Gonococcal Infection- Treatment Consideration

- First generation cephalosporin allergy in 5-10% of patients with PCN allergy
  - Contraindicated in those with a severe reaction
    - Anaphylaxis
    - Stevens Johnson syndrome
    - Toxic epidermal necrolysis
- Azithromycin 2 gm
  - Uncomplicated infection
  - Resistance to macrolides is emerging
Gonococcal Infections-Follow Up

- Routine test of cure is not recommended
- Retested in 3 months
- Treatment failure
  - Culture with antimicrobial susceptibility testing
  - Retreat with at least 250 mg IM ceftriaxone
  - Ensure partner treatment
  - Report to local health department (CDC)
  - ID specialist consultation
Pelvic Inflammatory Disease

- Spectrum of inflammatory disorders of the upper female genital tract
  - Endometritis, salpingitis, TOA, pelvic peritonitis
- GC/CT ascending infections
  - Microorganisms of the vagina
  - Enteric gram negative rods
  - CMV
  - M. Hominis, U.urealyticum, M. genitalium
Pelvic Inflammatory Disease
Diagnosis

- Most specific criteria for diagnosing PID:
  - Endometrial biopsy
  - TVUS or MRI showing Tubo-ovarian abscess (TOA), thickened fluid filled tubes, or tubal hyperemia (doppler flow)
  - Laparoscopic abnormalities consistent with PID
Pelvic Inflammatory Disease - Diagnosis

- Pressure to make this diagnosis without specific testing
  - Early diagnosis
  - Often goes unrecognized
  - Low threshold for diagnosis

- Clinical diagnosis is imprecise
  - PPV value depends on the epidemiologic characteristics of the population
Pelvic Inflammatory Disease - Diagnosis

- Treatment for PID should be initiated in sexually active young or high risk women with
  - Pelvic pain/lower abdominal pain
  - Other causes for pain have been ruled out
  - At least ONE of the following is present
    - Cervical motion tenderness
    - Uterine tenderness
    - Adnexal tenderness
Pelvic Inflammatory Disease - Diagnosis

- Additional criteria to enhance the specificity of the minimum criteria:
  - Temperature >101 (F)
  - Cervical/vaginal mucopurulent discharge
  - Increase WBCs in vaginal secretions
  - Increased ESR
  - Increased C-reactive protein
  - Documented GC/CT infection*
Pelvic Inflammatory Disease - Diagnosis

- Signs of lower genital tract inflammation + one of the three minimal criteria increases the specificity of the diagnosis.
Pelvic Inflammatory Disease - Treatment Principles

- Treatment should be broad spectrum
  - GC/CT coverage even if testing is negative
- Parenteral and Oral regimens
Pelvic Inflammatory Disease - Treatment Principles

- Outpatient therapy in mild or moderate infection
- Hospitalization required if:
  - Surgical emergency can not be excluded
  - Pregnancy
  - No response to oral antibiotics
  - Unable to follow outpatient regimen
  - Severe illness including nausea, vomiting, or high fever
  - TOA
# Pelvic Inflammatory Disease - Treatment

<table>
<thead>
<tr>
<th>Parenteral Treatment</th>
<th>Recommended Therapy</th>
<th>Alternative Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cefotetan 2 gm IV q 12 hours or Cefoxitin 2gm IV q 6 hours PLUS Doxycycline 100 mg IV or po every 12 hours OR Clindamycin 900 mg IV q 8 hours PLUS Gentamycin 2 mg/kg IV or IM x 1, then 1.5 mg/kg q 8 hours</td>
<td>Ampicillin/sulbactam 3 gm IV q 6 hours PLUS Doxycycline 100 mg po/IV q 12 hours</td>
</tr>
</tbody>
</table>
Pelvic Inflammatory Disease - Treatment

- Parenteral therapy until 24 hours from clinical improvement
- Followed by doxycycline 100 mg po bid or clindamycin 450 mg qid for total of 14 days
<table>
<thead>
<tr>
<th>Oral Treatment</th>
<th>Recommended Therapy</th>
<th>Alternative Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ceftriaxone 250 mg IM x 1 PLUS Doxycycline 100 mg po bid x 14 days</td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cefoxitin 2 gm IM with Probenecid 1 gm IM x 1 PLUS Doxycycline 100 mg po bid x 14 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parenteral third generation cephalosporin PLUS Doxycycline 100 mg po bid x 14 days</td>
<td></td>
</tr>
</tbody>
</table>
Pelvic Inflammatory Disease - Treatment

- Metronidazole can be added to all of the oral regimens
  - Improve anaerobic coverage
  - Treat bacterial vaginosis

- Quinolone-resistant N. Gonorrhoeae
  - Levofloxacin or Ofloxacin + Metronidazole
    - Low risk of GC (individual and community)
    - Sensitivity data
    - Add Azithromycin 2 gm if resistant or unknown
Pelvic Inflammatory Disease

- Patients should improve within 3 days of therapy
  - Hospitalization
  - More testing
  - Surgical intervention
Pelvic Inflammatory Disease - Follow Up

- Patients treated with oral regimen should be re-evaluated within three days
- Documented GC/CT infection
  - Re-test 3-6 months after treatment
- Abstain from sex until treatment is complete and no symptoms
- Empiric sex partner treatment
- Offer HIV testing
- IUD can remain in place
Genital Warts—Initial Visits to Physicians’ Offices, United States, 1966–2011

Visits (in thousands)

Year

NOTE: The relative standard errors for genital warts estimates of more than 100,000 range from 18% to 30%.

Human Papilloma Virus

- 100 different types
  - 40 types affect the genital tract
  - Nononcogenic cause genital warts and respiratory papillomatosis
  - 50% of sexually active people will be infected at least once
    - Vaginal and anal sex, also oral sex
    - Condoms are not fully protective
    - Difficult to identify how/when HPV was acquired
Human Papilloma Virus-Genital Warts

- 90% are caused by HPV 6 or 11
- Asymptomatic
- Flat, papular, or pedunculated lesions on the mucosa
  - Around the introitus most commonly
Human Papilloma Virus-Testing

- Nucleic acid testing is available for women at least 30 years of age undergoing cervical cancer screening
- General STI testing is not advised
Human Papilloma Virus - Genital Warts

- Diagnosis - clinical
  - Biopsy
    - Uncertain appearance
    - Therapy is not working
    - Worsens during therapy
    - Atypical appearance
    - Compromised immunity
    - Pigmented warts
  - DNA testing of lesions not appropriate
  - Acetic acid application not specific
Human Papilloma Virus - Genital Wart Treatment

- Improve symptoms and remove warts
  - May reduce HPV viral DNA
- No superior regimen
  - Resources
  - Patient preference
  - Provider experience
  - Wart characteristics
- Some lesions may spontaneously resolve
Human Papilloma Virus-Genital Wart Treatment

- Patient’s immunity plays a role in treatment response
  - May take up to 3 months of therapy
- Persistent changes in pigmentation
- Develop scarring
- Rarely, can develop chronic pain syndrome
- Limited number of systemic effects from podophyllin and interferon therapy
<table>
<thead>
<tr>
<th>Recommended</th>
<th>Patient Applied</th>
<th>Provider Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Podofiliox 0.5% solution or gel bid x 3 days, 4 days off- 4 cycles</td>
<td>Cryotherapy with liquid nitrogen or cryoprobe 1-2 weeks</td>
</tr>
<tr>
<td></td>
<td>OR Imiquimod 5% cream qhs x 3 nights a week, 16 weeks</td>
<td>OR Podophyllin resin 10%-25% in a compound tincture of benzoin weekly</td>
</tr>
<tr>
<td></td>
<td>OR Sinecatechins 15% ointment tid, 16 weeks</td>
<td>OR Trichloracetic acid (TCA) or Bichloroacetic acid (BCA) 80%-90%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OR surgical removal</td>
</tr>
</tbody>
</table>
# Genital Wart Treatment

<table>
<thead>
<tr>
<th>Cervical Warts</th>
<th>Vaginal Warts</th>
<th>Urethral meatus Warts</th>
<th>Anal Warts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biopsy</td>
<td>Cryotherapy with liquid nitrogen OR TCA or BCA</td>
<td>Cryotherapy with liquid nitrogen OR Podophyllin 10-25% in a compound tincture of benzoin</td>
<td>Cryotherapy with liquid nitrogen OR TCA or BCA OR Surgical removal</td>
</tr>
</tbody>
</table>
Genital Warts - Treatment Considerations

- Commonly recur 3 months after treatment
- Unknown how long a person is contagious after treatment
- Unknown if informing subsequent sex partners of previous infection is beneficial
- Pap testing recommendations remain the same
STD Rates, Milwaukee, 2006: 2nd highest of 50 big cities in the U.S.

Combined rates* for chlamydia, gonorrhea and primary and secondary syphilis for the 50 largest metropolitan areas, 2006, CDC data

* Cases per 100,000 population.
Expedited Partner Therapy

- Late 1990s programs were developed to ensure partner treatment
- Expedited Partner Therapy (EPT) treats sex partners of patients with an STI diagnosis without examination
  - EPT increases the numbers of partners treated
  - EPT leads to lower rates of persistent or recurrent infection
Expedited Partner Therapy

- Can decrease reinfection rates compared to referral for examination
  - Reinfection from untreated partner contributes to high rates of GC/CT infection
- Costs from societal and health care perspective are lower than referral for care
- Insufficient data to support effectiveness for trichomoniasis or syphilis
Expedited Partner Therapy

- Notification and treatment of sex partners of patients with syphilis is responsibility of the public health department
  - Not feasible to include GC and CT in this program
Expedited Partner Therapy

- CDC has recommended EPT since 2006
  - Ideally, partner receives complete in person evaluation
  - Therapy is given if this is not possible

- Supported by
  - AMA
  - Society for Adolescent Health and Medicine
  - American Academy of Pediatrics
  - American Bar Association
  - ACOG
Expedited Partner Therapy

- ACOG recommendations
  - Heterosexual partners of female patients with GC or CT infection in past 2 months who are unable to seek care should receive EPT
    - Partners should be encouraged to seek medical evaluation
  - Should be compliant with CDC, local, and states guidelines
    - Abstinence from sex for 7 days
  - Index patient should be counseled
    - Written information should be provided to her partner(s)
  - Medication can be dispensed or a prescription written to her partner(s)
  - Mechanism in place for patient to report adverse events
Expedited Partner Therapy

Use of EPT is governed by state, not national law
Expedited Partner Therapy

- 2009 Wisconsin Act 280 was signed into law
  - Enables physicians, physician assistants and certified advanced practice nurse practitioners to prescribe and dispense medication to partners of patients with GC, CT, and trichomoniasis
  - CDC cautions against widespread partner treatment in cases of trichomoniasis infections
Wisconsin legislation protects health care professionals and pharmacists providing EPT from civil and professional liability, except for willful and wanton misconduct.
Expedited Partner Therapy

- Risk of adverse events are low
  - Minimized with written information on dosing instructions

- Monitored expedited partner therapy programs
  - No drug-related adverse events
  - No lawsuits
Expedited Partner Therapy

- Guidance from Department of Health Services
  - First choice is to notify and refer partner for evaluation
  - Treatment according to CDC guidelines
  - All sex partners within 60 days of diagnosis or symptoms are allowed one EPT dose
  - Information material must be furnished
    - http://dhs.wisconsin.gov/communicable/STD/EPT.htm
  - Retested at 3 months if GC or CT infection
  - Report the infection
    - Section for documenting that EPT given
Expedited Partner Therapy

- Prescription should be written in partner’s name and address
  - Can be replaced with “EXPEDITED PARTNER THERAPY” or “EPT”
Expedited Partner Therapy

- Treatment for CT
  - Follow CDC guidelines
Expedited Partner Therapy

- Gonococcal resistance
  - Early stages of resistance to oral cephalosporin
  - Oral Cefixime is no longer recommended as EPT for GC infection
    - Single dose ceftriaxone 250 mg IM x1 PLUS
    - Azithromycin 1 gm orally or doxycycline 100 mg po bid x 7 days
  - If clinical evaluation is impossible
    - Cefixime PLUS Azithromycin
    - Test of cure one week after therapy
REFERENCES

- Golden MR, Estcourt CS. Barriers to the implementation of expedited partner therapy. Sex Transm Infec 2011; 87: ii37-ii38