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SCREENING & TESTING FOR SEXUALLY TRANSMITTED INFECTIONS IN GAY, BISEXUAL & OTHER MEN WHO HAVE SEX WITH MEN

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CONTINUING MEDICAL EDUCATION DISCLOSURE

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- Disclosure: Financial relationships with Cepheid, GenProbe, Astra-Zeneca and Merck (Research grants and Consultant for fee). Content of presentation contains no use of unlabeled and/or investigational uses of products.

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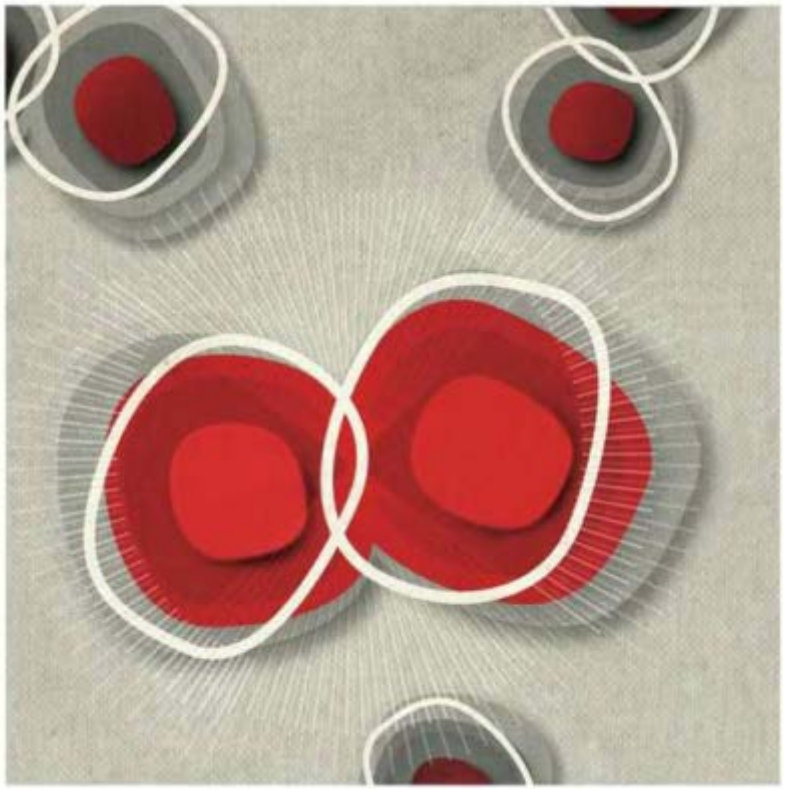
MEDICAL DISPATCHES

SEX AND THE SUPERBUG

The rise of drug-resistant gonorrhea.

BY JEROME GROOPMAN



Gonorrhea mutates in the pharynx, making oral sex far more risky than people think.

The New Yorker, October 1, 2012

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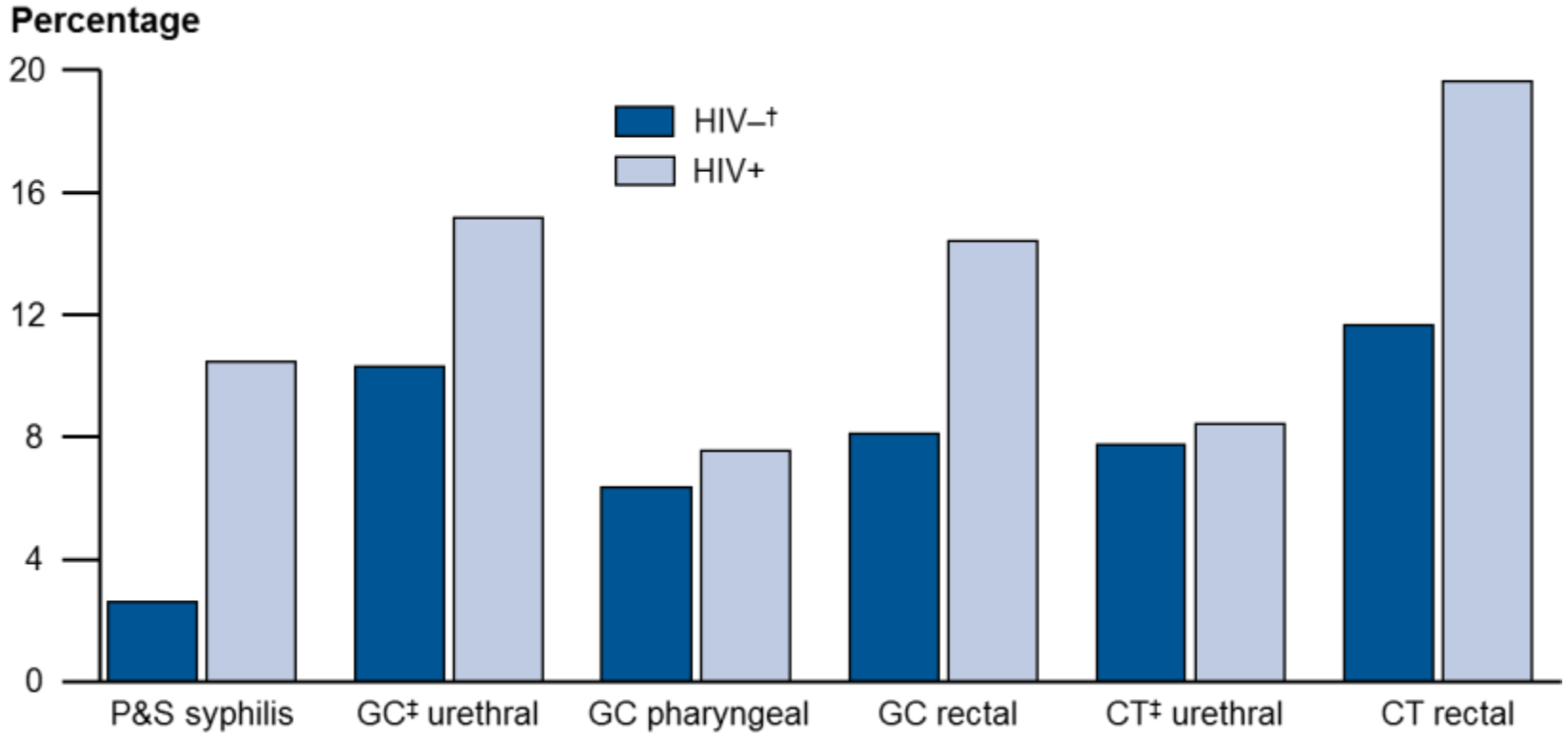
OBJECTIVES

- Summarize CDC screening guidelines for STIs and HIV in MSM
  - Rationale: epidemiology
- Review STI testing and diagnostic issues specific to MSM
- Identify barriers to effective STI screening and testing with MSM in health care settings
- Identify potential strategies for overcoming these barriers

STD SURVEILLANCE NETWORK (SSUN)—PROPORTION OF MSM* ATTENDING STD CLINICS WITH PRIMARY AND SECONDARY SYPHILIS, GONORRHEA OR CHLAMYDIA BY HIV STATUS, 2010



* MSM = men who have sex with men.
† HIV negative status includes persons of unknown status for this analysis.
‡ GC urethral and CT urethral include results from both urethral and urine specimens.

See also Ganesan 2012; Spaulding 2012: military cohort data

STD SCREENING IN MSM

- At least annually for sexually active MSM:
  - HIV serology, if HIV negative or not tested within the previous year;
  - Syphilis serology
  - Urine NAAT for N. gonorrhea and C. trachomatis if insertive intercourse during preceding year;
  - Rectal NAAT for GC/CT if receptive anal intercourse during preceding year
  - Pharyngeal NAAT for GC if receptive oral sex in preceding year
    - Testing for CT not recommended

STD SCREENING IN MSM

- Evaluation for HSV-2 infection with type-specific serologic tests also can be considered if infection status is unknown; knowledge of HSV-2 serostatus might be helpful in identifying persons with previously undiagnosed genital tract infection.
- Screening for anal cytologic abnormalities can be considered; evidence limited concerning natural history of AIN, reliability of screening, safety and response to treatments, and programmatic support needed
- More frequent screening is indicated for MSM who have multiple or anonymous partners. In addition, MSM who have sex in conjunction with illicit drug use (particularly methamphetamine use) or whose sex partners participate in these activities should be screened more frequently.

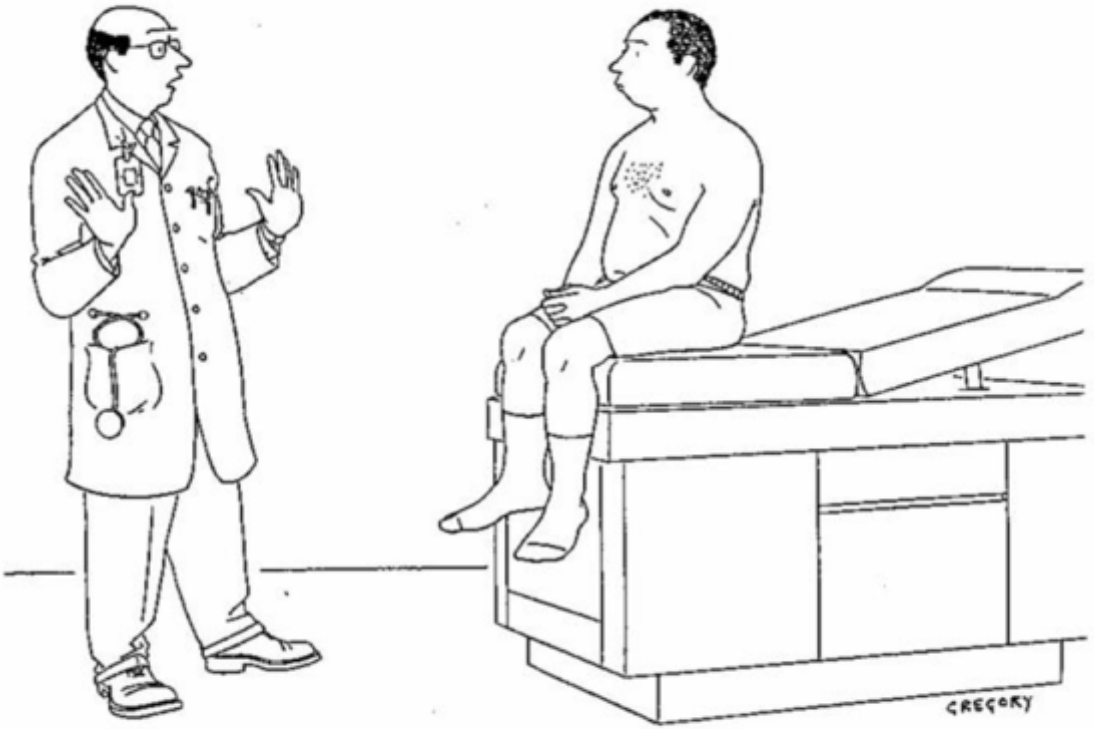
STD SCREENING IN MSM

- HBsAg testing to detect current infection
- Hepatitis A and B vaccination if nonimmune
- Hepatitis C virus (HCV) sexual transmission (HIV+ MSM)
  - HCV serology at initial visit
  - HCV RNA with unexplained alanine aminotransferase rise
  - Routine HCV testing- high-risk sexual behavior or ulcerative STDs
  - Prevention (condoms) at sites of penetration

STD SCREENING: 2009 HIVMA PRIMARY CARE GUIDELINES

- Syphilis: At entry to care and periodically thereafter, depending on risk
- Gonorrhea: At entry to care and periodically thereafter, depending on risk
  - Rectal testing if receptive anal sex
  - Oral testing if receptive oral sex
- Chlamydia: At entry to care and periodically thereafter, depending on risk
  - Rectal testing if receptive anal sex

STD SCREENING: REQUIRES ASKING



"Whoa—way too much information."

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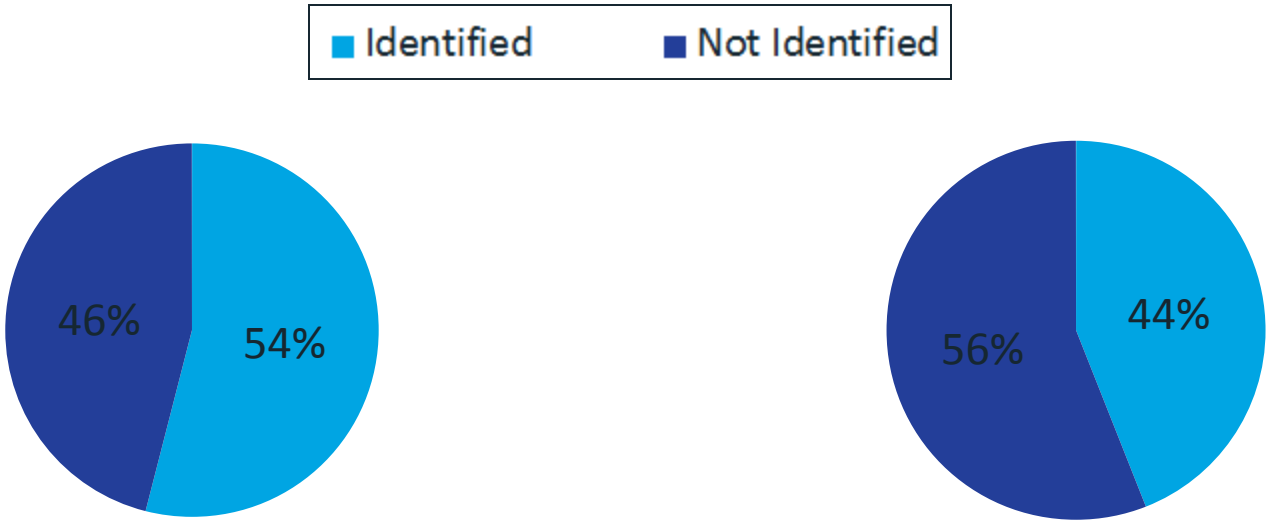
Ask Screen Intervene

www.nnptc.org/online_training/asi

RECTAL AND PHARYNGEAL INFECTIONS ARE COMMONLY ASYMPTOMATIC

Chlamydia (n = 655) **Gonorrhea (n = 892)**



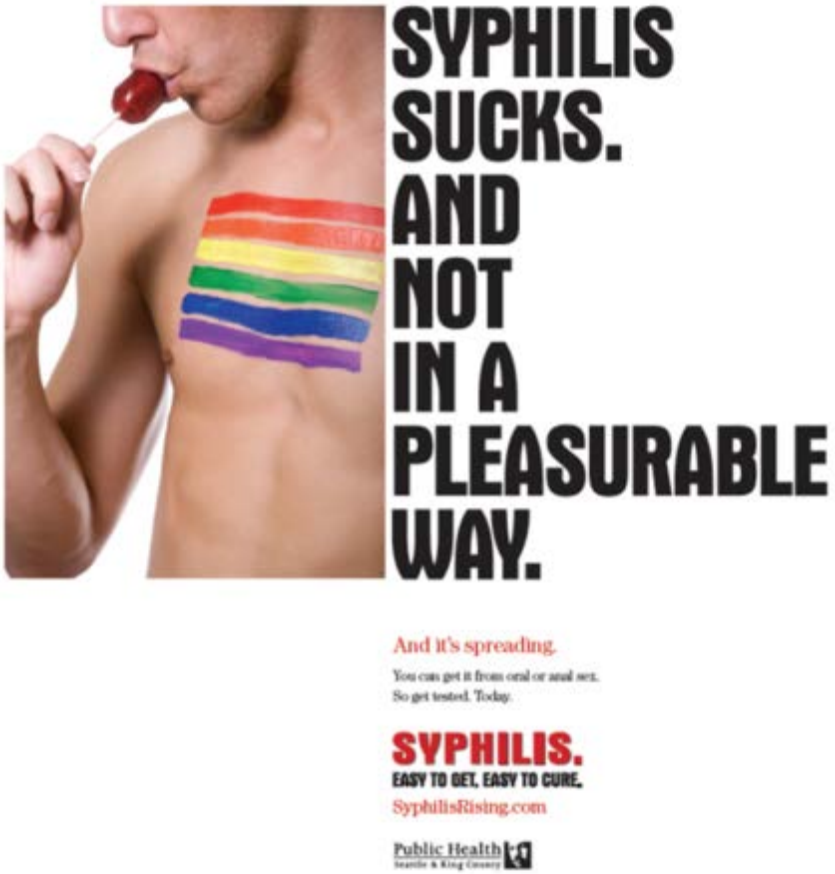
Proportion of infections that would NOT be identified if only urine/urethral screening is performed among gay/bisexual men

(Kent et al. *CID* 2005 updated)

NEW CHALLENGES

I ordered syphilis serology on my patient and instead of getting the usual RPR, I got a *Treponema pallidum* IgG result.

It was “reactive” – Help!



www.syphilisrising.org

SYPHILIS EIA/CIA

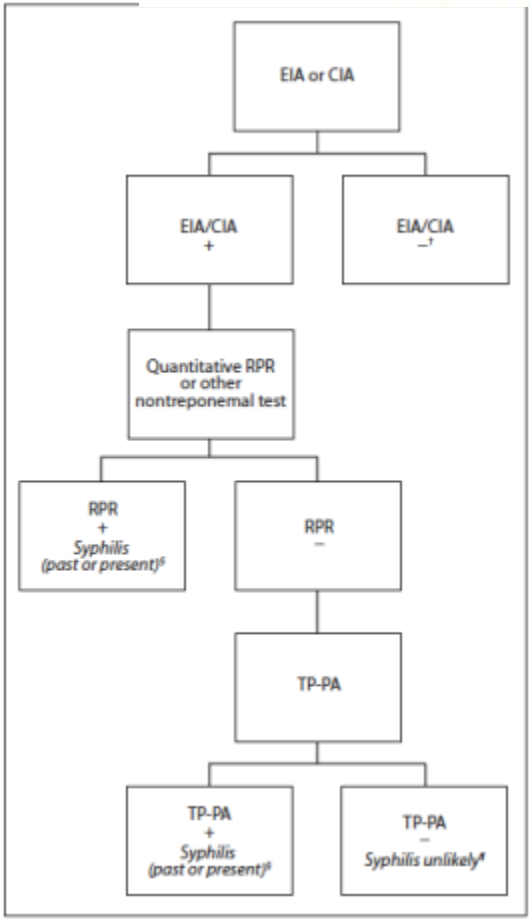
- Treponemal tests FDA cleared for clinical use
- IgG, IgM* tests available
  - IgM in early syphilis diagnosis (Knaute CID 2012)
- Automated, occupational advantages (no pipette), no prozone, less costly to lab
- “Reverse sequence syphilis screening” is result (treponemal test used *first*)
- Limitations:
  - Can’t distinguish between active and old disease (treated / not)
  - Can’t use to monitor therapy (no titers)
  - False positive results in low prevalence

Sena *Clin Infect Dis* 2010;

Park *J Infect Dis* 2011

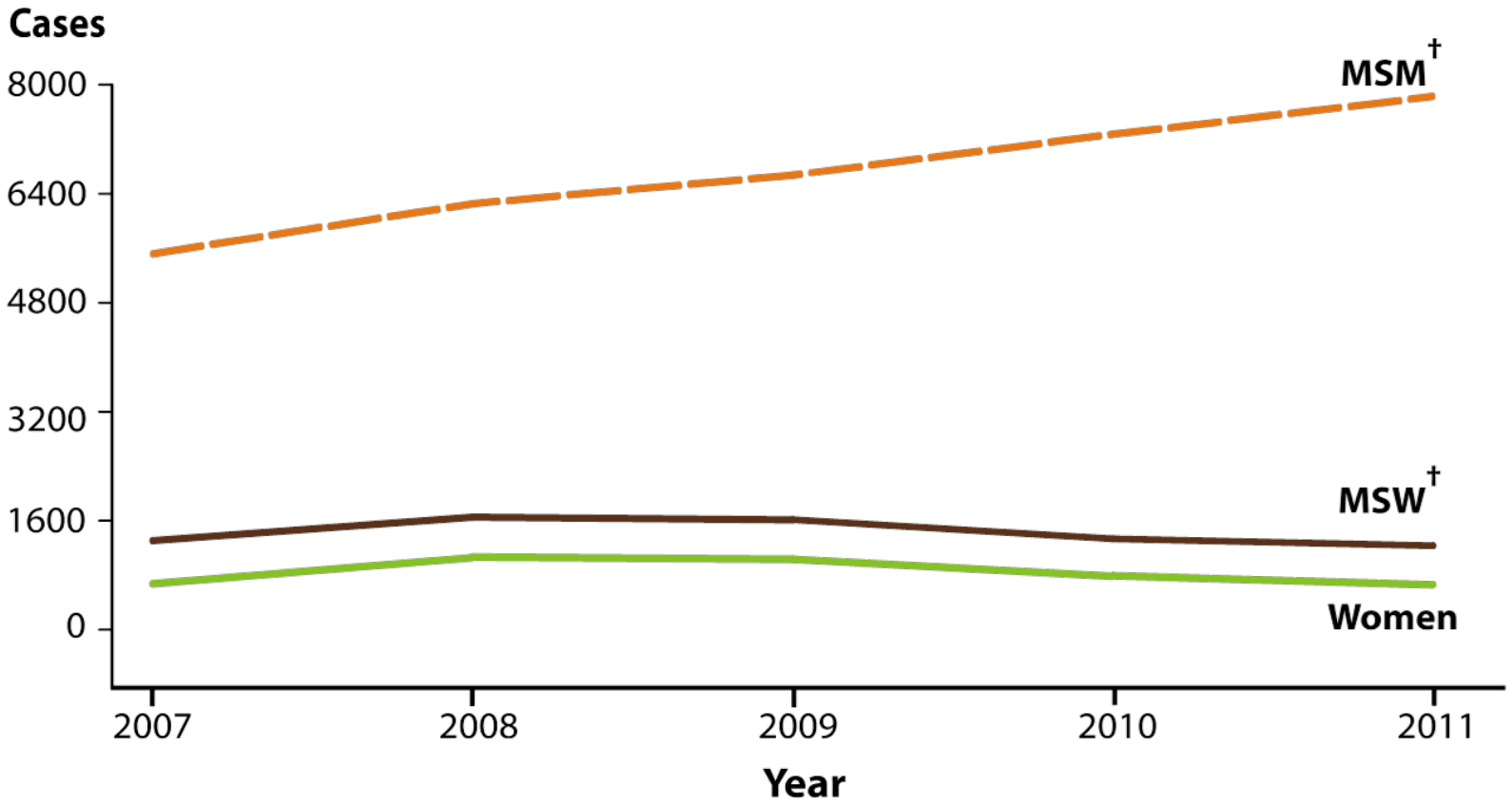
Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Weekly / Vol. 60 / No. 5
February 11, 2011

Discordant Results from Reverse Sequence Syphilis Screening — Five Laboratories, United States, 2006–2010



- Confirm positives with standard nontreponemal test titer (RPR/VDRL) to guide management
- If this is negative, perform a different treponemal test (TPPA)
- Patients with discrepant serology (e.g., positive EIA/CLIA and negative RPR)
- Early untreated, false-positive EIA, OR previously treated syphilis

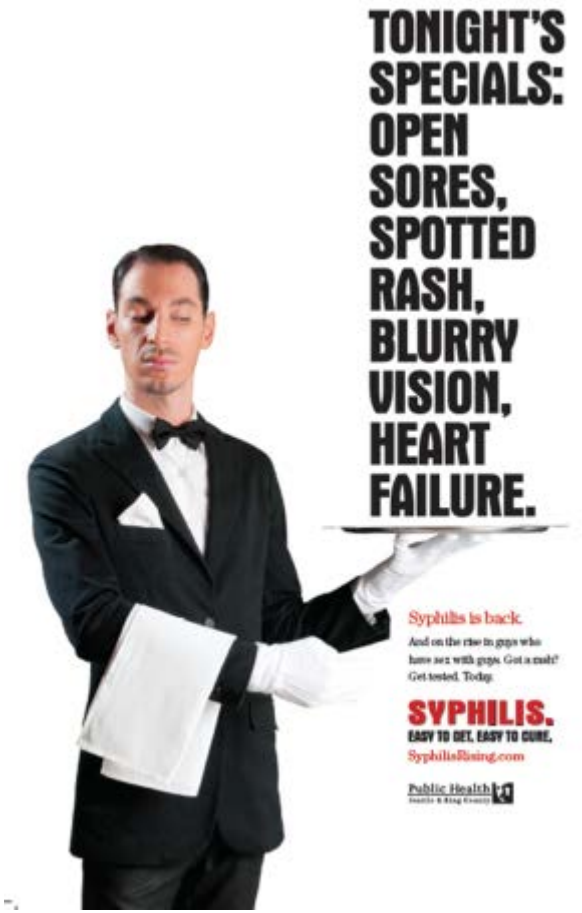
PRIMARY AND SECONDARY SYPHILIS—BY SEX AND SEXUAL BEHAVIOR, 33 AREAS*, 2007–2011



- Relentless upward trends in men (MSM, HIV)
  - Anecdotal increase in neuro presentations (uveitis, otitis)
- Increasing use of new serologic tests (EIA)
- Don’t use azithromycin for treatment

SCREENING FOR NEUROSYPHILIS

I’m really confused about when to get an LP in patients with syphilis.



www.syphilisrising.org

CASE: TO LP OR NOT?

- 31 y.o. man presents for initiation of ART
- No prior history of syphilis; has genital herpes and prior history of gonorrhea (most recent one year ago)
- Normal history and physical exam
- CD4 11 (1%); plasma viral load 230,000 copies/ml
  - Treponemal CIA + (IgM/IgG), RPR + 1:128

WOULD YOU PERFORM LP TO RULE OUT NEUROINVASIVE SYPHILIS?

a) No
b) Yes
c) I need more information

EVALUATION OF CNS IN SYPHILIS, HIV+, 2010

- CNS invasion occurs in early syphilis regardless of HIV or neurologic symptoms (protein, pleocytosis
  - Clinical significance unknown (HIV+/-)
  - Clinical and CSF consistent with neurosyphilis associated with RPR ≥ 1:32 and/or CD4 ≤350
    - Criteria likely sensitive, but non-specific (many negative LPs)
    - Unless neurologic symptoms present, CSF exam has not been associated with improved clinical outcomes
    - Guidelines are non-directive and leave LP decision up to providers' discretion

2010 CDC STD Treatment Guidelines
www.cdc.gov/std

1. Marra CM, et al. Neurology. 2004;63:85-88.
2. Libois A, et al. Sex Transm Dis. 2007;34;141-144.
3. Ghanem KG, et al. Clin Infect Dis. 2009;816-821.
4. Marra CM et al. Clin Infect Dis. 2008;47:893-899.

MANAGEMENT OF SYPHILIS & HIV: GENERAL THEMES

- Use standard treatment appropriate to stage
- Serologic follow-up more frequent
  - 3, 6, 9, 12, 18 and 24 month follow up serology with quantitative test (RPR or VDRL; use same one consistently)
- For neurosyphilis, clearance problem in HIV+
  - Poorer neurosyphilis treatment response with low CD4, no ARV
- Three approaches:
  - LP for all HIV+ patients with syphilis, regardless of stage
  - LP using algorithm based on CD4 and syphilis titer
    - Treat for neurosyphilis if CSF WBC elevated or CSF-VDRL reactive
  - LP only if symptoms/signs indicate CNS involvement

NEUROSYPHILIS: CAN OCCUR AT ANY STAGE OF SYPHILIS

- CNS invasion occurs early in infection ~30-40%
  - Majority asymptomatic
- Neurosyphilis
  - Early symptomatic forms (months to a few years)
    - Acute syphilitic meningitis (CN VI, VII, VIII), *hearing loss,* meningovascular (stuttering stroke), altered mental status
  - Late symptomatic forms (> 2 years)
    - General paresis and Tabes dorsalis
- Ocular syphilis
  - Posterior chamber uveitis
  - Retinitis and retinal detachment

HIV INFECTED ? LP OR NOT…

- Studies document clinical and CSF abnormalities consistent with neurosyphilis in HIV + with low CD4 (≤350) or RPR ≥ 1:32
  - No change in clinical outcomes if asymptomatic
- Unless neurologic symptoms, no evidence that CSF exam is associated with improved outcomes, so not recommended
    - Assess for neurologic/opthalamic/otologic symptoms
    - LP all HIV + with syphilis and neurologic symptoms

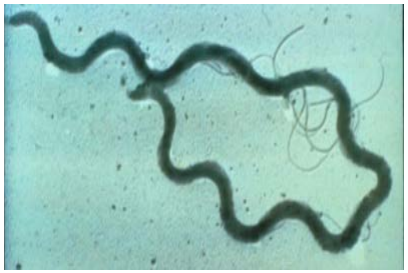
Marra, JID 2004; 189: 369-76; Libois, *STD* 2007; 34 (3): 141-4; Ghanem, *CID 2009; 49:162-3;*
CDC/NIH/HIVMA/IDSA Adult Opportunistic Infection GL 2013

NEUROSYPHILIS DIAGNOSIS

- CSF VDRL has limitations
  - Very specific but not very sensitive
  - Only test approved for CSF specimen
  - CSF VDRL negative patients consider neurosyphilis treatment if no other etiology identified and
    - CSF WBCs >5 in HIV negative patients
    - CSF WBCs >20 in HIV infected patients*
- CSF FTA-abs is not specific but a negative test result may help rule out neurosyphilis (but may not if clinical suspicion is high**)

CDC 2010 STD Treatment Guidelines
Harding, Ghanem. STD 2012; 39, (4) 291-97.

SYPHILIS SCREENING PARADIGM



EMERGING NEW…

Treponemal tests (e.g., EIA, CIA, MBIA)

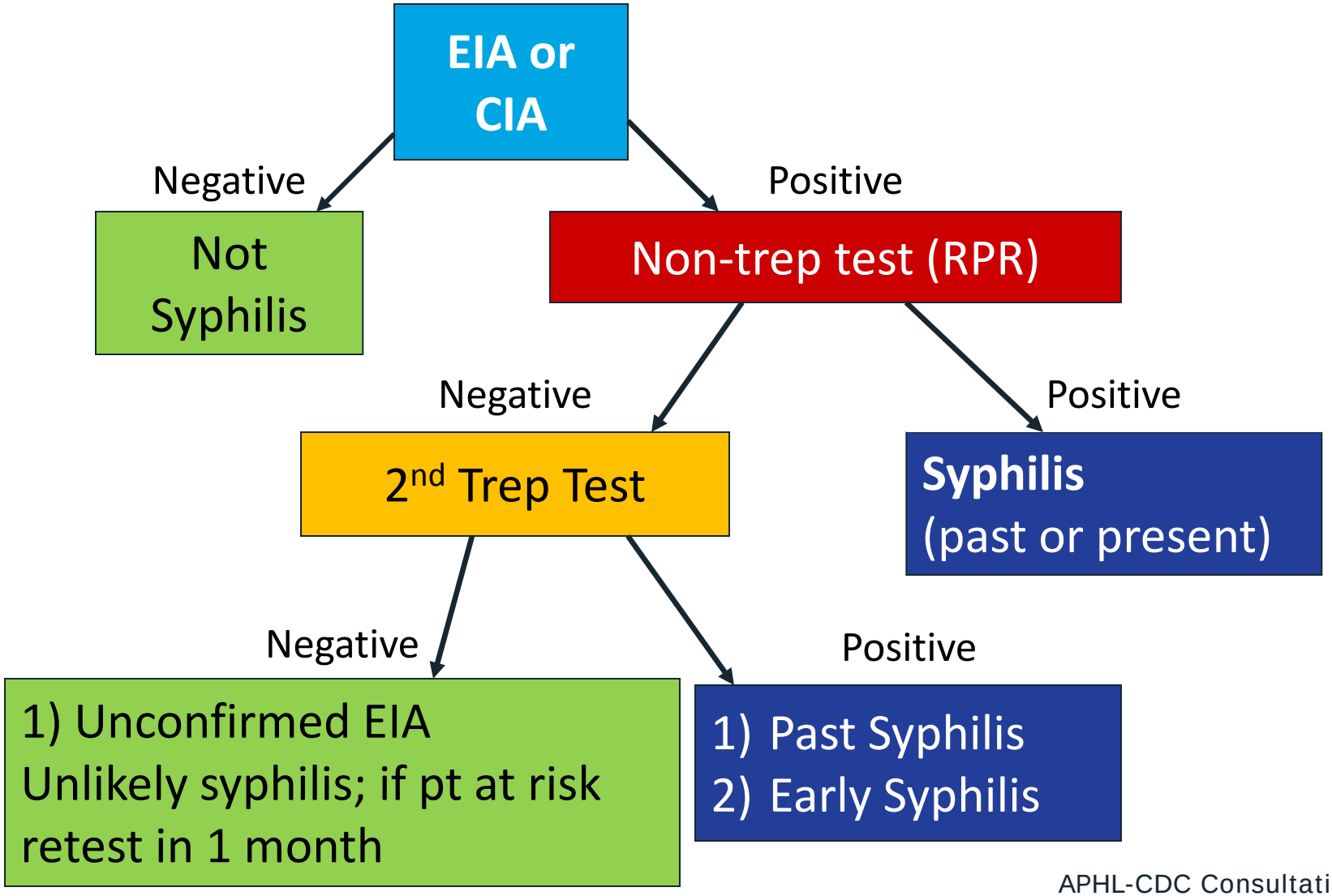
- SPECIFIC TO *TP*
- QUALITATIVE
- REACTIVITY PERSISTS OVER LIFETIME
- REACTIVITY DECLINES WITH TIME

reflex to

Non-treponemal tests (e.g., RPR, VDRL)

- NON-SPECIFIC ANTIBODY TO LIPOIDAL ANTIGENS
- QUANTITATIVE
- REACTIVITY DECLINES WITH TIME

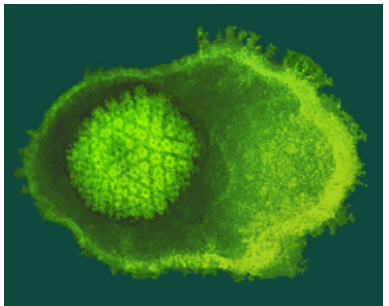
REVERSE SEQUENCE SCREENING ALGORITHM

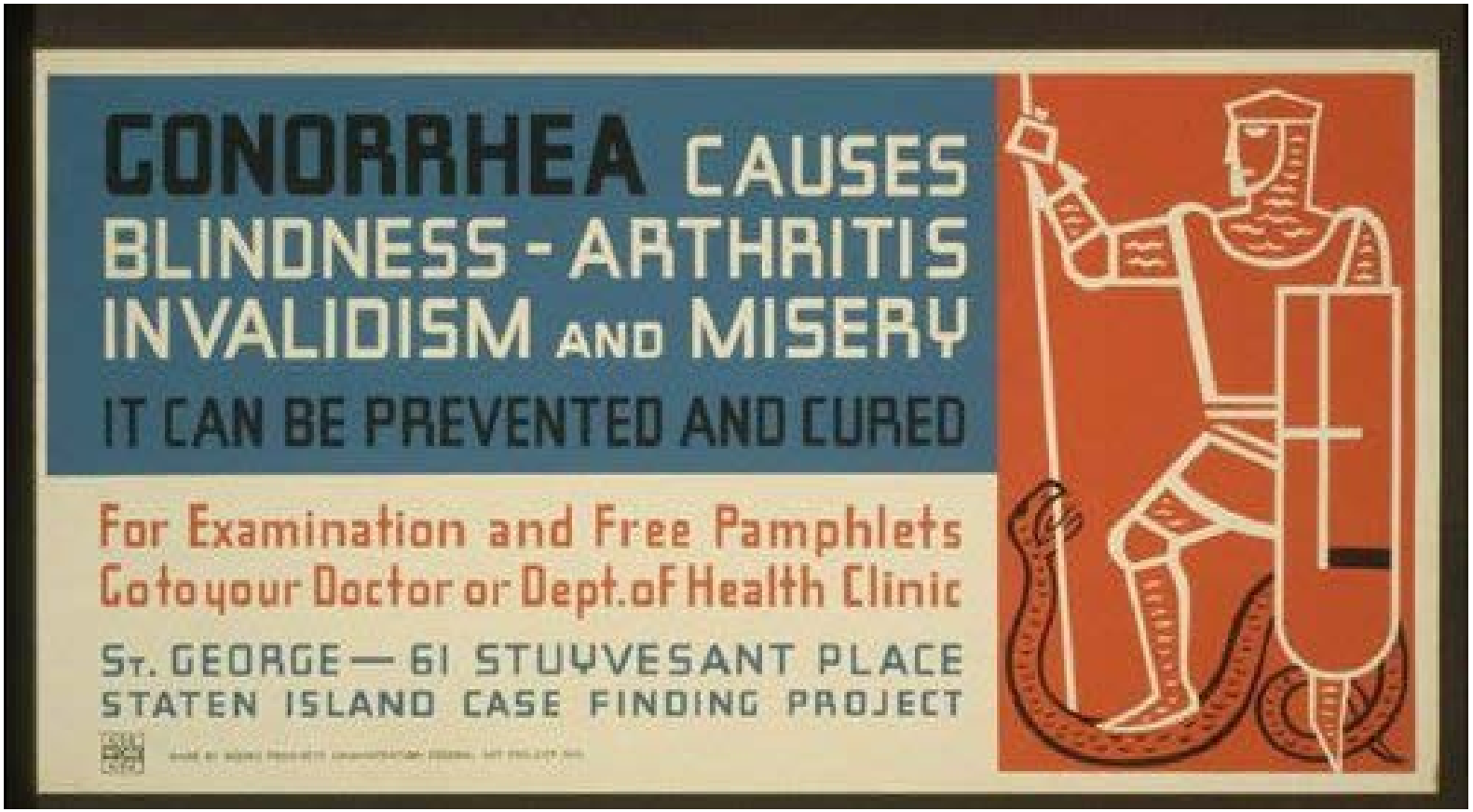


APHL-CDC Consultation Report, 1/2009 MMWR 2011/Vol 60 (5)

INTERPRETING COMMONLY USED SEROLOGIES

- HerpeSelect (Focus) ELISA is commonly used
- Although package insert states that an index value >1.1 should be interpreted as positive, several experts use a cutoff of 3.5
  - PPV as low as 38% in college students with very low HSV2 seroprevalence (3.4%) [Mark 2007]
  - Leads to higher negative predictive value [Golden 2005; Philip 2008]
    - Correctly reports uninfected people as uninfected
    - Fewer false positives
- For patients who REALLY want to know, consider Western blot
  - Call #206-598-6066 to request HSV Type-Specific Serology information packet
  - http://depts.washington.edu/herpes/





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The NEW ENGLAND JOURNAL of MEDICINE

Perspective

FEBRUARY 9, 2012

The Emerging Threat of Untreatable Gonococcal Infection

Gail A. Bolan, M.D., P. Frederick Sparling, M.D., and Judith N. Wasserheit, M.D., M.P.H.

It is time to sound the alarm. During the past 3 years, the wily gonococcus has become less susceptible to our last line of antimicrobial defense, threatening our ability to cure gonorrhea and prevent severe sequelae.

Gonorrhea is the second most commonly reported communicable disease in the United States, with an estimated incidence of more than 600,000 cases annually. It disproportionately affects vulnerable populations such as minorities who are marginalized because of race, ethnic group, or sexual orientation. Unfortunately, *Neisseria gonorrhoeae* has always

Control and Prevention (CDC) are now limited to third-generation cephalosporins.[2]

But susceptibility to cephalosporins has been decreasing rapidly.[3] The proportion of GISP isolates for which the minimum inhibitory concentration (MIC) of cefixime is elevated (≥0.25 μg per milliliter) has increased by a factor of 17 — from 0.1% in 2006 to

(0.04% of those in the GISP) had a MIC of ceftriaxone of 0.25 μg per milliliter in the first half of 2011, the proportion of GISP isolates with an elevated ceftriaxone MIC (≥0.125 μg per milliliter) has increased by a factor of 10 since 2006 (from 0.05% to 0.50%). Again, increases were greatest in the west (from 0.04% to 1.90%) and among men who have sex with men (from 0.0% to 1.0%). These geographic and demographic patterns are worrisome because they mirror those observed during the emergence of fluoroquinolone-resistant *N. gonorrhoeae*.

INTERNATIONAL EMERGENCE OF N. GONORRHOEAE WITH DECREASED SUSCEPTIBILITY TO CEPHALOSPORINS

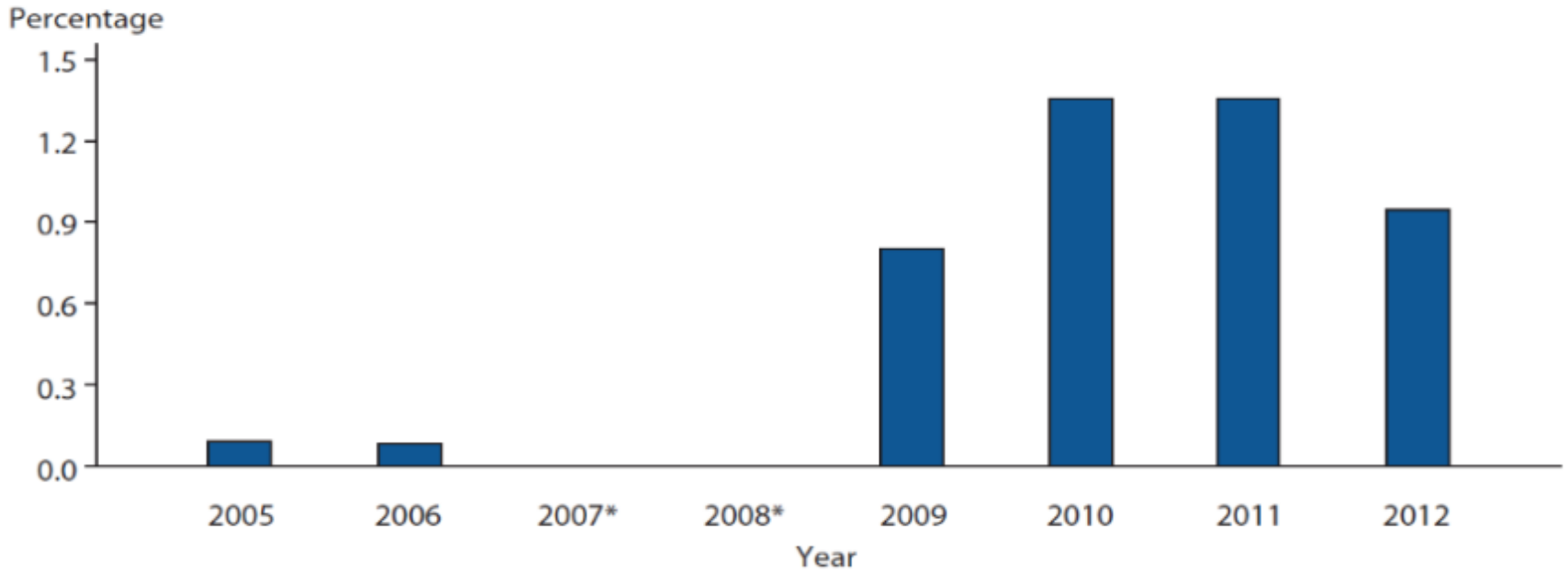
- Increasing proportion of isolates with laboratory evidence of decreased susceptibility (GISP)
  - Elevated MICs
- Case reports of oral cephalosporin treatment failures
  - East Asia and Western Pacific, 2000-present
  - Europe, 2010-present
  - N. America, 2010-2011: Cefixime treatment failure in 25% with MIC >0.12 (Allen 2013)
- Extended Spectrum Cephalosporin Resistance
  - H014: Japanese sex worker with pharyngeal isolate with ceftriaxone MIC 2-4 (Ohnishi 2011)
  - F89: French MSM urethral isolate with cefixime MIC 4, ceftriaxone 1-2 (Unemo 2012)

THE GONOCOCCAL ISOLATE SURVEILLANCE PROJECT (GISP)

- CDC-supported US sentinel surveillance since 1987
- Monitors trends in N. gonorrhoeae antibiotic susceptibility in men attending STD clinics
- Methods
  - Urethral isolates obtained from the first 25 men per site each month
  - Susceptibility testing conducted by 5 regional laboratories
    - Minimum inhibitory concentrations (MICs) by agar dilution
  - Confirmatory testing by CDC
  - Limited demographic & clinical data from participating men

http://www.cdc.gov/std/gisp/

PERCENTAGE OF NEISSERIA GONORRHOEAE ISOLATES WITH ELEVATED CEFIXIME MINIMUM INHIBITORY CONCENTRATIONS (MICS) (≥ 0.25 G/ML)

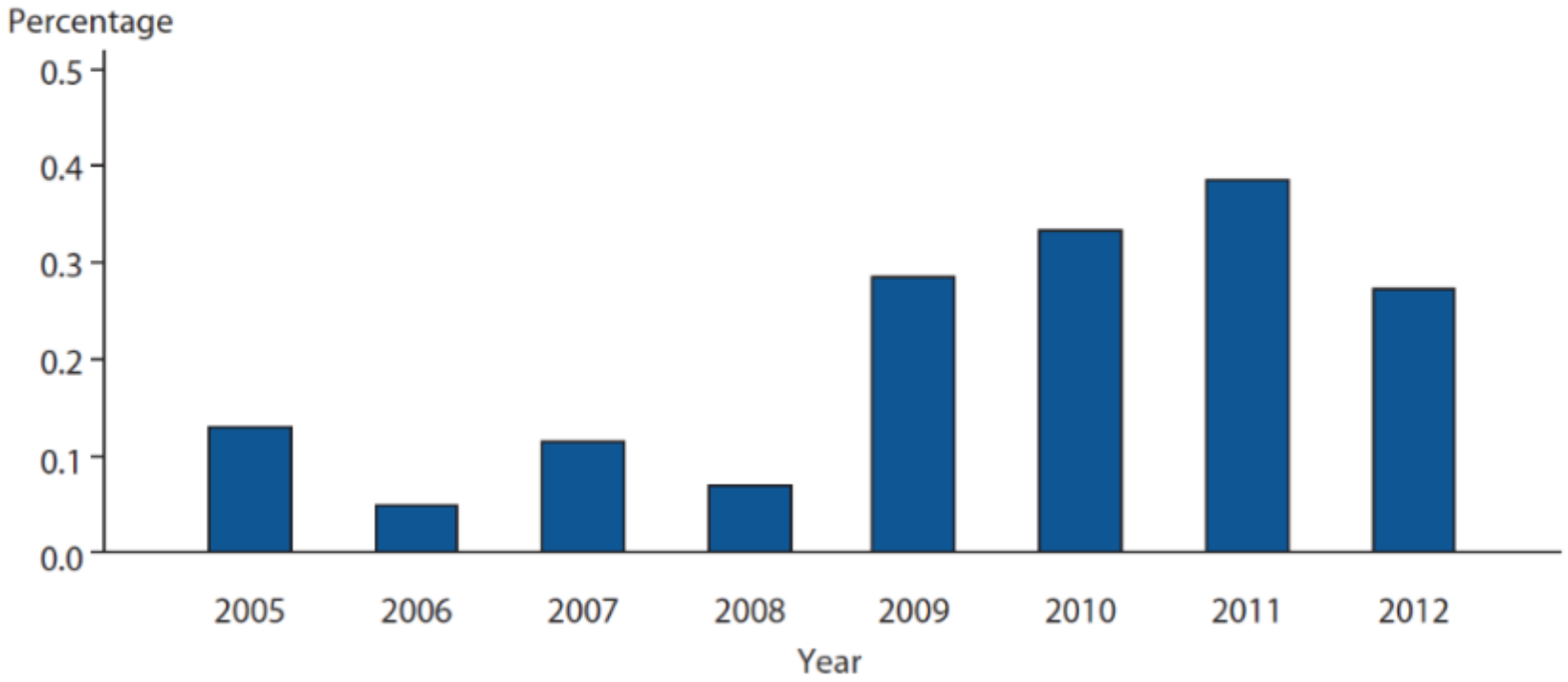


*Isolates not tested for cefixime susceptibility in 2007 and 2008.

Gonococcal Isolate Surveillance Project (GISP), 2005-2012

PERCENTAGE OF NEISSERIA GONORRHOEAE ISOLATES WITH ELEVATED CEFTRIAXONE MINIMUM INHIBITORY CONCENTRATIONS (MICS) (≥ 0.125 µG/ML)

Figure 24. Percentage of *Neisseria gonorrhoeae* Isolates with Elevated Ceftriaxone Minimum Inhibitory Concentrations (MICs) (≥0.125 µg/ml), Gonococcal Isolate Surveillance Project (GISP), 2005 – 2012



Gonococcal Isolate Surveillance Project (GISP), 2005-2012

PERCENTAGE OF ISOLATES WITH ELEVATED MICS OR RESISTANCE BY SEX OF SEX PARTNER, 2005 - 2010

Annals of Internal Medicine | ORIGINAL RESEARCH

***Neisseria gonorrhoeae* Antimicrobial Resistance Among Men Who Have Sex With Men and Men Who Have Sex Exclusively With Women: The Gonococcal Isolate Surveillance Project, 2005–2010**

Robert D. Kirkcaldy, MD, MPH; Akbar Zaidi, PhD; Edward W. Hook III, MD; King H. Holmes, MD, PhD; Olusegun Soge, PhD; Carlos del Rio, MD; Geraldine Hall, PhD; John Papp, PhD; Gail Bolan, MD; and Hillard S. Weinstock, MD, MPH

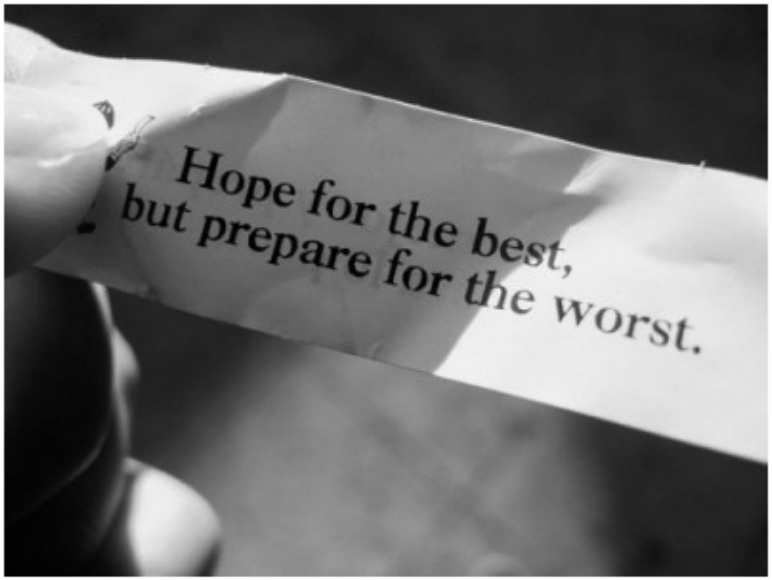
Antibiotic	MSM n=8,117	MSW n=26,483	p
Ceftriaxone*	0.4	0.1	<0.01
Cefixime**	1.7	0.2	<0.01
Azithromycin†	0.9	0.2	<0.01
Tetracycline†	37.5	13.3	<0.01
Ciprofloxacin‡	29.9	6.9	<0.01

* ≥ 0.125 µg/mL
** ≥ 0.25 µg/mL
† ≥ 2.0 µg/mL
‡ ≥ 1.0 µg/mL

Kirkcaldy. *Ann Int Med.* 2012

SO WHAT DO WE DO?

- Change treatment recommendations
- Study old drugs in new doses, combinations
- Study new drugs
- Know how to manage suspected cephalosporin treatment failures now



AUGUST 10, 2012

Update to CDC's *Sexually Transmitted Diseases Treatment Guidelines, 2010*: Oral Cephalosporins No Longer a Recommended Treatment for Gonococcal Infections

Gonorrhea is a major cause of serious reproductive complications in women and can facilitate human immunodeficiency virus (HIV) transmission (*1*). Effective treatment is a cornerstone of U.S. gonorrhea control efforts, but treatment of gonorrhea has been complicated by the ability of *Neisseria gonorrhoeae* to develop antimicrobial resistance. This report, using data from CDC's Gonococcal Isolate Surveillance Project

From 2006 to 2010, the minimum concentrations of cefixime needed to inhibit the growth in vitro of *N. gonorrhoeae* strains circulating in the United States and many other countries increased, suggesting that the effectiveness of cefixime might be waning (*4*). Reports from Europe recently have described patients with uncomplicated gonorrhea infection not cured by treatment with cefixime 400 mg orally (*5–8*).

Morbidity and Mortality Weekly Report

Update to CDC's *Sexually Transmitted Diseases Treatment Guidelines, 2010*: Oral Cephalosporins No Longer a Recommended Treatment for Gonococcal Infections

N. gonorrhoeae to develop resistance to antimicrobials used for treatment. During the 1990s and 2000s, fluoroquinolone resistance in *N. gonorrhoeae* emerged in the United States, becoming prevalent in Hawaii and California and among men who have sex with men (MSM) before spreading throughout the United States. In 2007, emergence of fluoroquinolone-resistant *N. gonorrhoeae* in the United States prompted CDC to no longer recommend fluoroquinolones for treatment of gonorrhea, leaving cephalosporins as the only remaining recommended antimicrobial class (*3*). To ensure treatment of co-occurring pathogens (e.g., *Chlamydia trachomatis*) and reflecting concern about emerging gonococcal resistance, CDC's 2010 sexually transmitted diseases (STDs) treatment guidelines recommended combination therapy for gonorrhea with a cephalosporin (ceftriaxone 250 mg intramuscularly or cefixime 400 mg orally) plus either azithromycin orally or doxycycline orally, even if nucleic acid amplification testing (NAAT) for *C. trachomatis* was negative at the time of treatment (*2*).

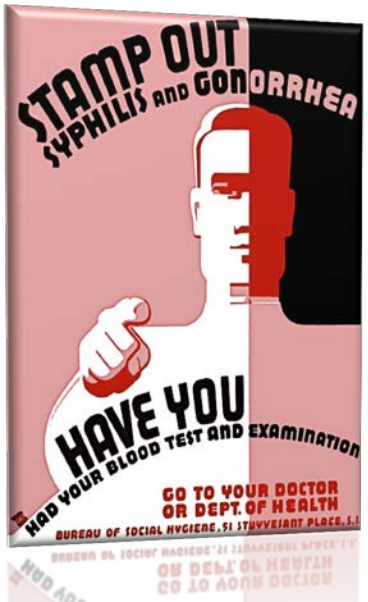
temporarily was unavailable in the United States at that time. Criteria for resistance to cefixime and ceftriaxone have not been defined by the Clinical Laboratory Standards Institute (CLSI). However, CLSI does consider isolates with cefixime or ceftriaxone MICs ≥0.5 μg/mL to have "decreased susceptibility" to these drugs (*9*). During 2006–2011, 15 (0.1%) isolates had decreased susceptibility to cefixime (all had MICs = 0.5 μg/mL), including nine (0.2%) in 2010 and one (0.03%) during January–August 2011; 12 of 15 were from MSM, and 12 were from the West and three from the Midwest.* No isolates

* U.S. Census regions. *Northeast*: Connecticut, Maine, Massachusetts, New Jersey, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest*: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South*: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; *West*: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming.

CURRENT CDC STD TREATMENT GUIDELINES

- Uncomplicated Gonococcal Infections of
- Cervix, Urethra & Rectum

- Ceftriaxone 250 mg as a single intramuscular dose
- (Or if not an option, Cefixime 400 mg orally in a single dose)
- PLUS
- Azithromycin 1 g orally or
- Doxycycline 100 mg twice daily for 7 days



Neisseria gonorrhoeae With High-Level Resistance to Azithromycin: Case Report of the First Isolate Identified in the United States

Alan R. Katz,[1,2] Alan Y. Komeya,[2] Olusegun O. Soge,[3] Mandy I. Kiaha,[2] Maria Veneranda C. Lee,[2] Glenn M. Wasserman,[2] Eloisa V. Maningas,[4] A. Christian Whelen,[1,4] Robert D. Kirkcaldy,[5] Steven J. Shapiro,[5] Gail A. Bolan,[5] and King K. Holmes[3]

- 21 year old woman presented for testing
  - Male partner recently treated for urethritis (NAAT GC+)
- Treated with ceftriaxone 250 mg & Azithromycin 1 g
- Tested positive for GC by NAAT and Cx
- MIC to Azithromycin >256 (Hawaii State Lab)
- MIC to Azithromycin ≥ 1,024 (Univ of WA)
  - Tet MIC = 2
  - Cefixime MIC = 0.125
  - Ceftriaxone MIC = 0.03
  - Cefpodoxime MIC = 0.25

Katz CID 2012

CEPHALOSPORIN TREATMENT FAILURES

- Recommendations
  - Infectious disease consultation
  - Culture and susceptibility
  - Ceftriaxone 250 mg IM + 2 gm azithromycin
  - Ensure partner treatment
  - Test of cure one week after treatment
  - Report to CDC via state or local public health

CDC STD Treatment Guidelines 2010, MMWR 2011

ALTERNATIVE UROGENITAL GC REGIMEN

- NIH- sponsored multicenter randomized open-label non-comparative trial
- Men/women with urogenital gonorrhea (culture-positive)
- Treatment with either
  - Gentamicin 240 mg IM + azithromycin 2 g PO, OR
  - Gemifloxacin 320 mg PO + azithromycin 2 g PO
- Rationale
    - Additive effect between gentamicin and azithromicin (in vitro)
    - Gemifloxacin more active against GC with known cipro resistance or mutations in the GyrA and ParC regions (in vitro); possibly due to stronger inhibitory activity of gemifloxacin for GyrA and ParC
- Test-of-cure (culture) in 10–17 days

Kirkaldy, ISSTD 2013

…TEST OF CURE

7 days post-treatment; culture or NAAT

- Challenges
- Local guidelines may differ
- Resources
- Few data inform likelihood of negative test in adequately treated infection at 7 days (Bachmann 2002; Hjelmevoll SO 2012)

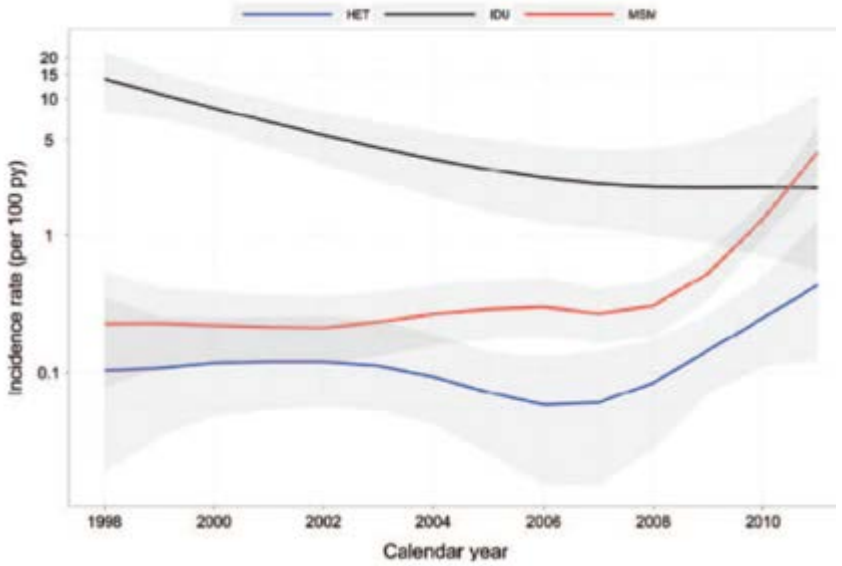
MMWR Aug 10, 2012; 61 (31)

PATIENT DELIVERED PARTNER THERAPY

- Appropriate for heterosexual patients with GC whose partners' treatment cannot be ensured or is unlikely
- NOT considered ideal for MSM
- Partners should be highly encouraged to present for ceftriaxone 250mg IM + azithromycin 1g PO
- If will not or cannot: cefixime 400mg PO x 1 AND azithromycin 1g PO x 1

HEPATITIS C VIRUS INFECTION IN MSM

- Increasing incidence of HCV among MSM
- Risks:
  - Unprotected receptive anal intercourse; h/o syphilis
  - Rougher or poorly lubricated unprotected anal penetration, including fisting
- CDC guidelines: screen if HIV+, IDU, and/or born 1945-65
- Acute infection may be HCV antibody negative
  - Check HCV RNA in patients with new, unexplained transaminase elevation

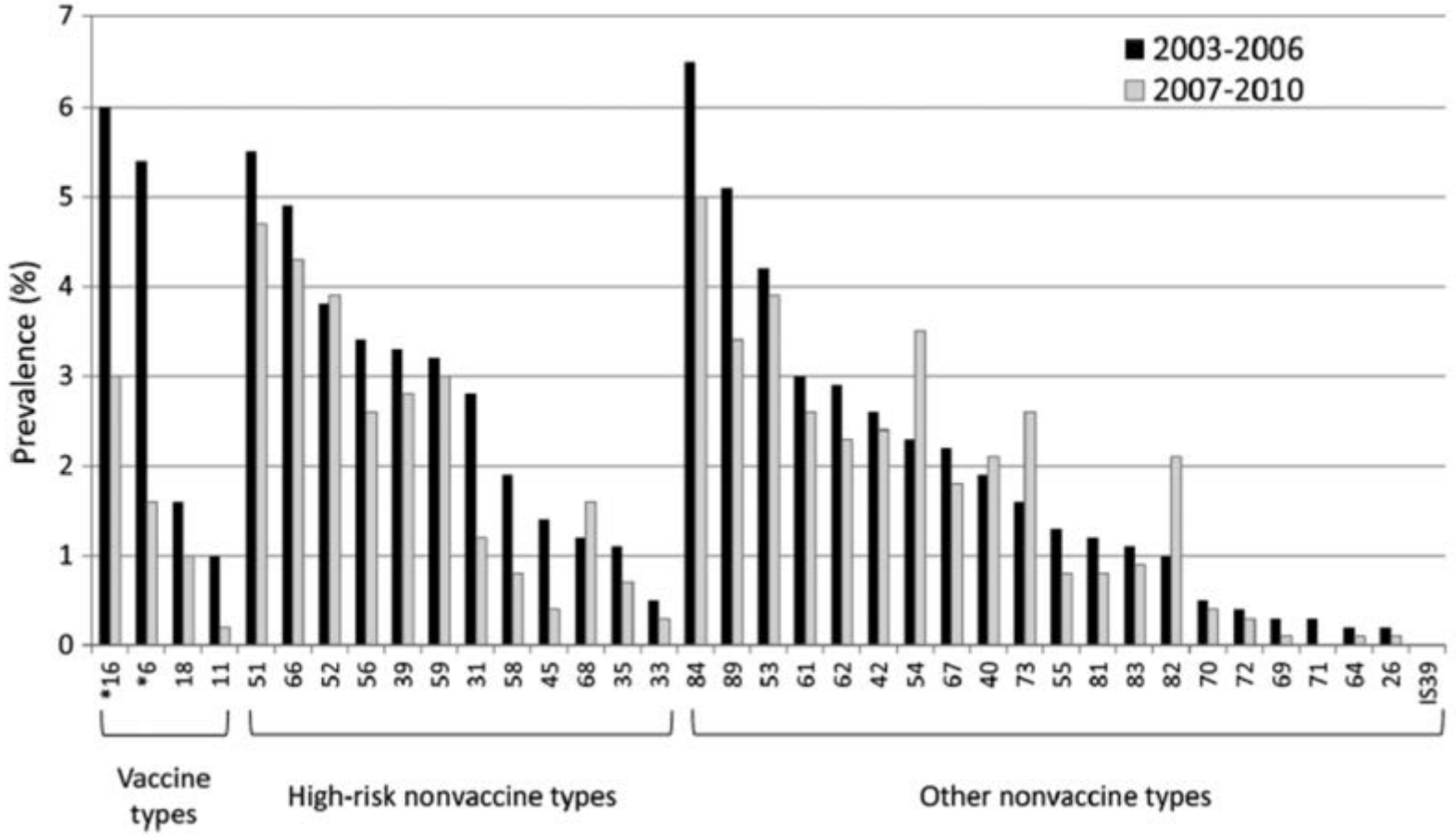


Vandeler, *Clin Infect Dis* 2012

ANAL DYSPLASIA AND CANCER

- HIVMA / IDSA primary care guidelines: anal Papanicolaou (Pap) test if history of receptive anal intercourse, abnormal cervical Pap, genital warts: weak recommendation, moderate quality evidence
  - Patients with abnormal results should be evaluated with high-resolution anoscopy
- Human papillomavirus (HPV) DNA screening not recommended; role not defined
- Vaccinate against HPV: safe and immunogenic in HIV+
  - Prevents anal cancer, AIN 2-3

REDUCTION IN HUMAN PAPILLOMAVIRUS (HPV) PREVALENCE AMONG YOUNG WOMEN FOLLOWING HPV VACCINE INTRODUCTION IN THE UNITED STATES, NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEYS, 2003-2010



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Markowitz L. *J Infect Dis.* 2013:308

Genital warts in young Australians five years into national human papillomavirus vaccination programme: national surveillance data

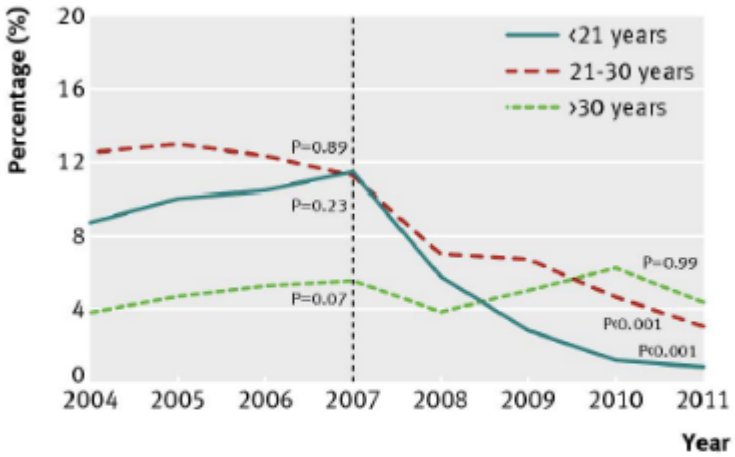

Fig 1 Proportion of Australian born women diagnosed as having genital warts at first visit, by age group, 2004-11

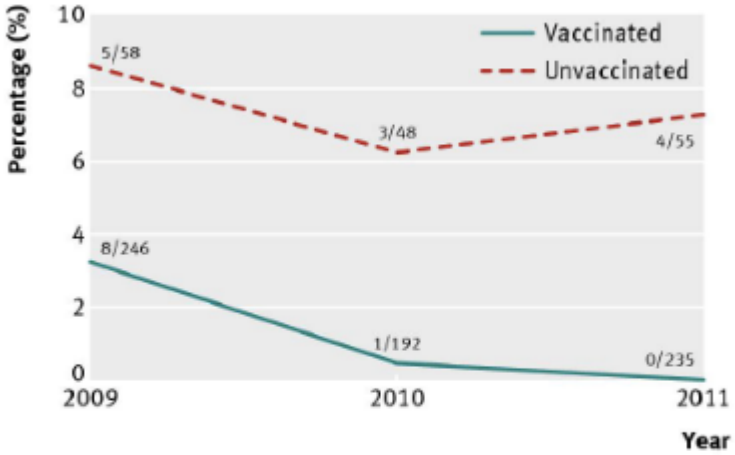

Fig 2 Proportion of Australian born women aged under 21 years diagnosed as having genital warts at first visit to Sydney and Melbourne Sexual Health Centres, by vaccination status, 2009-11. Numbers are number diagnosed as having genital warts/number seen

Ali H. *BMJ.* 2013:346

TAKE-HOME MESSAGES

- Screen, appropriately!
- Rescreen for chlamydial and gonococcal infections 3 to 6 months after initial +
- Be aware of antibiotic-resistant GC
- Syphilis: it's not going away. Know what the EIA is and recognize neuroinvasive disease
- Sexual health
  - Vaccinate for HPV (but continue Pap test screening)
  - Prevention messages

DOWNLOAD THE CDC STD TREATMENT GUIDELINES APP …

http://www.cdc.gov/std/std-tx-app.htm

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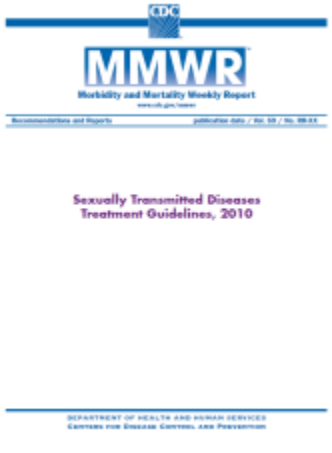
STD RESOURCES

- Seattle STD/HIV Prevention Training Center
  - www.seattlestdhivtraining.org
- National Network of STD/HIV Prevention Training Centers
  - www.stdhivpreventiontraining.org
- CDC Treatment Guidelines
  - www.cdc.gov/std/treatment
- American Social Health Association (ASHA) booklets, books, handouts, the Helper www.ashastd.org
  (800) 230-6039
- ASHA patient herpes hotline (919) 361-8488



THANK YOU!!

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