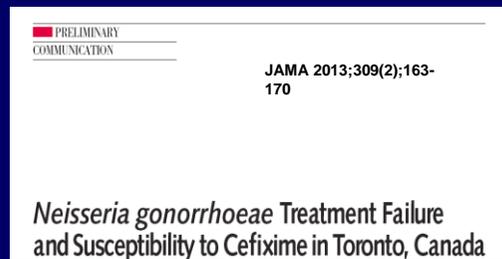
## Emerging Gonococcal Antimicrobial Resistance – Deja Vu

Pre-1937	Antiseptic Irrigation With Potassium Permanganate, Silver Salts, Mercurochrome
1937	Sulfonamide Therapy
1943	Penicillin Therapy (Mahoney <i>et al</i> )
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



## Cephalosporin-Resistant Gonorrhea in North America

## 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

## 2015 CDC STD TREATMENT GUIDELINES

### *Chlamydia trachomatis*

#### 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

## New U.S. Treatment Guidelines for Gonococcal 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.
2. Progressive development of antimicrobial resistance threatens current approaches to gonorrhea treatment.
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



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