Managing Prevalent and Problematic Sexually Transmitted Infections

Association of Reproductive Health Professionals
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Expert Medical Advisory Committee

Name	Disclosure
Charlotte Gaydos, DrPH, MPH, MS (Planner/Instructor)	Speaker bureau for Hologic, Inc.; Becton, Dickinson and Company; Abbott Laboratories; and Cepheid. Research funds from Hologic, Inc.; Becton, Dickinson and Company; Abbott Laboratories; Cepheid; and Roche
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Learning Objectives

- Identify populations at risk and women who are recommended for screening, and recommend appropriate screening assays for trichomoniasis, genital herpes, gonorrhea, and chlamydial infection
- Identify populations who require diagnostic laboratory testing and recommend the appropriate tests for trichomoniasis, genital herpes, gonorrhea, and chlamydial infection

more…

Learning Objectives (continued)

- Integrate CDC-recommended treatment guidelines for trichomoniasis, genital herpes, gonorrhea, and chlamydial infection into clinical practice
- Increase the use of effective strategies for patient counseling and prevention education to reduce the transmission and prevent reinfection with trichomoniasis, genital herpes, gonorrhea, and chlamydia

Case 1: Trichomoniasis in Pregnancy

Case Study: Carly

- 28-year-old G3 P1102
- 30 weeks
- Malodorous discharge
- Good fetal movement

Carly: Obstetric and Gynecologic History

- 1 term and 1 preterm delivery
- Last Pap test 1 year ago
- Trichomoniasis 2 years ago

Carly: Physical Exam

- Moderate amount of vaginal discharge
- Redness of vaginal mucosa and cervix
- Normal fetal heartbeat

Carly: Lab Results

- Vaginal pH: 5.0
- Microscopic ferning: negative
- Fetal fibronectin: negative
- Wet prep shows many white blood cells and a few clue cells; negative for yeast and trichomonas

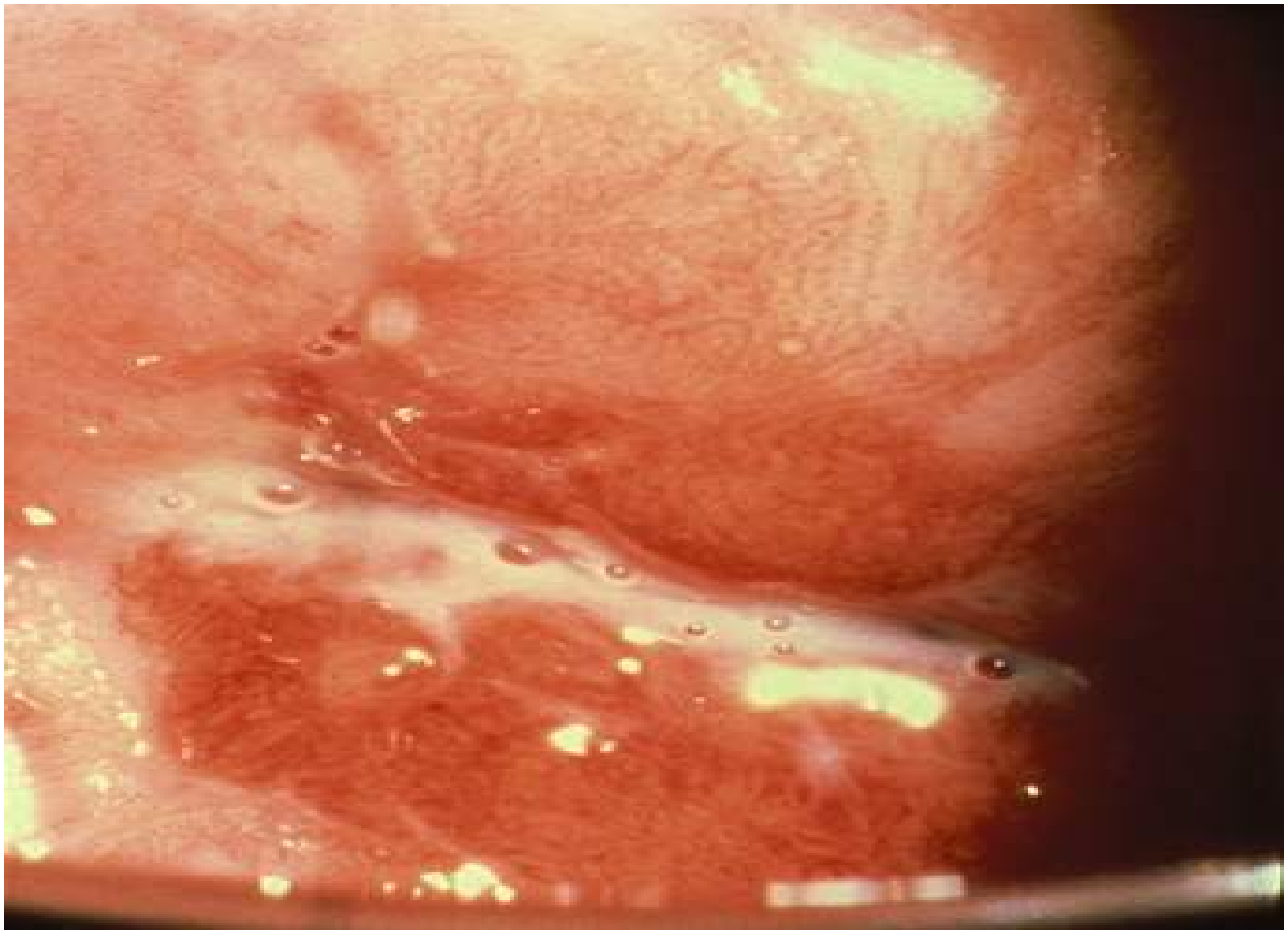
Riedewald S. *J Perinat Med.* 1990

Carly: Differential Diagnosis

- Yeast infection
- Trichomoniasis
- Bacterial vaginosis
- Normal vaginal discharge associated with pregnancy

ACOG. *Obstet Gynecol.* 2006; Cotch MF. *Sex Transm Dis.* 1997; Moodley P. *Clin Infect Dis.* 2002; Schwebke JR. *Clin Microbiol Rev*. 2004.

Trichomonas vaginalis



Seattle STD/HIV Prevention Training Center. The practitioner's handbook for the management of sexually transmitted diseases. 2013.

Trichomoniasis Testing Options

- Wet prep
- Culture
- Point-of-care tests (e.g., OSOM, Affirm)
- Nucleic acid amplification tests (NAATs)

Bachmann LH. *Clin Infect Dis.* 2011; Gaydos CA. 29th Clinical Virology Symposium. 2013; Ginocchio CC. *J Clin Microbiol*. 2012; Schwebke JR. *J Clin Microbiol*. 2011; CDC. *MMWR Recomm Rep.* 2010.

Comparison of Testing Options

Method	Sensitivity	Specificity
Wet prep	55–65%	100%
Culture	75%	100%
POCT	>83%	>97%
TMA	97%	100%

Briselden AM. *J Clin Microbiol.* 1994; Demeo LR. *Am J Obstet Gynecol.* 1996; Huppert JS. *J Clin Microbiol.* 2005; Nye MB. *Am J Obstet Gynecol.* 2009.

Carly: Test Result

- Vaginal swab NAAT positive for *T. vaginalis*

Who Should Be Tested?

- Symptomatic women
- Asymptomatic women at risk:
  - New partner
  - Multiple partners
  - History of sexually transmitted infections (STIs)
  - Sex work
  - Injection drug use

CDC. *MMWR Recomm Rep.* 2010; Bachmann LH. *Clin Infect Dis.* 2011

Rationale for Treating Trichomoniasis

Relieve symptoms

Reduce risk of preterm labor and low birth weight

Reduce HIV shedding in HIV-infected women

Coleman JS. *Obstet Gynecol Survey.* 2013; Cotch MF. *Sex Transm Dis.* 1997; Kissinger P. *Sex Transm Dis.* 2009; Kissinger P. *Sex Transm Infect.* 2013; Van der Pol B. *J Infect Dis.* 2008.

Treatment of Trichomoniasis

Metronidazole, 500 mg; four tablets in a single dose
Tinidazole, 500 mg po; four tablets in a single dose
Metronidazole, 500 mg po; one tablet twice daily for 7 days*

*Also effective for bacterial vaginosis

ACOG. *Obstet Gynecol.* 2006; CDC. *MMWR Recomm Rep.* 2010.

Trichomoniasis Treatment in Pregnancy and Breastfeeding

- Metronidazole:
  - 2 g in single dose
  - Withhold breastfeeding during treatment and 12–24 h after dose
- Tinidazole:
  - Withhold breastfeeding during treatment and 3 days after dose

Burtin P. *Am J Obstet Gynecol.* 1995; Caro-Paton T. *Br J Clin* Pharmacol. 1997; Kigozi GG. *Am J Obstet Gynecol*. 2003; Klebanoff MA*. N Engl J Med*. 2001; Piper JM. *Obstet Gynecol.* 1993; CDC. *MMWR Recomm Rep.* 2010.

Trichomoniasis: Partner Treatment

- Partners must be treated
- Metronidazole, 2 g, in a single dose
- Abstain from sex until therapy is completed and both partners are asymptomatic

CDC. *MMWR Recomm Rep.* 2010.

Role of Rescreening

119 women tested positive for *T. vaginalis* at baseline; of the 100 tested 3 months later,

16.5%

tested positive for *T. vaginalis*

Bachmann LH. *Clin Infect Dis*. 2011; Peterman TA. *Ann Intern Med*. 2006; Schmid G. *J Reprod Med.* 2001; Schwebke JR. *Antimicrob Agents Chemother.* 2006; CDC. *MMWR Recomm Rep.* 2010.

Carly: Follow-up

A. Completed treatment

B. Healthy female child delivered at 39 weeks

C. Rescreening at 3 months is negative

CDC. *MMWR Morb Mortal Wkly Rep.* 2011.

Case 2: Recurrent Genital Herpes

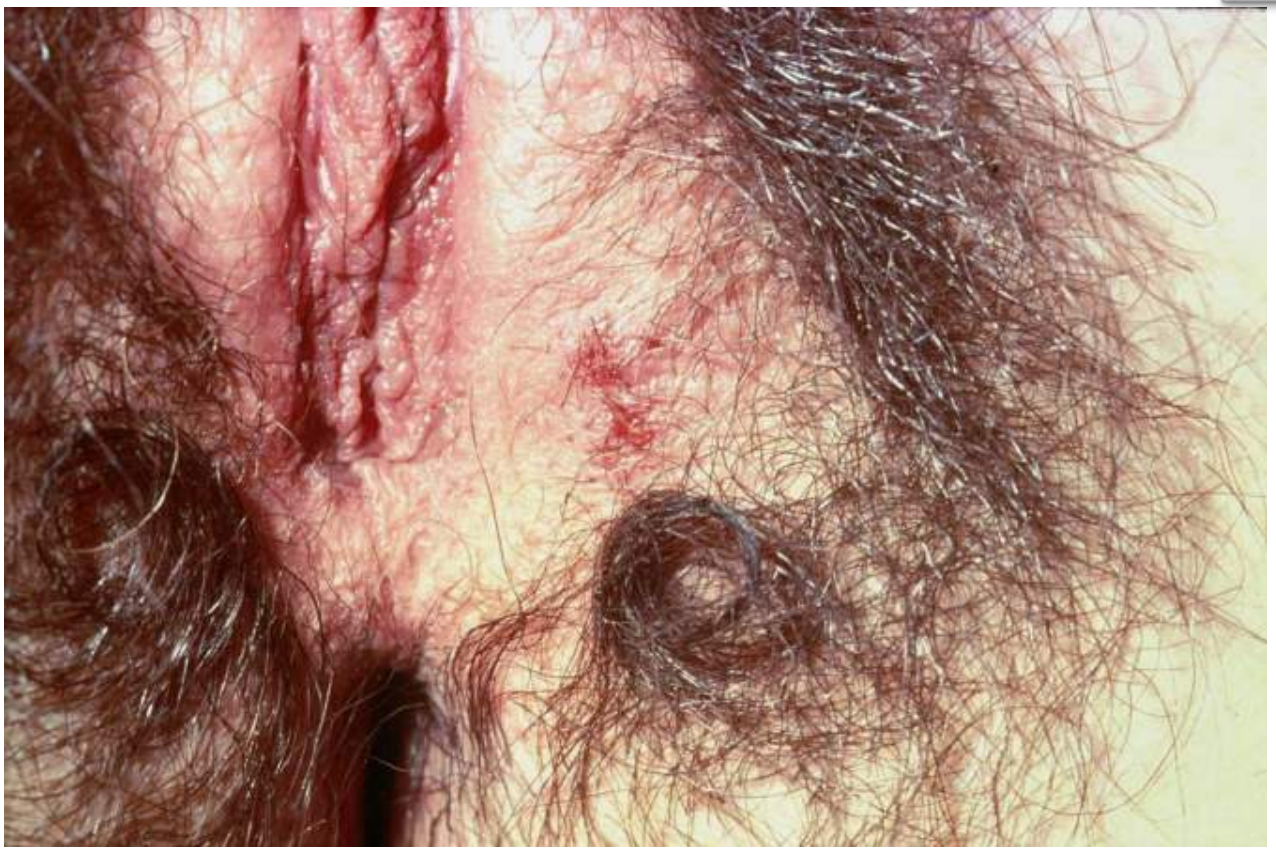
Case Study: Julia

- 30-year-old G1 P0010
- Pregnancy terminated age 18
- No current complaints
- COC is only medication
- Ibuprofen used prn

Julia: Sexual History

- Onset of sexual activity at age 16
- 15 to 20 lifetime partners
- Single partner for last 6 months
- Several STIs before age 25; none in past 5 years
- Periodic vulvar itching

Julia: Physical Exam



Handsfield H. Color atlas and synopsis of sexually transmitted diseases. 2011.

Julia: Differential Diagnosis

- Genital herpes
- Syphilis
- Vulvar pruritus with excoriation
  - Excoriated scabies
  - Fungal infection
  - Chemical sensitivity
  - Idiopathic

Herpes Simplex Virus

- Mucocutaneous infection with recurrences
- HSV-1
  - Mostly orolabial (cold sores, fever blisters)
  - Now 50–60% of initial genital herpes
- HSV-2
  - Causes >90% of recurrent genital herpes
  - Almost entirely genital
  - 10–50% age ≥30 are infected

Bernstein D. *Clin Infect Dis.* 2013; Engelberg R. *Sex Transm Dis.* 2003; Kimberlin DW. *N Engl J Med.*2004; Whitley R. *Clin Infect Dis.* 2013; Xu F. *JAMA.* 2006.

HSV Testing Options

Virologic testing

- Culture
- NAAT (e.g., PCR)

Serologic testing

- ELISA
- POCT
- Western blot

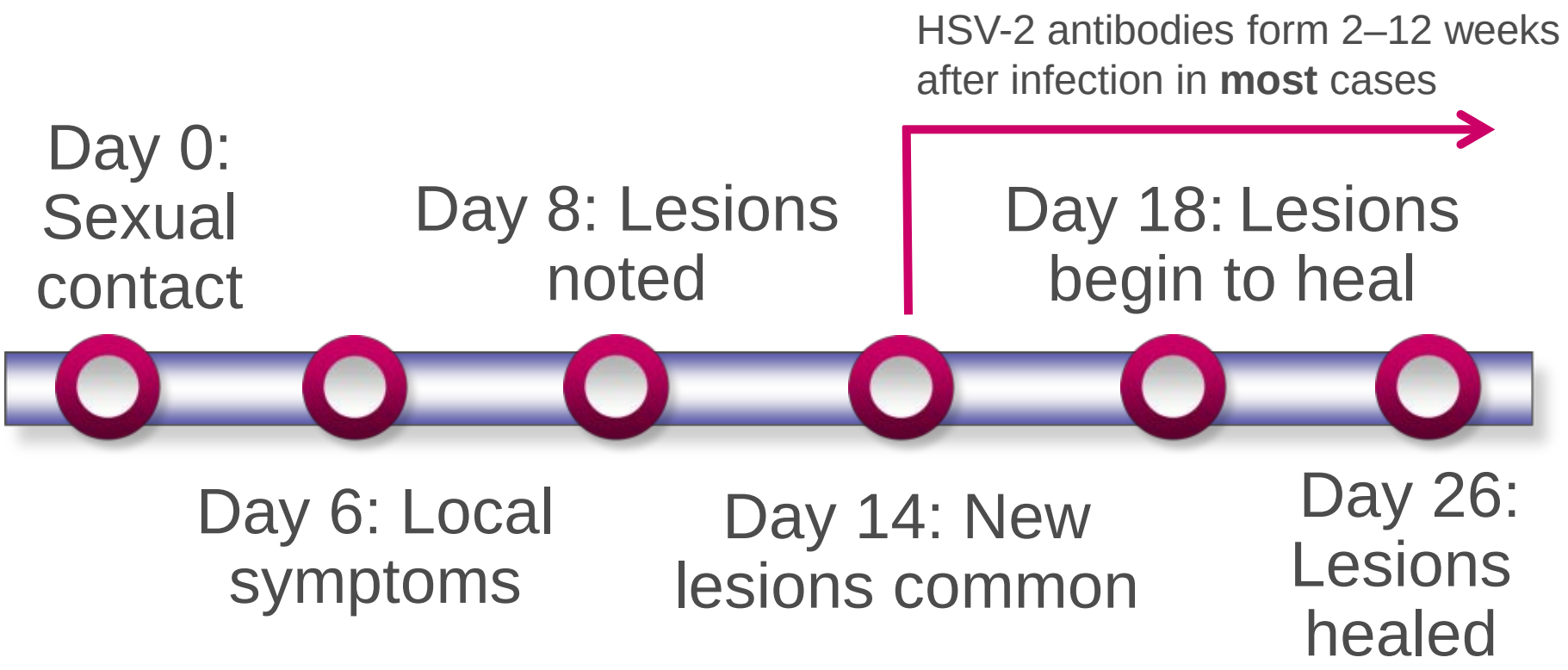
Network of STD/HIV Prevention Training Centers. Core curriculum. 2012; Strick LB. *Mol Diagn Ther.* 2006; Van Der Pol B. *J Clin Microbiol.* 2012; Van Wagoner NJ. *Curr Infect Dis Rep* 2012; CDC. *MMWR Recomm Rep.* 2010.

Guidance for Testing

- Test all genital lesions
  - NAAT (preferred)
  - Culture (if NAAT unavailable)
- Serology
  - If NAAT and culture not performed or negative
  - Selected sexual partners
  - Selective screening of individuals at risk

Kimberlin DW. *N Engl J Med.* 2004; Van Der Pol B. *J Clin Microbiol.* 2012; Van Wagoner NJ. *Curr Infect Dis Rep.* 2012; CDC. *MMWR Recomm Rep.* 2010.

Timeline of Primary HSV-2 Infection



Ashley RL. *J Clin Microbiol.* 1999; Ashley-Morrow R. *Sex Transm Dis.* 2003; Bernstein D. *Clin Infect Dis.* 2013; Kimberlin DW. *N Engl J Med.* 2004; US Preventive Services Task Force. 2005.

Julia: Diagnostic Testing

- HSV culture of lesion
- Vaginal swab NAAT for gonorrhea and chlamydia
- pH, amine, wet mount, and KOH prep of vaginal discharge
- Serologies for HSV, HIV, syphilis (RPR)

Interpretation of Lab Results

Virologic testing (culture or NAAT)	• Diagnosis; all genital ulcers should be tested • Determine HSV type
Serologic testing	• Previous exposure • Diagnosis • Screening individuals at risk

Ashley RL. *Clin Microbiol Rev.* 1999; Beauman JG. *Am Fam Physician.* 2005; Van Wagoner NJ. *Curr Infect Dis Rep.* 2012.

Julia: Test Results

- HSV-2 IgG antibody positive (ELISA ratio, 4.4)
- HSV-1 serology negative
- HSV culture negative
- All other studies negative

Beauman JG. *Am Fam Physician.* 2005; Benedetti J. *Ann Intern Med.* 1994; Van Wagoner NJ. *Curr Infect Dis Rep.* 2012.

Treatment of Recurrent Genital Herpes

- Suppression
  - Reduces frequency of outbreaks and viral shedding
  - Decreases transmission risk
- Self-initiated episodic therapy
  - May speed healing of outbreaks

CDC. *MMWR Recomm Rep.* 2010.

Suppression Therapy for Recurrent Genital Herpes

Acyclovir, 400 mg po, twice daily
Valacyclovir, 500 mg po, once daily
Valacyclovir, 1 g po, once daily*

*Recommended for patients with frequent outbreaks and preferred by some experts for all patients.

CDC. *MMWR Recomm Rep.* 2010.

Episodic Therapy for Recurrent Genital Herpes

Valacyclovir, 500 mg po, twice daily for 3 days
Acyclovir, 400 mg po, three times daily for 5 days

CDC. *MMWR Recomm Rep.* 2010.

Key Counseling Points

- Recurrences are likely for HSV-2, infrequent for genital HSV-1
- Transmission often occurs without symptoms
- Suppression therapy reduces recurrences and transmission risk for HSV-2
- Therapy does not cure infection

more…

Beauman JG. *Am Fam Physician.* 2005; CDC. *MMWR Recomm Rep.* 2010.

Key Counseling Points (continued)

- Preventing transmission:
  - Abstain from sex during outbreaks and prodromal symptoms
  - Condoms reduce transmission risk
  - Suppressive antiviral therapy reduces transmission risk by ~50%
- Partner should be informed and tested
- HSV-2, but not genital HSV-1, elevates risk of HIV if sexually exposed

Beauman JG. *Am Fam Physician.* 2005; CDC. *MMWR Recomm Rep.* 2010.

Julia: Follow up

- Recurrent lesion
- Partner with positive HSV-2 IgG serology

Case 3: Gonorrhea and Chlamydia Co-infection

Case Study: Adele

- 22-year-old G0 P0
- COCs for 2 years
- Three male partners in 2 months
- Occasional unprotected exposure
- Chlamydia treatment 3 years ago
- Penicillin allergy

Adele: Physical exam

- Normotensive and afebrile
- Cervix and vagina normal
- Oropharyngeal and bimanual exams unremarkable

Adele: Diagnostic Testing

- Pap test
- Wet prep
- Vaginal swab NAAT for *C. trachomatis* and *N. gonorrheae*
- Pharyngeal swab NAAT for *C. trachomatis* and *N. gonorrheae*
- HIV EIA
- Serology for syphilis (RPR)

When to Screen Asymptomatic Women for Chlamydia

- Age ≤ 25 years
- Age >25 years with risk factors:
  - New sexual partner
  - Multiple sexual partners
  - Inconsistent use of condoms
  - New diagnosis of other STI

Meyers DS. *Ann Intern Med.* 2007; CDC. *MMWR Recomm Rep.* 2010.

When to Screen Asymptomatic Women for Gonorrhea

- Age < 25 years with risk factors:
  - History of gonorrhea
  - Other STIs
  - New or multiple sexual partners
  - Inconsistent use of condoms
  - Transactional sex

CDC. *MMWR Recomm Rep.* 2010; USPSTF. *Ann Fam Med.* 2005.

Which Sites to Screen

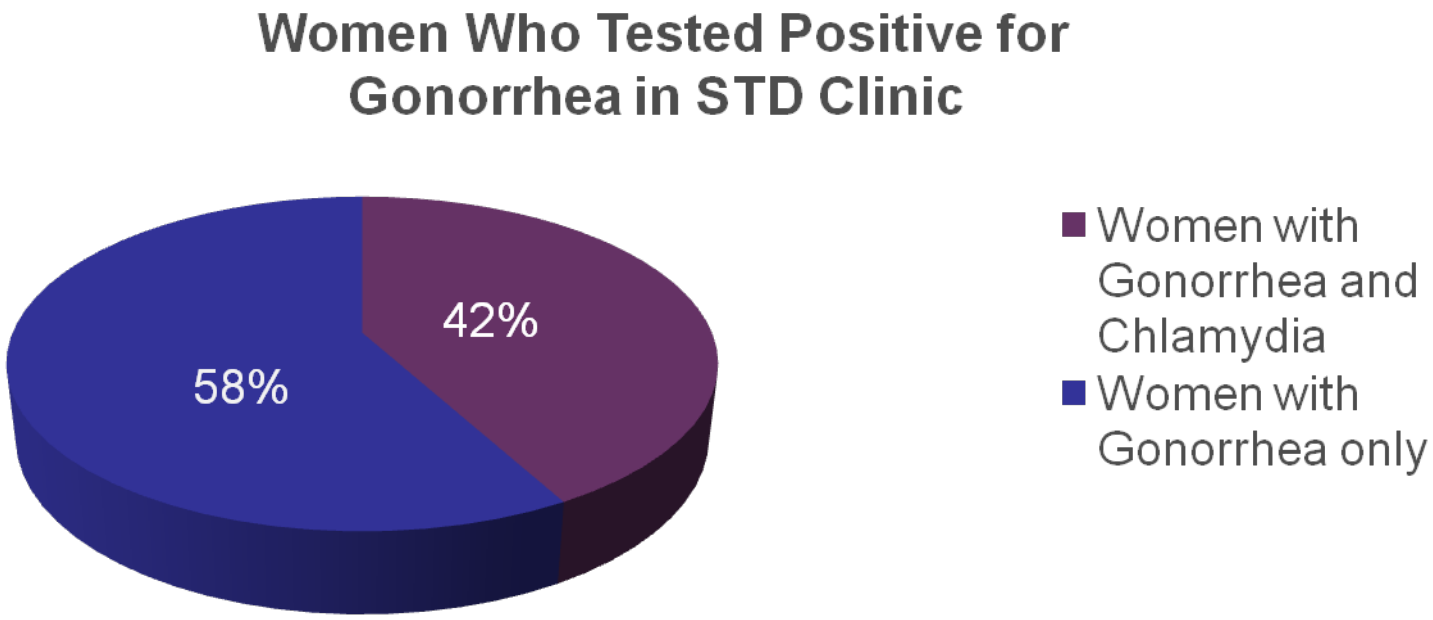
- First-catch urine specimen
- Vaginal swab
  - Clinician or self-collected
- Pharyngeal swab if exposed
- Rectal swab if exposed

CDC. *MMWR Recomm Rep.* 2010.

Adele: Test Results

- Pap test is normal
- Vaginal swab NAATs are positive for *C. trachomatis* and *N. gonorrhoeae*
- Pharyngeal NAATs are negative
- HIV and syphilis tests are negative

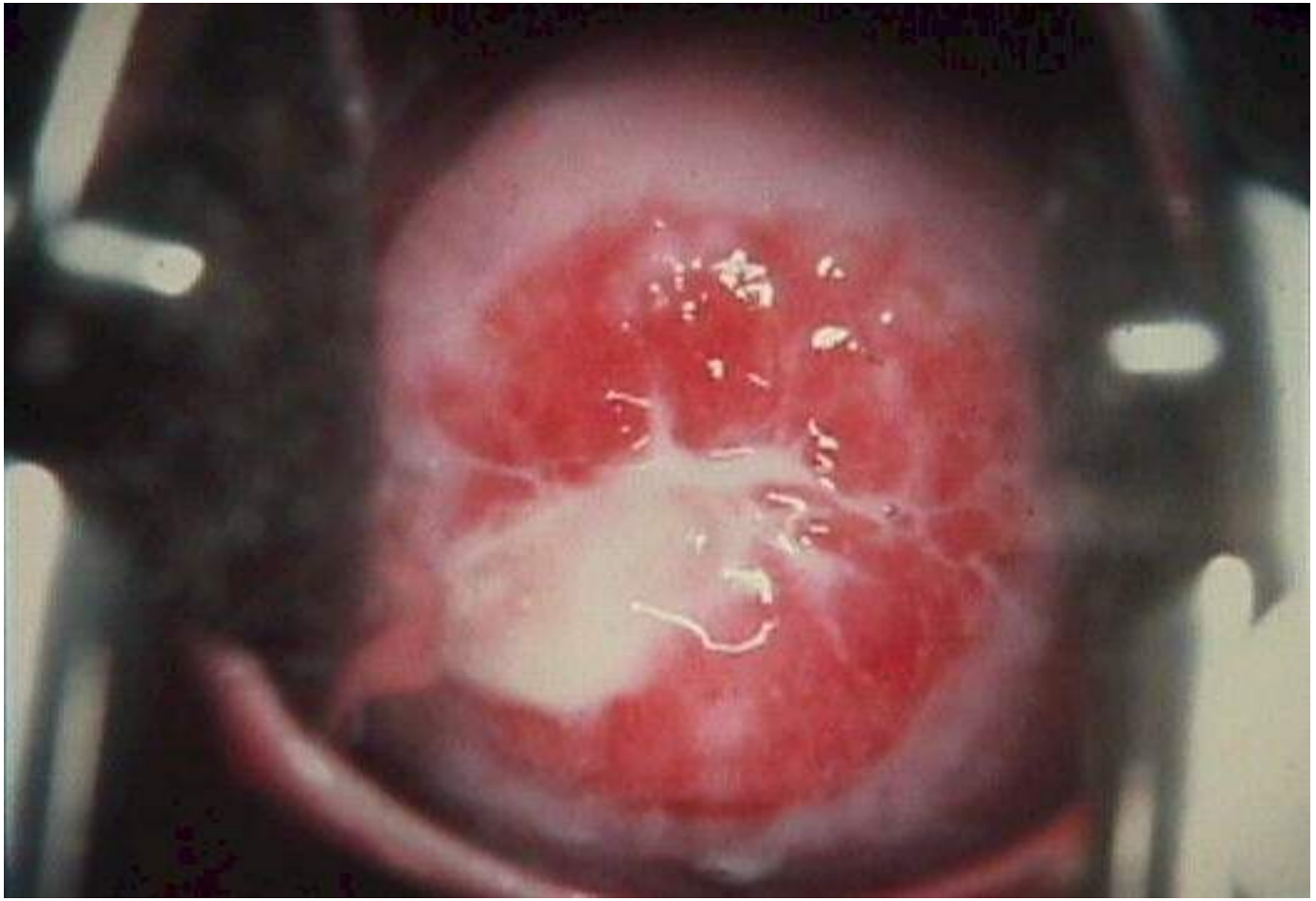
Co-infection Is Common



Multiple studies show that 25–50% of women with gonorrhea are coinfected with chlamydia.

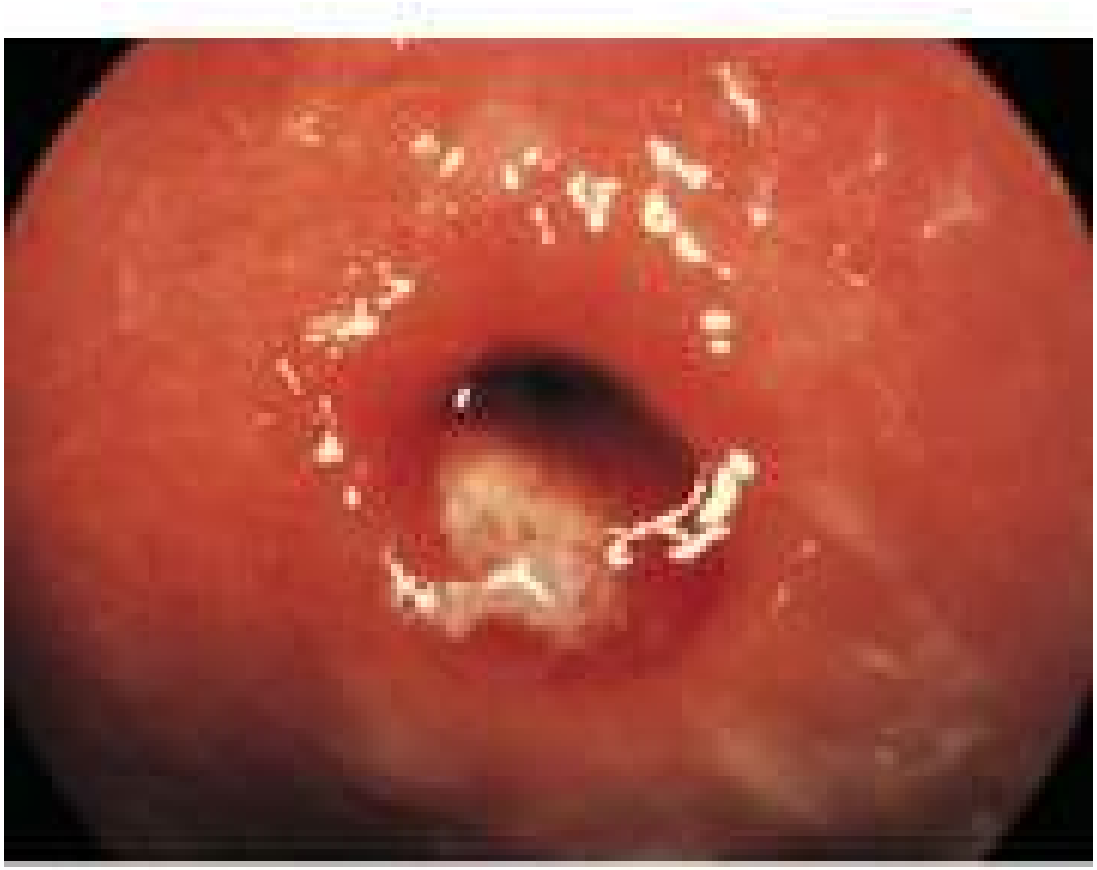
Lyss SB. *Ann Intern Med.* 2003.

Genital *C. trachomatis* Infection



Hughey M. *Operational Obstetrics & Gynecology*. 2000.

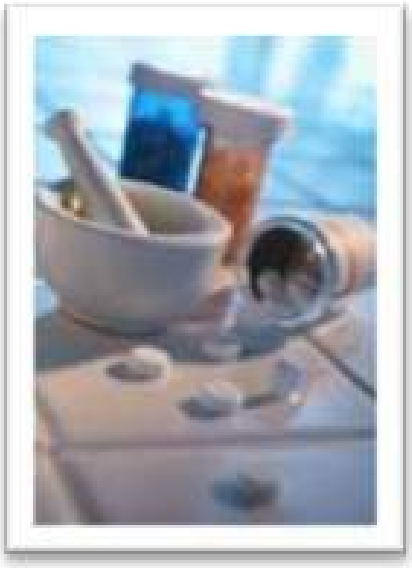
Genital *Neisseria gonorrhoeae* Infection



CDC. Sexually transmitted disease surveillance, 2011. 2012; Handsfield H. Color atlas and synopsis of sexually transmitted diseases. 3rd ed. 2011; Weinstock H. *Perspect Sex Reprod Health*. 2004; CDC. Sexually transmitted diseases treatment guidelines, 2010. *MMWR Recomm Rep*. 2010.

Treatment of Uncomplicated Chlamydial Infection*

- Azithromycin, 1 g po in a single dose
- Doxycycline, 100 mg po twice daily for 7 days
- Alternative: Levofloxacin, 500 mg po once daily for 7 days



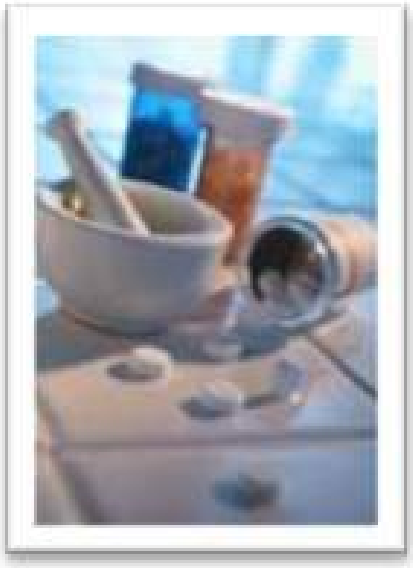
*Of the cervix, urethra, or rectum

CDC. *MMWR Recomm Rep.* 2010.

Treatment of Uncomplicated Gonorrhea*

- Recommended
  - Ceftriaxone, 250 mg IM in a single dose

    PLUS
  - Azithromycin, 1 g po in a single dose
- If severe cephalosporin allergy:
  - Azithromycin 2 g in a single oral dose
  - Test-of-cure in 1 week



*Of the cervix, urethra, or rectum

CDC. *MMWR Morb Mortal Wkly Rep.* 2012; CDC. *MMWR Recomm Rep.* 2010.

Management of Partners

- Ensure treatment (and preferably testing) for all partners in past 2 months
  - Referral for testing and treatment
  - Expedited partner therapy*

*EPT is legal in 33 states, potentially allowable in 11, and prohibited in 6.

CDC. *MMWR Recomm Rep.* 2010; CDC. Legal status of expedited partner therapy.

Key Counseling Points

- Treating infection reduces the risk of complications such as PID, infertility, and chronic pelvic pain.
- Sexual abstinence during the week after treatment is important to prevent reinfection.
- Retesting at 3 months detects both re-infection and delayed treatment failure.
- Consistent use of condoms can prevent the spread of STIs.

CDC. *MMWR Recomm Rep.* 2010.

Adele: Follow-up

- Retesting negative at 3 months
- Partner reportedly was treated
- Condoms used