

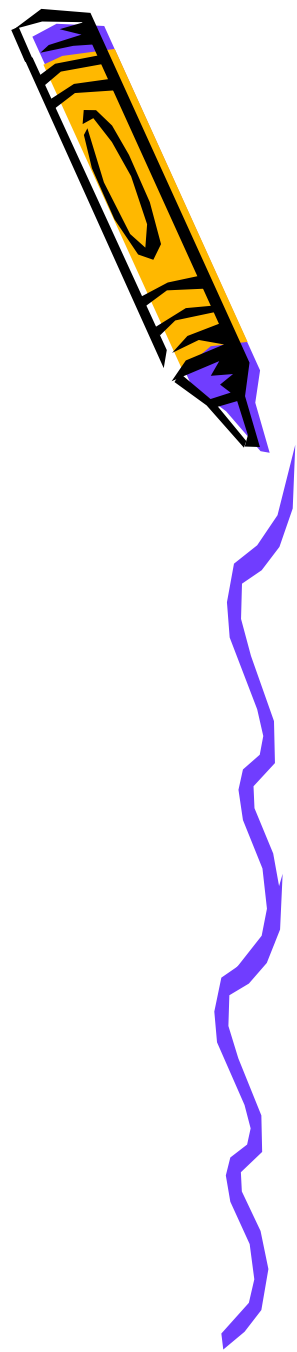


Sexually Transmitted Infections

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Section of Infectious Diseases

Sexually Transmitted Diseases Treatment Guidelines

- Update August 4, 2006

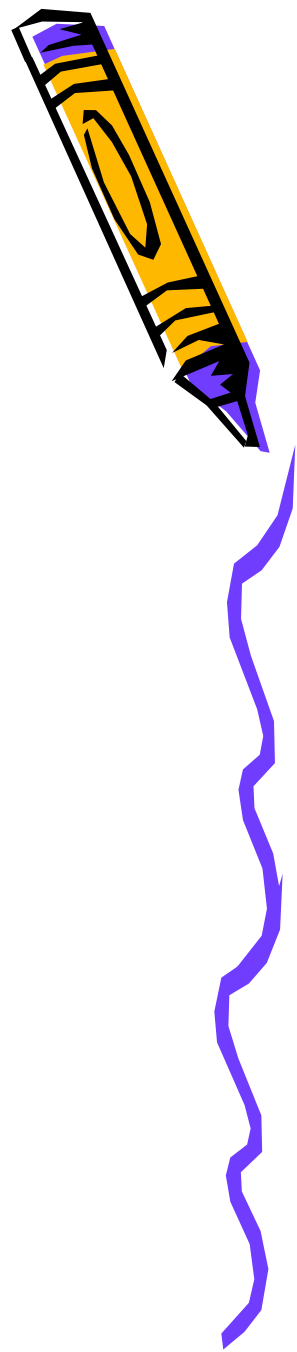


Overview



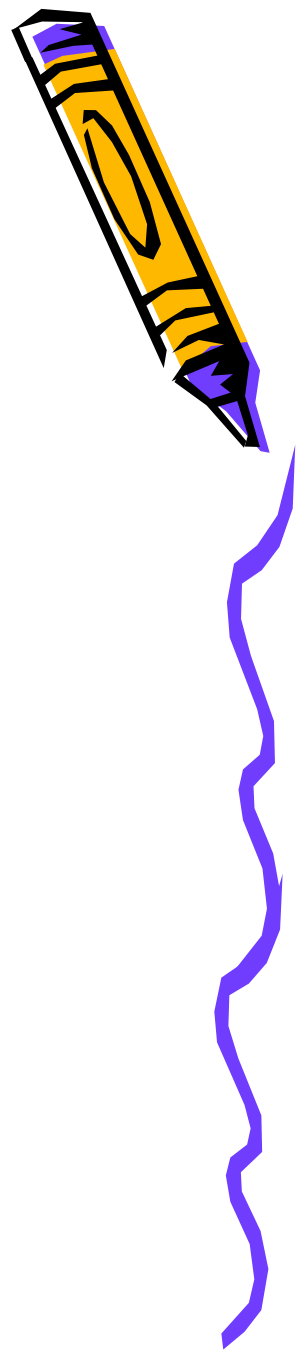
- Syphilis
- Gonorrhoea
- Herpes
- Chlamydia
- Trichomonas
- Genital warts
- HIV
- Granuloma inguinale
- Lymphogranuloma Venereum
- HPV/cervical cancer
- Hepatitis B
- Hepatitis C
- Ectoparasitic Infections
- Scabies

Diseases Characterized by Genital Ulcers



- Syphilis
- Genital HSV
- Chancroid
- Granuloma Inguinale
- Lymphogranuloma Venereum

Syphilis



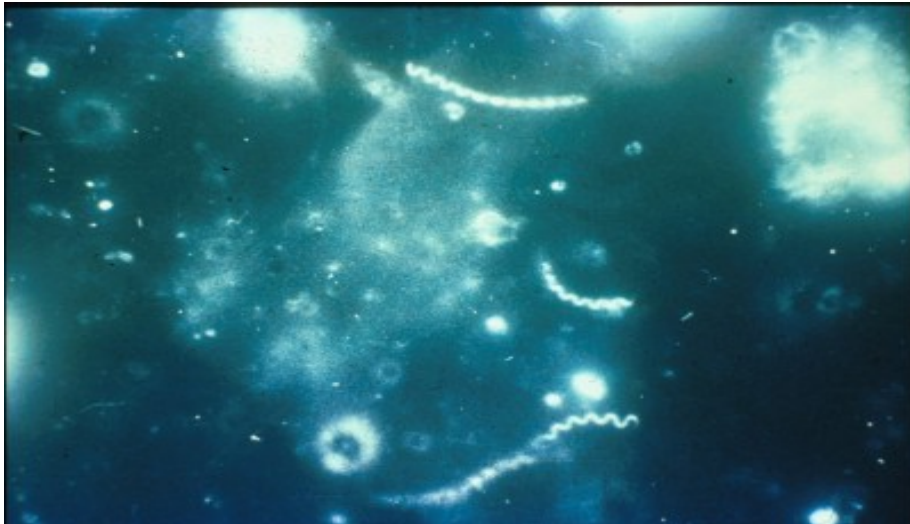
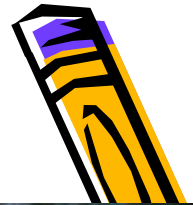
- Etiologic agent: *Treponema pallidum* (spirochete)
- Characterized by sequential stages
 - primary
 - secondary
 - latent
- Neurosyphilis can be seen at any stage
- Congenital

Features: Primary Syphilis



- Chancre:
 - Painless ulcer with indurated edges & a clean base
 - Forms 10-90 days (average 21 days) after infection
 - Extragenital chancres are infrequent
 - ~30% of cases will have multiple lesions
 - Frequently painless regional & generalized lymphadenopathy

Primary syphilis



Features: Secondary Syphilis



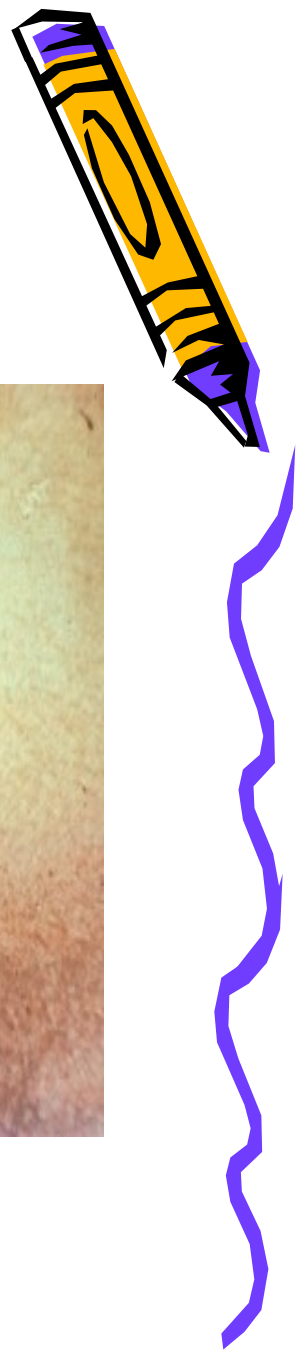
- ~50% with 1° syphilis develop 2° syphilis
- Onset 6 weeks-6 months after infection
- 15-20% 1° chancre is still present
- Skin changes usually resolve in 2-6 weeks even without Rx
- 25% have recurrence of symptoms ≤ 4 yrs

Secondary Syphilis

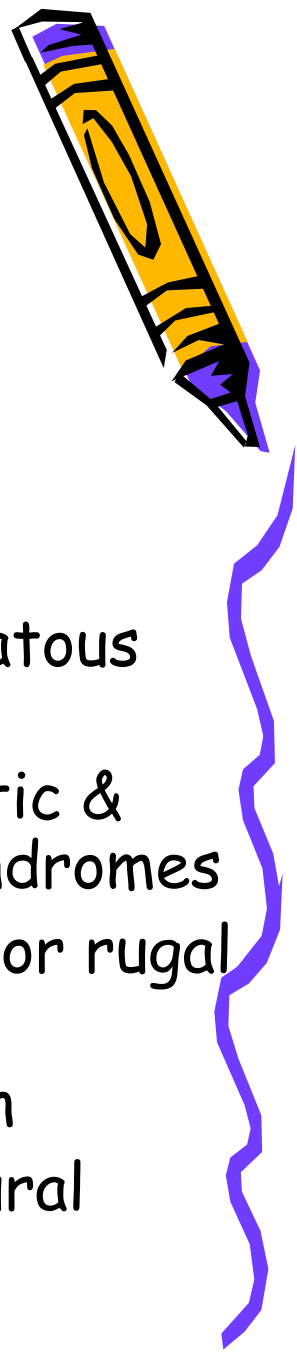


Condyloma Lata

- Flat, waxy, wart like lesions usually found in the moist regions of the genital or anal areas
- Both mucous patches and condylomata lata are highly infectious
- Lesion of 2^o syphilis



Constitutional Features: 2° Syphilis



Infrequent

- Malaise
 - Low-grade fever
 - Headache
 - Lymphadenopathy
 - Asymptomatic meningitis
 - Cranial nerve palsies
- Anorexia
 - Nausea/vomiting
 - Jaundice/granulomatous hepatitis
 - Proteinuria/nephrotic & acute nephritic syndromes
 - Gastric ulcerations or rugal hypertrophy
 - Ocular inflammation
 - Tinnitus/sensorineural deafness.

Tertiary Syphilis

- Historically
 - 50% Benign gummatous syphilis
 - 25% Cardiovascular syphilis
 - 25% Neurosyphilis



Latent Syphilis



- Seroreactivity without evidence of disease
- Early latent: acquired within the year
- Late latent: acquired infection more than one year ago
- Latent of unknown duration

Syphilis Treatment



Primary, Secondary, Early Latent

- Benzathine Penicillin G
2.4 million units IM

- *Penicillin Allergy**
- Doxycycline 100 mg
twice daily x 14 days

or

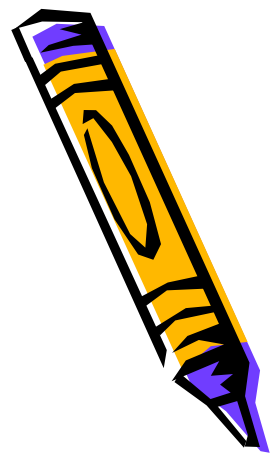
- Ceftriaxone 1 gm
IM/IV daily x 8-10
days

or

- Azithromycin 2 gm
single oral dose

**Use in HIV-
infection has not been
studied*

Syphilis Treatment



**Late Latent/Unknown
Duration**

Benzathine PCN G 2.4
million units IM as 3
doses (weekly for 3
weeks)

PCN allergy

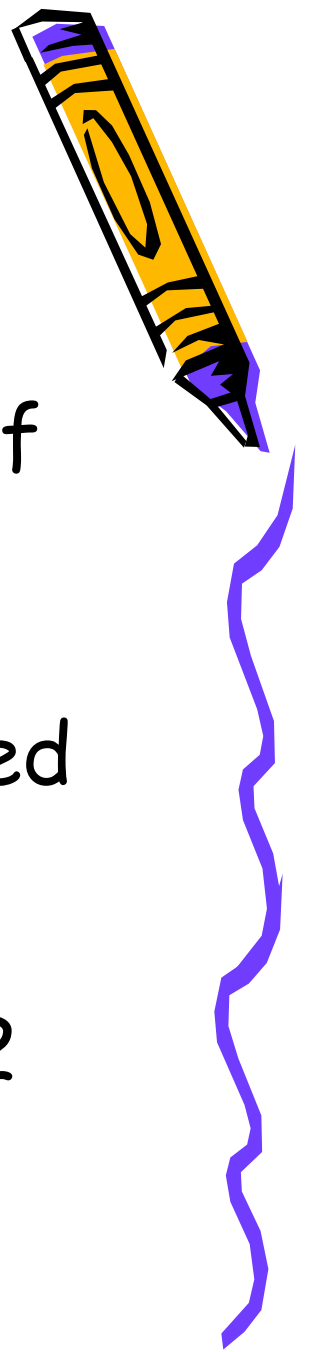
doxycycline 100mg
PO x 28 days

Recheck RPR ~ 6 mos after tx

Genital Herpes Simplex Virus (HSV)

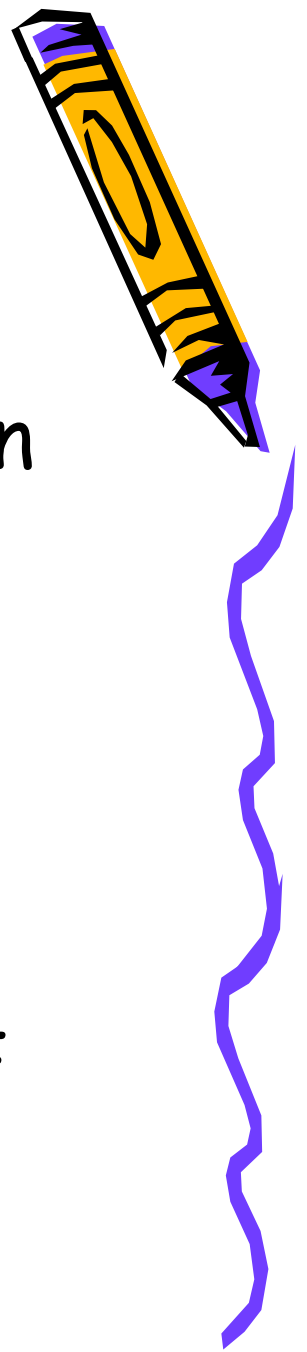


HSV



- HSV type-2 is the primary cause of genital herpes
- HSV-1 generally causes orolabial
- Number of genital infections caused by HSV-1 is increasing
- 15-30% sexually active adults in industrialized countries are HSV-2 antibody positive

A Few Numeric Facts



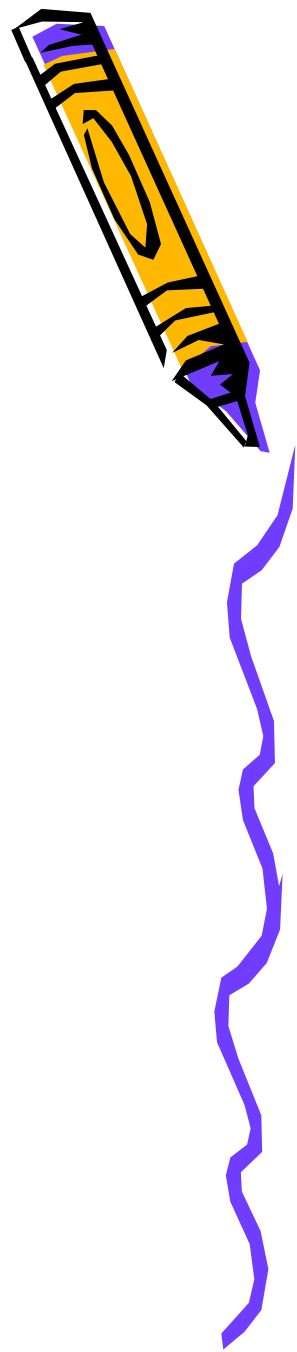
- Seroprevalence of HSV-2 has risen dramatically over last 2 decades
- Highest among African Americans followed by Mexican Americans
- > 1.6 million new cases/yr (US) of HSV-2
- Seroprevalence closely linked to # sex partners

Natural History of Primary Infection

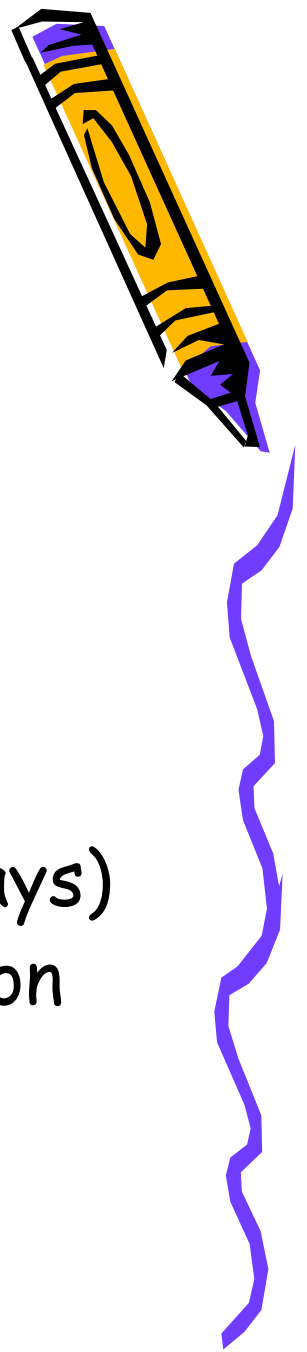


- Incubation period:
 - Mean 7-10 days (Range 2-20 days)
- Classic presentation of primary infection:
 - Grouped vesicles (1-3mm) on erythematous base
 - Vesicles persist 10-12 days then erode to ulcers
 - Ulcers heal over 10-14 days
- Extragenital and constitutional symptoms:
 - Malaise, fever, lymphadenopathy, & dysuria
 - Meningitis in 10% of men and 30% of women

Primary Genital HSV

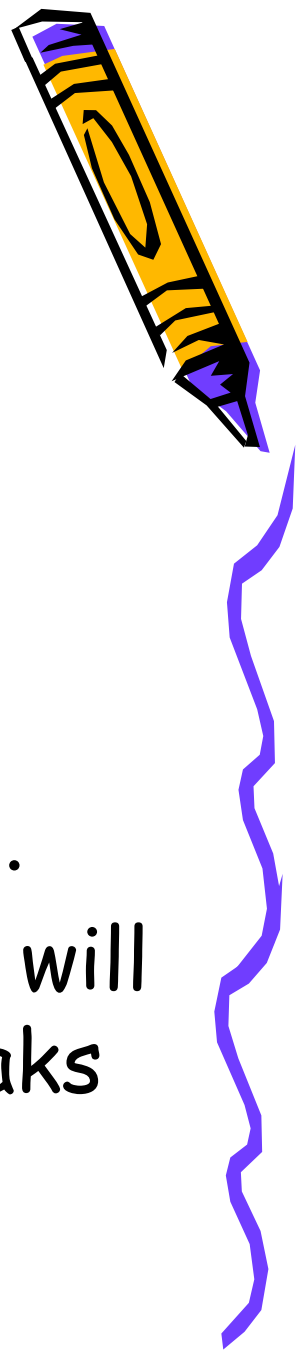


Genital HSV Reactivation



- Triggers for reactivation
 - trauma, fever, UV light, stress
- Prodromal symptoms (50%) begin 12-24 hrs before lesions
 - burning, itching, or genital pain
- Duration of breakout is shorter (4-6 days)
- Constitutional symptoms are less common and less prominent
- HSV Shedding is shorter (4 days)

Symptoms and HSV-2



- <10% of seropositives report a history of genital lesions
- Up to 60% of patients with newly acquired HSV-2 are asymptomatic.
- With education, ~50% of patients will be able to identify HSV-2 outbreaks

Genital Herpes

First Clinical Episode

Acyclovir 400 mg tid

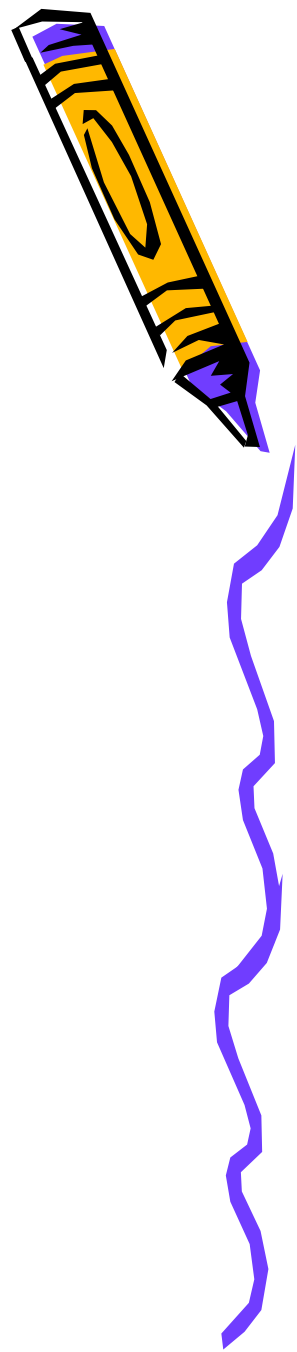
or

Famciclovir 250 mg tid

or

Valacyclovir 1000 mg bid

Duration of Therapy 7-10 days



Genital Herpes

Episodic Therapy

Acyclovir 400 mg three times daily x 5 days

or

Acyclovir 800 mg twice daily x 5 days

or

Famciclovir 125 mg twice daily x 5 days

or

Valacyclovir 500 mg twice daily x 3-5 days

or

Valacyclovir 1 gm orally daily x 5 days



Genital Herpes

HIV Infection



- May have prolonged or severe episodes with extensive genital or perianal disease
- Episodic or suppressive antiviral therapy often beneficial
- For severe cases, acyclovir 5-10 mg/kg IV q 8 hours may be necessary

Genital Herpes

HIV Infection/Episodic Therapy



Acyclovir 400 mg three times daily

or

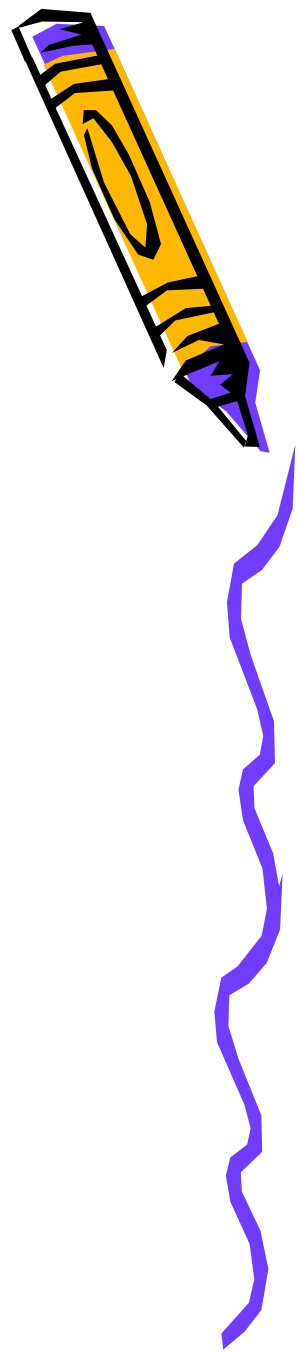
Famciclovir 500 mg twice daily

or

Valacyclovir 1 gm twice daily

Duration of Therapy 5-10 days

Diseases Characterized by Urethritis and Cervicitis



Urethritis

- Gonococcal vs Nongonococcal

Cervicitis

- Gonococcal Infections
- Chlamydial Infections

Signs and Symptoms



- Males

urethritis

epididymitis

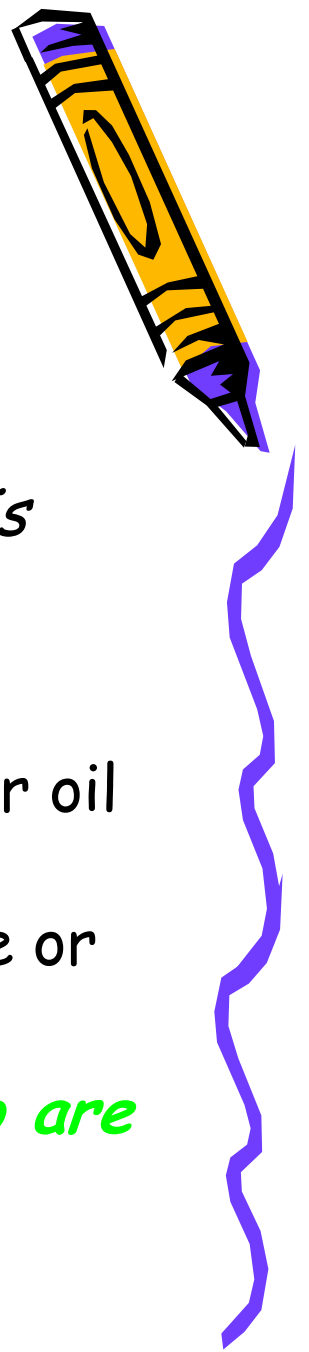
proctitis

- Females

cervicitis

endometritis

pelvic inflammatory
disease (PID)

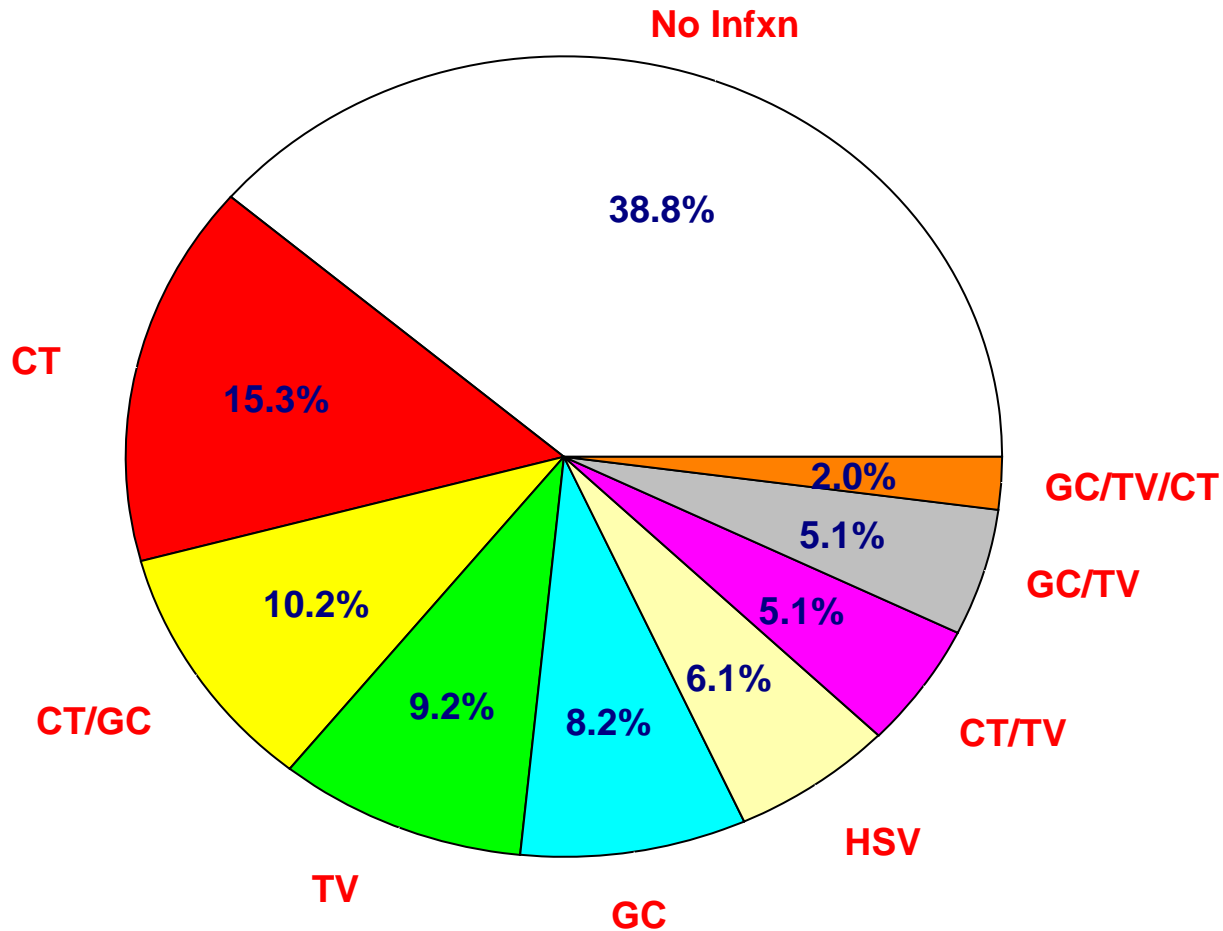
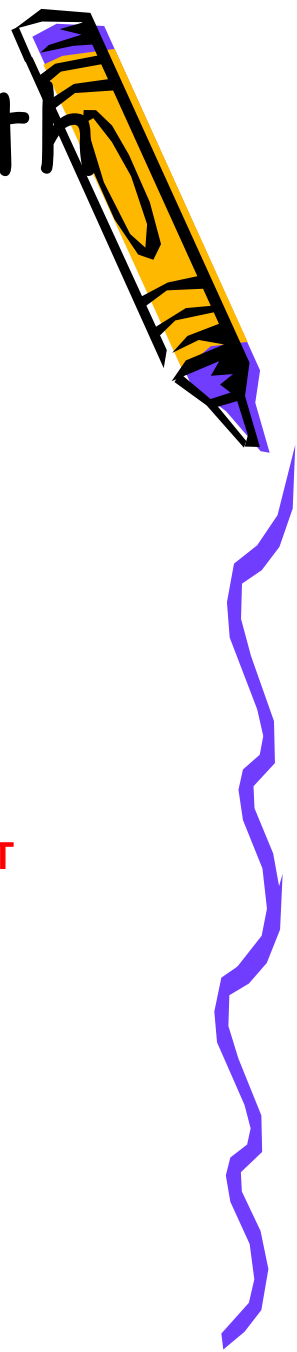


Urethritis

- Infectious and noninfectious causes
- Infectious: *N. gonorrhoeae* and *C. trachomatis*
- Mucopurulent or purulent discharge
- Gram stain of urethral secretions ≥ 5 WBC per oil immersion field
- Positive leukocyte esterase on first void urine or ≥ 10 WBC per high power field

Empiric treatment in those with high risk who are unlikely to return

Etiologies associated with Cervicitis



Gonorrhoea



- Etiologic agent: *Neisseria gonorrhoeae*
- Virtually any mucous membrane can be infected
- Hematogenous dissemination
- Asymptomatic carrier state can occur in both men and women

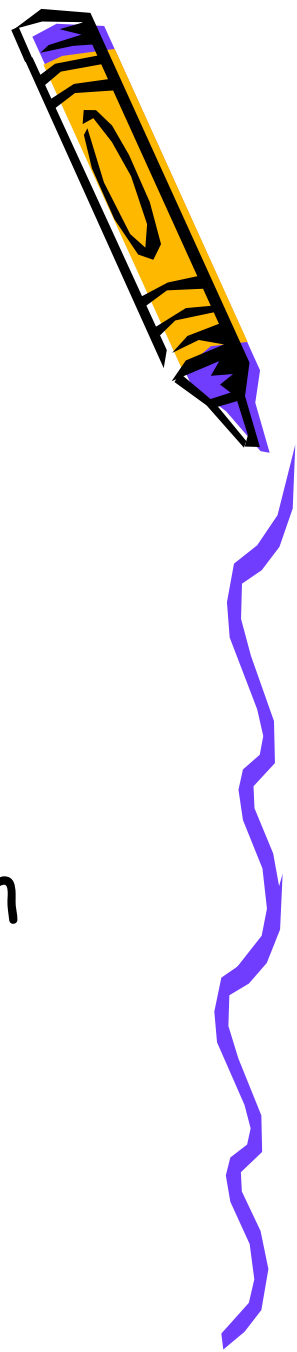
GC Signs: Men



- Common: Mucopurulent or purulent urethral discharge
- Uncommon: Epididymal tenderness /swelling or balanitis

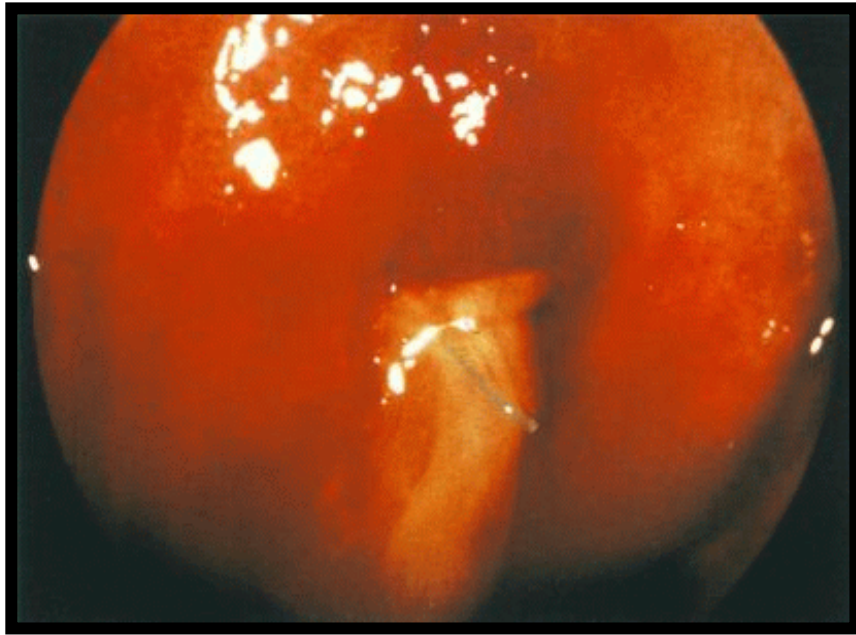


GC Symptoms: Men



- Urethral infection
 - Urethral discharge 80%
 - Dysuria 50%
 - Asymptomatic <10%
- Rectal infection in homosexual men
 - Anal discharge 12%
 - Perianal/anal pain or discomfort 7%

GC Signs: Women



- Mucopurulent endocervical discharge
- Easily induced endocervical bleeding

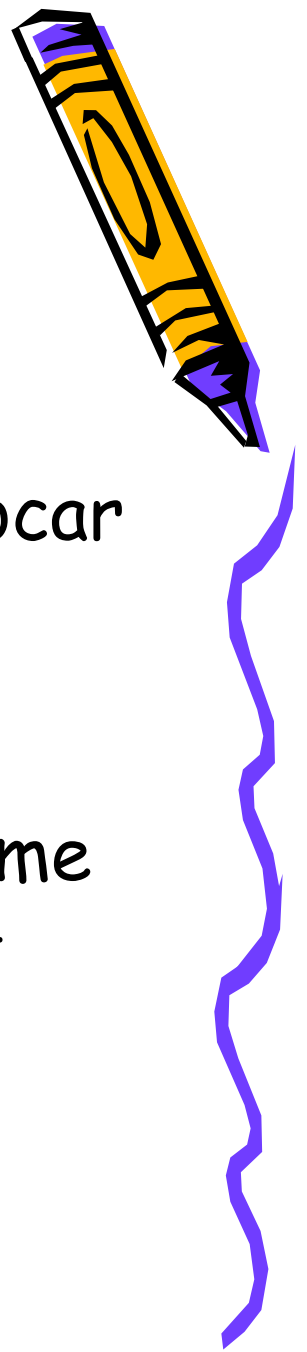


GC Symptoms: Women



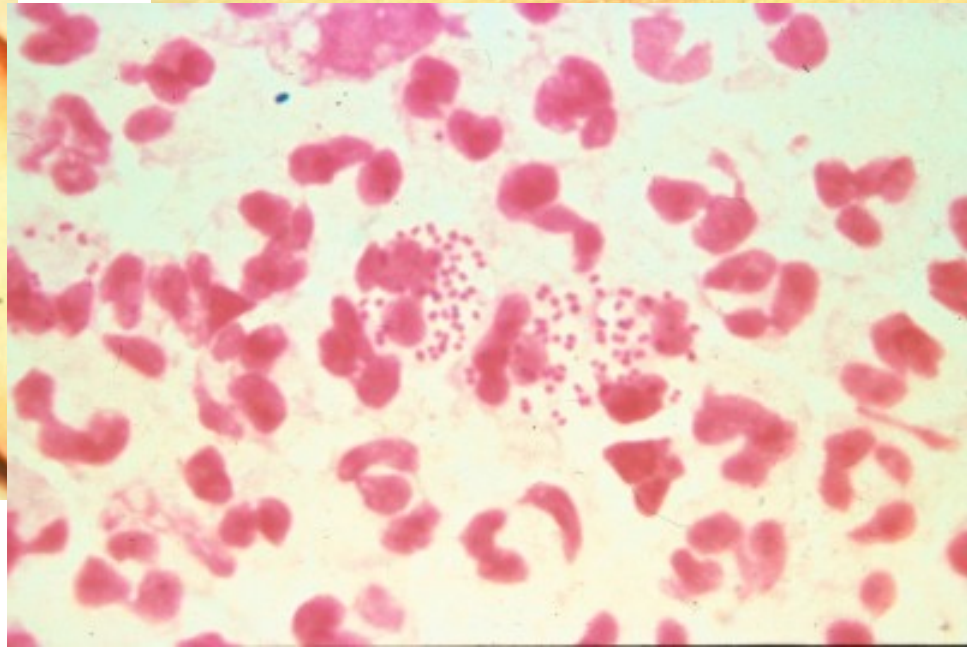
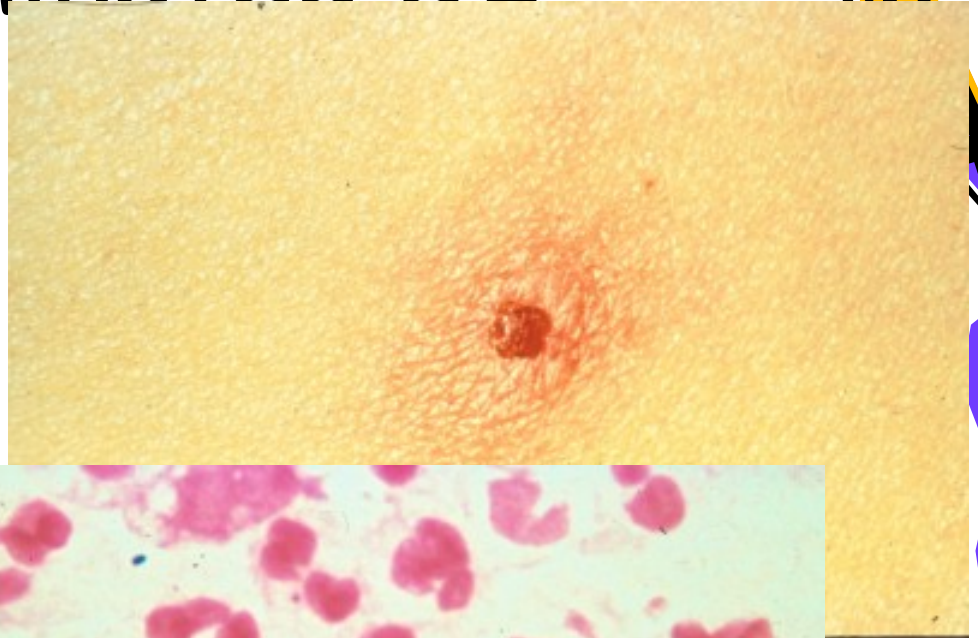
- Infection is frequently asymptomatic $\leq 50\%$
- When present, symptoms usually occur ≤ 10 days
- Most common symptom is increased or altered vaginal discharge $\leq 50\%$
- Lower abdominal pain $\leq 25\%$
- Urethral infection can cause dysuria 12% but not frequency
- Rare cause of metorrhagia or menorrhagia

Manifestations of DGI



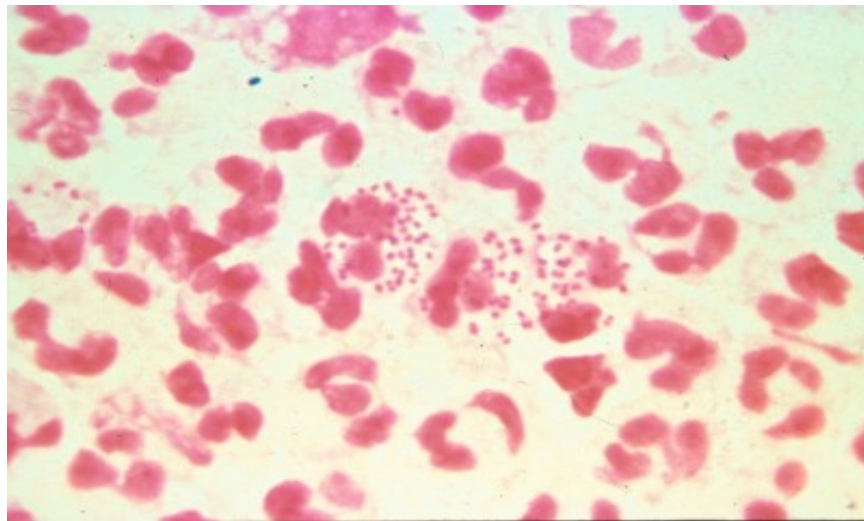
- Petechial or pustular acral skin lesions
- Asymmetrical arthralgia
- Arthritis
- Tenosynovitis
- Occasionally, perihepatitis
- Rarely, Meningitis/endocarditis
- Rarely, adult respiratory distress syndrome or Waterhouse-Friderichsen syndrome

Disseminated GC

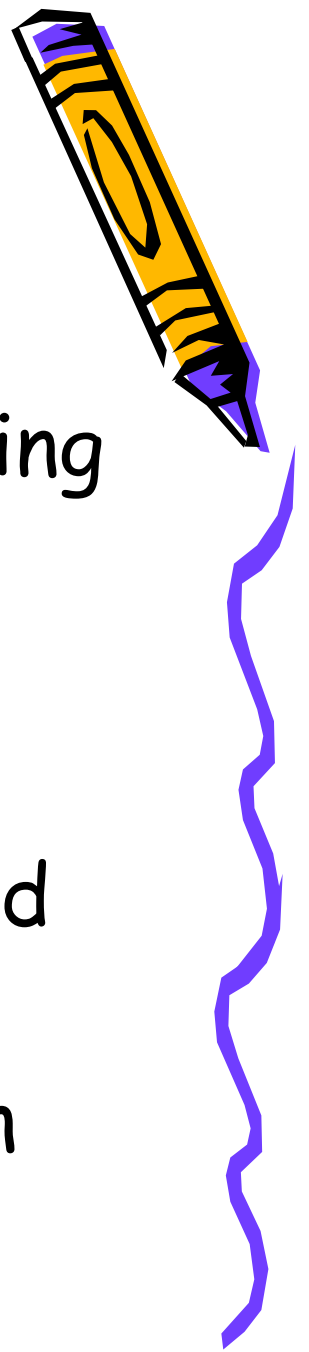


Update to CDC's Sexually Transmitted Diseases Treatment Guidelines, 2006:

Fluoroquinolones No Longer Recommended for Treatment of Gonococcal Infections

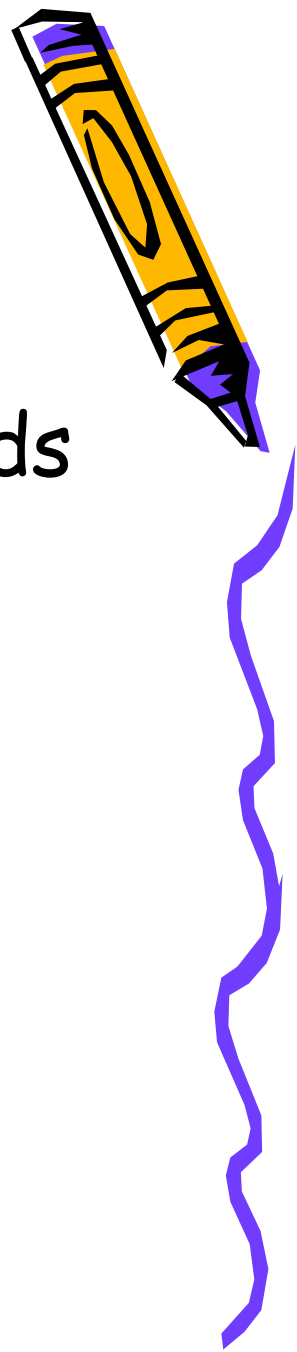


Changing Resistance



- Fluoroquinolone resistance increasing
- In 2000, no longer used in persons who acquired infection in Asia or Pacific Islands
- In 2002, recommendation extended to California
- In 2004, extended to treatment in men who have sex with men

Treatment



- In 2007: CDC no longer recommends the use of this drug class for the treatment of gonorrhea
- Cephalosporins are therefore the *only available* and recommended treatment

BOX. Updated recommended treatment regimens for gonococcal infections and associated conditions — United States, April 2007

Uncomplicated Gonococcal Infections of the Cervix, Urethra, and Rectum*

Recommended Regimens

Ceftriaxone 125 mg in a single intramuscular (IM) dose

OR

Cefixime[†] 400 mg in a single oral dose

PLUS

TREATMENT FOR CHLAMYDIA IF CHLAMYDIAL INFECTION IS NOT RULED OUT

Alternative Regimens

Spectinomycin[†] 2 g in a single IM dose

OR

Cephalosporin single-dose regimens[§]

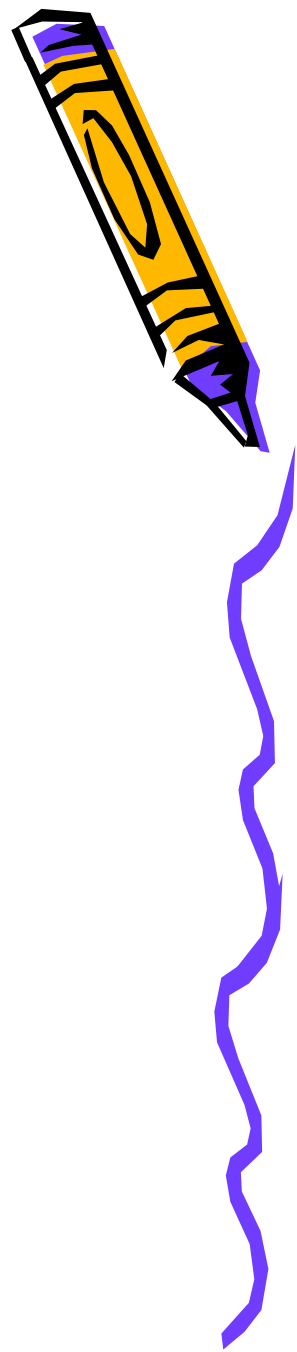
Uncomplicated Gonococcal Infections of the Pharynx*

Recommended Regimens

Ceftriaxone 125 mg in a single IM dose

PLUS

TREATMENT FOR CHLAMYDIA IF CHLAMYDIAL INFECTION IS NOT RULED OUT



Severe Penicillin or Cephalosporin Allergy



- Azithromycin 2 gm as a single dose
- Recommended for uncomplicated infection
- However, there is rapid emergence of resistance
- CDC cautions against widespread use



Epididymitis

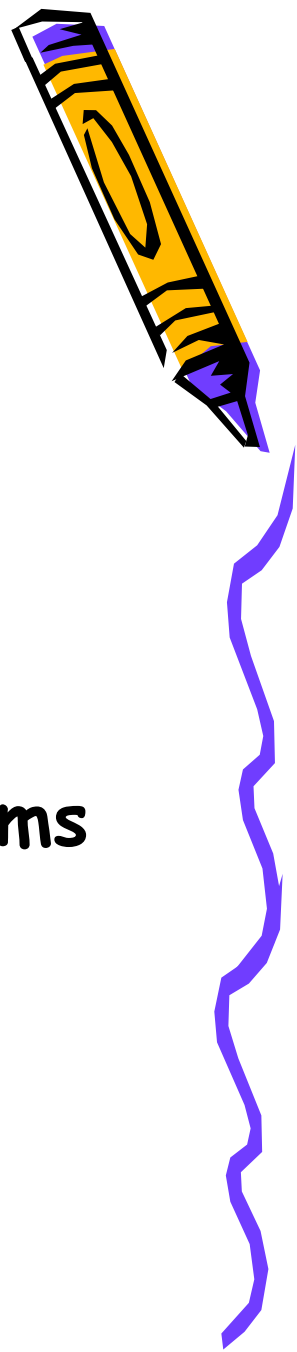
Diagnostic Considerations



- Gram stain smear of urethral exudate for diagnosis of urethritis
- Intraurethral culture or nucleic acid amplification test for GC and CT
- Examination of first void uncentrifuged urine for WBCs if urethral gram stain negative

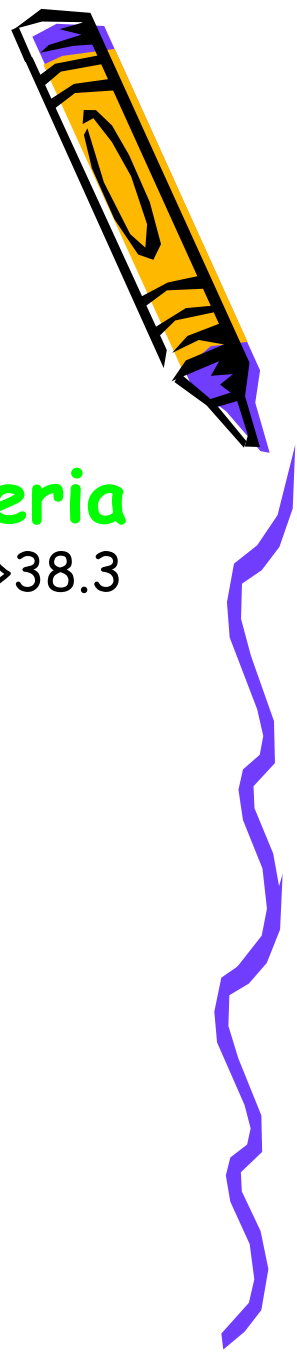


Epididymitis



- **Infection likely due to GC or CT**
 - Ceftriaxone 250 mg IM in a single dose
PLUS
 - Doxycycline 100 mg twice daily for 10 days
- **Infection likely due to enteric organisms or age > 35**
 - Ofloxacin 300 mg twice daily for 10 days
OR
 - Levofloxacin 500 mg once daily for 10 days

Pelvic Inflammatory Disease



- *N. gonorrhoeae*,
C. trachomatis, et
al
- **Minimum
Diagnostic Criteria**
 - Uterine/adnexal
tenderness or cervical
motion tenderness

- **Additional
Diagnostic Criteria**
 - Oral temperature >38.3
 - Elevated ESR
 - Cervical CT or GC
 - Elevated CRP
 - WBCs/saline
microscopy
 - Cervical discharge

Pelvic Inflammatory Disease



- **Definitive Diagnostic Criteria**

- Endometrial biopsy with histopathologic evidence of endometritis
- Transvaginal sonography or MRI showing thick fluid-filled tubes
- Laparoscopic findings consistent with PID

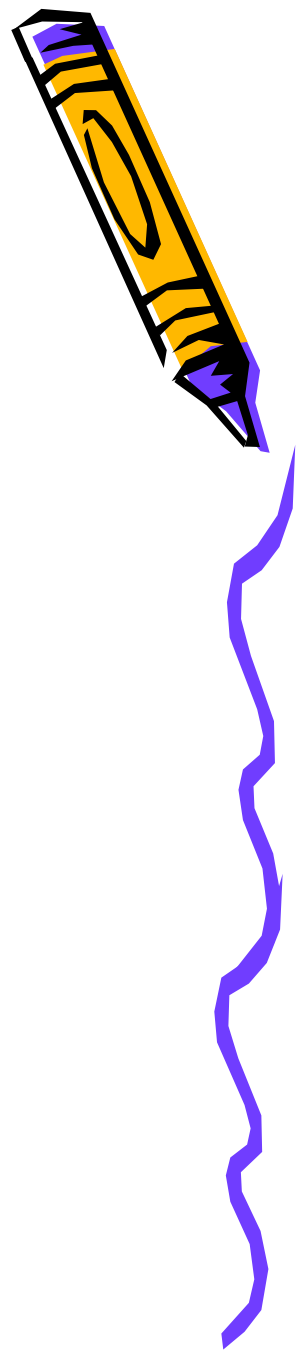
Chlamydia



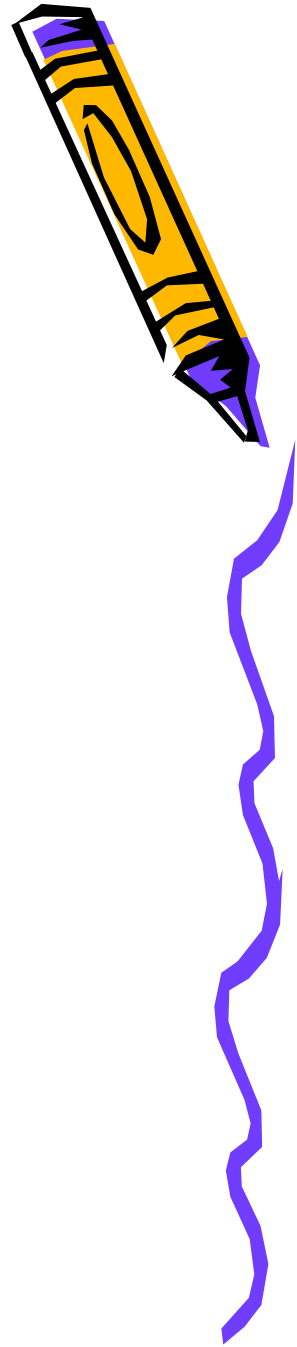
- Etiologic agent: *Chlamydia trachomatis*
- Most commonly reported notifiable disease in US
- Many cases are asymptomatic
- More women than men are screened, leaving a large infectious male reservoir

Chlamydia trachomatis

- Annual screening of sexually active women \leq 25 yrs
- Annual screening of sexually active women $>$ 25 yrs with risk factors
- Sexual risk assessment may indicate more frequent screening for some women
- Rescreen women 3-4 months after treatment due to high prevalence of repeat infection



Chlamydia trachomatis (CT)



Preferred:

Azithromycin 1 gm single
dose (also for
pregnant women)

or

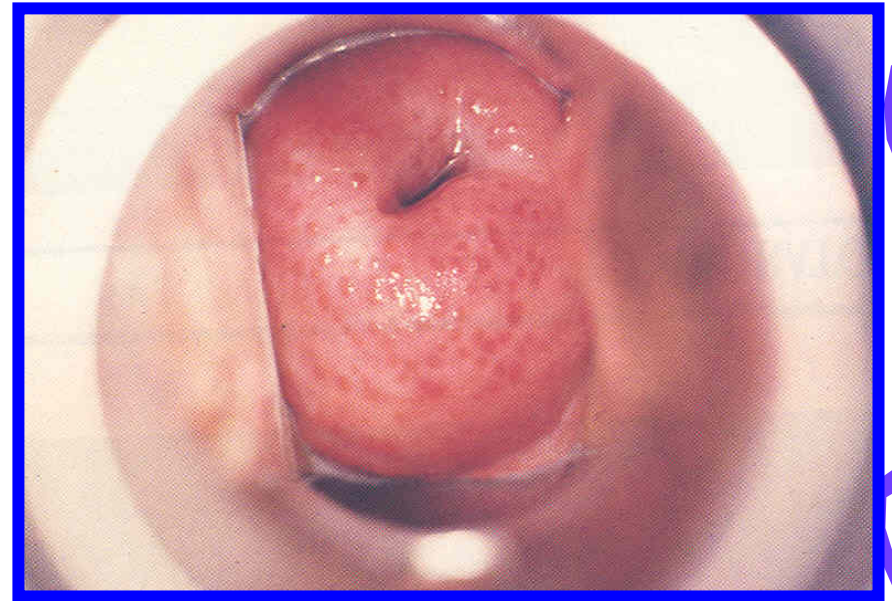
Doxycycline 100 mg bid x
7d

•

• Alternative:

• Erythromycin

Diseases characterized
by Vaginal Discharge
Trichomonas vaginalis



Epidemiology



- Most common non-viral STD in the world
- Incidence appears to be declining in US and Western Europe
- Self-limited infection in:
 - 20% women
 - At least 40% men



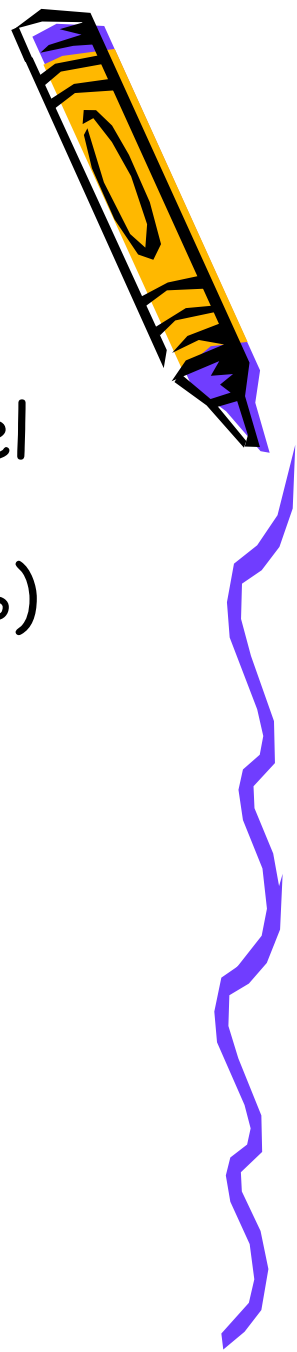
TV Symptoms and Sequelae



- Malodorous, yellow-green discharge
- 10-50% of women are asymptomatic
- Self limited in only 20% of women.
- Serious sequelae
 - premature delivery in pregnant women
 - may increase risk of HIV acquisition and transmission



TV Treatment



- Metronidazole 2g orally once *or*
- Tinidazole 2g orally once
- Alternative:
Metronidazole
500mg bid
orally x 7days
- Metronidazole gel
much less
effective (<50%)
- Cure rate $\geq 90\%$
- Treat all sex
partners*

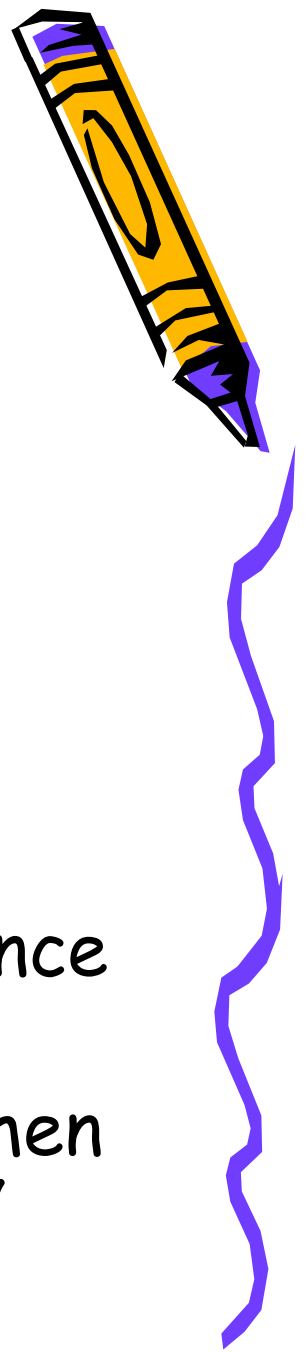
Genital Warts



www-nehc.med.navy.mil/hp/sharp/std_pictures.htm

www.kcom.edu/.../Website/lectures/lecture/aids.htm

HPV Epidemiology



- Estimated prevalence in sexually active men/women, age 15-49:
 - Genital warts- 1%
 - Subclinical infections(colpo/cyto)- 4%
 - Subclinical infections(DNA/RNA)- 10-20%
 - Prior infection(antibody detected)- 60%
- Prevalence 0.6-0.8% in health maintenance organizations and 13% in STD clinics
- San Francisco study of gay & bisexual men found that 60% of HIV(-) men had HPV

Genital Warts: HPV



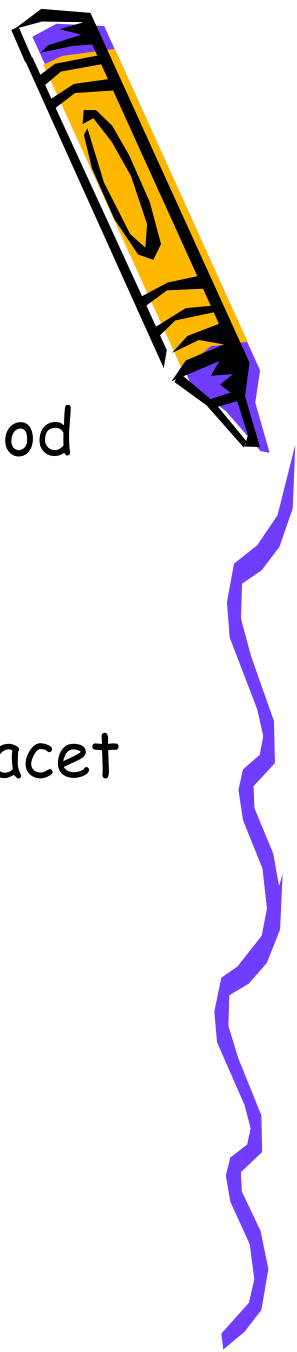
- Double-stranded DNA virus
- >100 HPV types & >30 infect the genital tract
Most asymptomatic, unrecognized or subclinical
- HPV types 6 & 11: common cause genital warts & rarely associated with cancer
- Genital warts: Persist, enlarge, or spontaneously resolve
- Spontaneous regression: young age
- Persistence: immunosuppressed patients

Morphology of Genital Warts



- **Condyloma acuminata**- cauliflower type appearance at moist areas
- **Papular**- flesh-colored, dome shaped warts that are usually 1-4mm in size & located on dry skin
- **Keratotic**-thickened horny surface, occur most frequently on dry skin
- **Flat topped**- macular, slightly raised & occur on dry or moist skin. Generally not visible & most common on the cervix or anogenital area

Treatment



- No evidence any available tx superior
- Wart size, number, site, patient preference, cost considerations
- Most require a course vs single tx
- Podofilox, Imiquimod (patient)
- Cryotherapy, podophyllin, trichloro/bichloroacetic acid, surgical or laser removal (provider)

Conclusions



- Screen for STDs
- Treat for CT whenever you treat for GC
- Remember to assess sexual contacts!!
- Provide disease specific counseling
- Test for HIV
- Condoms are effective

