

# Sexually Transmitted Infections

Kimberly A. Workowski, MD  
Professor of Medicine  
Emory University School of Medicine  
Atlanta, Georgia

IAS-USA

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## Learning Objectives

After attending this presentation, learners will be able to:

- Describe the current epidemiology of syphilis, gonorrhea, chlamydia
- Describe current screening and diagnostic recommendations
- Identify current treatment recommendations in the era of emerging antimicrobial resistance

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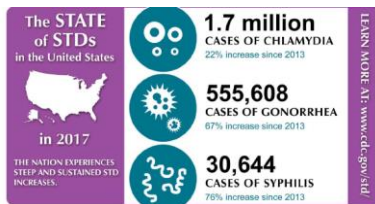
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## STIs are on the rise



Limitations of case report data

- Not all STDs are nationally notifiable
- Most STDs are asymptomatic, only those diagnosed can be reported
- Trends are influenced by screening coverage and reporting practices

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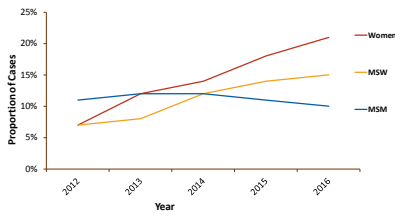
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**Proportion of P&S Syphilis Cases that Reported Meth or Heroin Use or Sex with a PWID, 2012–2016**



Kidd, MMWR 2019; Feb 15

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**STI Testing during HIV care**

- Initial care visit
  - Syphilis serology, NAAT (gonorrhea, chlamydia)
    - MSM (site of exposure)
  - Hepatitis A, B, C
- Women
  - Trichomonas testing (NAAT)
  - Cervical pap test (HIV OI guidelines)
- Frequent screening dependent on risk (3-6 mo)
  - New sex partner, partner with concurrent partners or more than one partner, or partner with an STI
- High risk behavior
  - Partner services, prevention counseling

2015 Treatment Guidelines, HIVMA 2014

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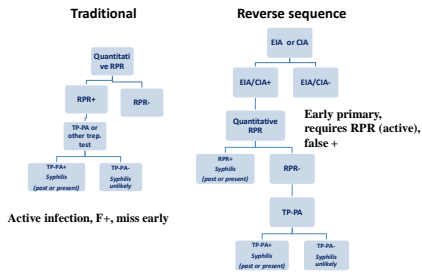
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**Syphilis serologic screening algorithms**

RPR Sensitivity  
 Primary 62-78%  
 Secondary 97-100%  
 EL 82-100%  
 Tertiary 47-64%  
 NS (VDRL) 49-87%



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MMWR 60(5):2011

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## Evaluation of CNS Involvement

- All persons with syphilis should be evaluated for neurologic symptoms/signs
- CSF examination recommended:
  - Neurologic or ophthalmic symptoms/signs
    - Auditory disease, cranial nerve dysfunction, meningitis, stroke, altered mental status, loss of vibration sense, iritis, uveitis
  - Evidence of tertiary disease
    - aortitis, gumma
  - Serologic treatment failure
- CNS invasion in early syphilis is common
  - CSF abnormalities of unclear significance in the absence of signs/symptoms
- Neurosyphilis = CSF tests + reactive RPR + signs/symptoms

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2015 CDC Treatment Guidelines

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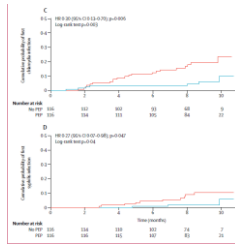
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## Syphilis

- Benz Pcn 2.4 mu IM x 1 early syphilis
- Role of enhanced therapy
  - IM+oral (Roitts 1997)
  - Observational > 500 HIV+ - no difference in serologic outcomes at 12 months 1 vs 3 (Ganesan 2014, Yang 2014)
  - **RCT Benz pcn 1 vs 3 early syphilis (NCT 03637660)**
- PCN alternatives (early, latent, NS)
  - Doxycycline, ceftriaxone
    - Optimal dose/duration
- Prevention -doxycycline prophylaxis



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Bolan, STD; Molina, Lancet 2018

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## LGV Proctitis

- MSM and women -+rectal chlamydia NAAT
- PCR based genotyping
- Proctocolitis +/- perianal ulcers
- Presumptive tx (doxy 100 mg bid x 21 d)
  - Painful perianal ulcers or mucosal ulcers presumptive therapy for HSV
- Short course therapy 7-14 d GUM clinic in UK (Simon, STD 2018)



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### Disseminated Gonococcal Infection (DGI)

- Estimated to account for 0.5-3% of gonococcal infections
- Risk factors: female, menses, pregnancy, terminal complement deficiency
- Clinical presentation
  - Monoarticular arthritis
  - Skin lesions (petechial or pustular) + tenosynovitis + polyarthralgia
  - Perihepatitis, endocarditis, meningitis
- Mucosal site infection often asymptomatic (NAAT)
- Antimicrobial susceptibility (AST) testing (culture)

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### Gonorrhea

- **United States**
  - Ceftriaxone 250 mg IM in a single dose PLUS
  - Azithromycin 1 g orally in a single dose
- **United Kingdom**
  - Ceftriaxone 1 gram IM in a single dose
- **Europe (European CDC)**
  - Ceftriaxone 500 mg IM in single dose PLUS
  - Azithromycin 2 gm orally in a single dose
- **Japan**
  - Ceftriaxone 1 gm IV/IM in a single dose
- Optimize therapeutic regimen
  - PK/PD (site of penetration)
  - Concentration dependent vs independent
  - Bacterial burden
  - Mutational frequency to resistance
- Novel agents (Zoliflodacin, Gepotidacin)
- Treatment Failures
  - Most treatment failures due to reinfection
  - If treatment failure suspect, obtain culture/susceptibility test + ensure partner treatment

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### M. genitalium Meta-Analyses

Syndrome	Summary risk estimate	Studies accounting for CT (subset)
NGU	5.5 (4.3 – 7.0)	-
Female Urethritis	2.2 (1.6 – 2.9)	2.1 (1.5 – 2.9)
Cervicitis	1.6 (1.4 – 2.0)	1.9 (1.4 – 2.8)
PID / Endometritis	1.9 (1.3 – 3.5)	2.0 (0.95 – 4.0)
Preterm Delivery	1.9 (1.2 – 2.9)	2.3 (1.1 – 5.0)
Spontaneous Abortion	1.8 (1.1 – 3.0)	2.3 (1.0 – 4.9)
Infertility	3.0 (1.3 – 6.7)	3.7 (1.7 – 8.1)
HIV	2.0 (1.4 – 2.8)	-

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Taylor-Robinson & Jensen, Clin Microbiol Rev 2011; Li et al., CID 2015 – updated; Napierala Mavedzinge & Weiss, AIDS 2009

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## HPV Vaccine

### Nanovalent HPV Vaccine

- Types 6, 11, 16, 18, 31, 33, 45, 52, 58
- FDA approved to prevent warts, cervical, vulvar, vaginal and anal cancer



- 2 doses for males/females aged 9-14
- 3 doses for males/females aged 15-26
- Immunocompromised patients need 3 doses, regardless of age of initiation

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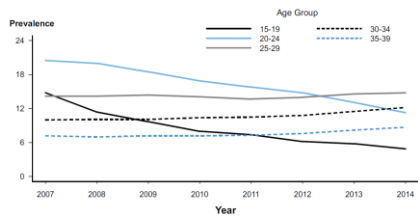
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### Cervical Intraepithelial Neoplasia Grades 2 and 3 — Prevalence per 1000 Person-Years Among Female Enrollees in Private Health Plans Aged 15–39 Years, by Age Group and Year, 2007–2014



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Fig 1. *JAMA* 2016;316(12):2211–2218.

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### STI Screening and Management



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www.cdc.gov/std/tg2015

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