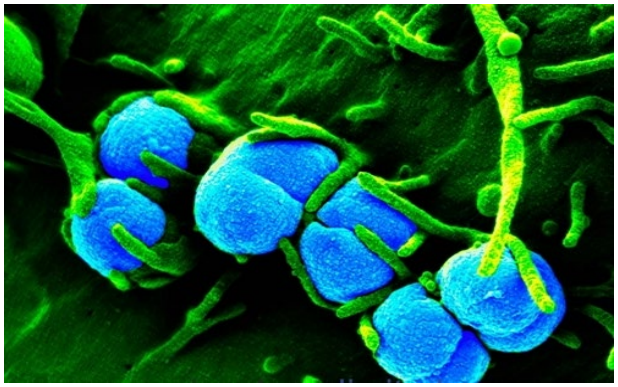
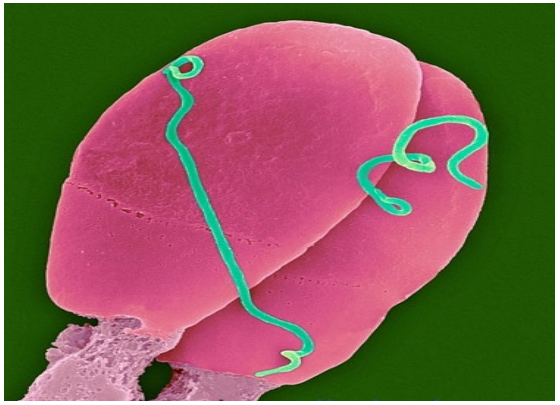
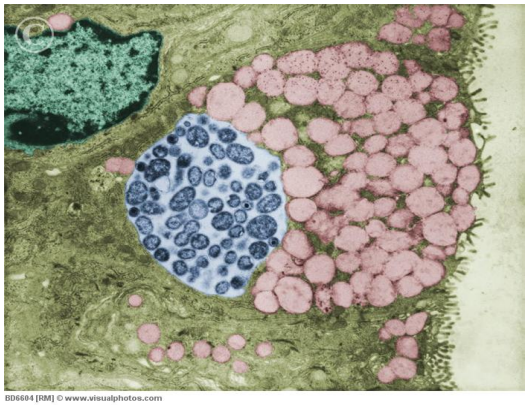






STI Cases: Applying the New CDC Guidelines

Ina Park, MD, MS

Medical Director, California Prevention Training Center (CAPTC)

Professor, University of California San Francisco

Medical Consultant, Division of STD Prevention, CDC

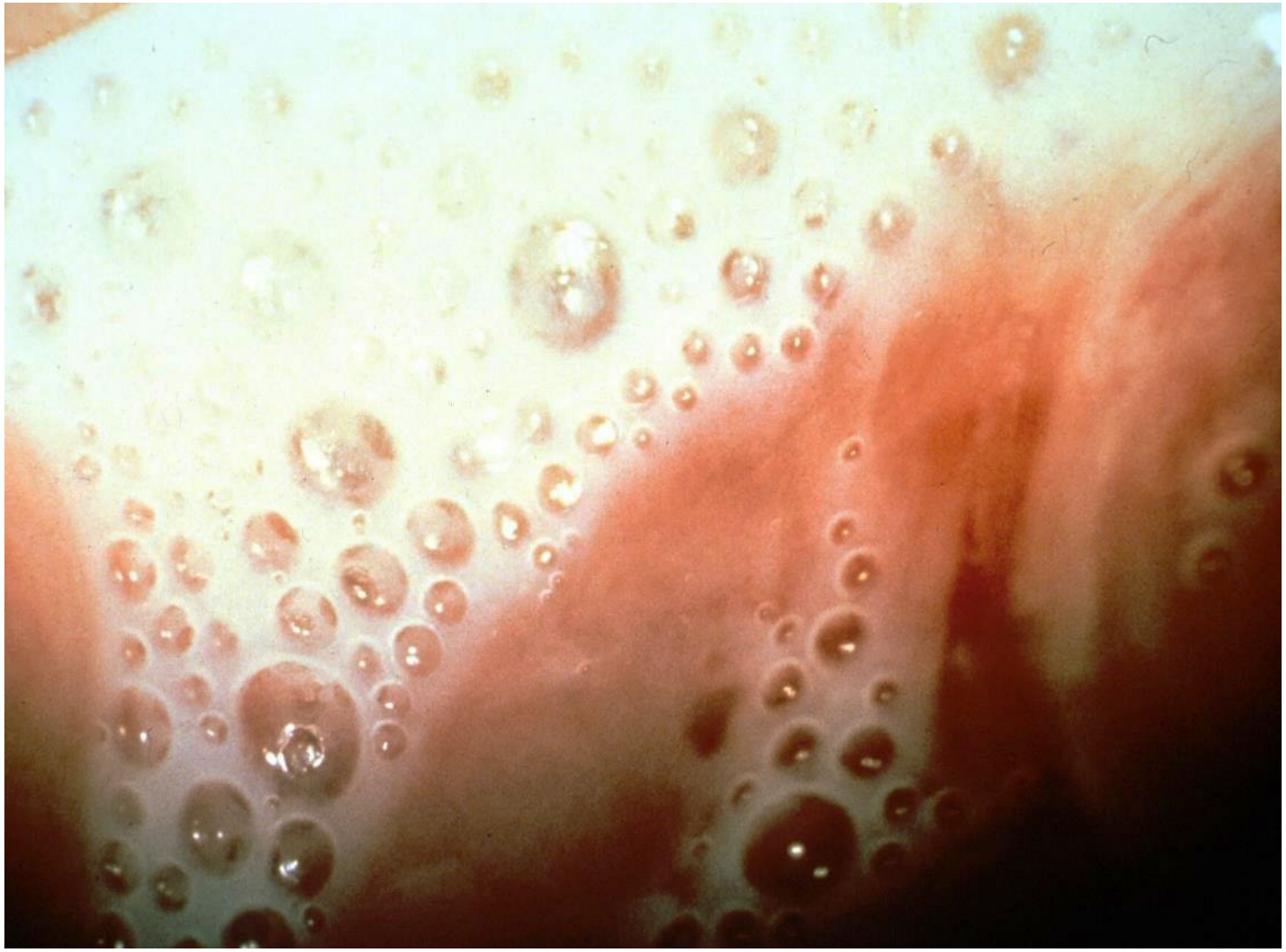
CAPTC

Case 1: Vaginal Discharge

- 40 year old cis-woman presents with vaginal itching, malodorous vaginal discharge and mild dysuria.
- She has one male partner who she thinks is with other partners.
- Pelvic exam is significant for yellow frothy discharge, pH>5, positive whiff test, no CMT

CAPTC

Frothy yellowish vaginal discharge



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Case 1 continued…

- Wet mount reveals copious WBC >5 per HPF, no clue cells, no trichomonads, KOH prep negative for fungal elements.

- What could be going on here?

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Seeing Trich on Wet Mount is a Coin Flip

	Sensitivity	Specificity
Wet mount	55%	100%
Culture	75%	100%
Nucleic Acid Amplification Testing (Approved 2011)	88% (urine) 90% (cervix swab) 97% (vaginal swab)	100%

- Nye, AJOG 2009

CAPTC

Wet mount for Trichomoniasis: Diagnostic limitations

- 100% specific but only ~ 50% sensitive
- Decreased motility in ~ 15-20 minutes (older studies)
- Wet preparations vs Wet Mount
  - Wet prep: 100% motility at 30 min, 99% at 60 min ,decreased 3%-15% each subsequent hour
  - Wet mount: 80% motility 60 min
- If cannot perform microscopy w/in 1 hour use different method

Kingston MA, Int J STD and AIDS 2003.
Stoner KA, Sex Transm Infect 2013.

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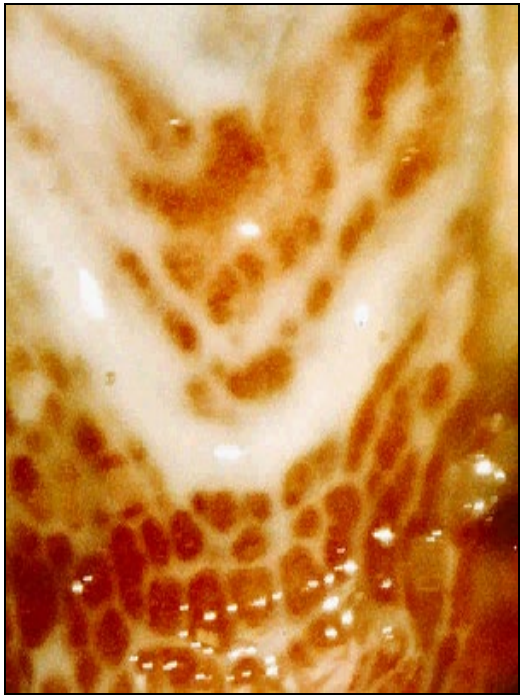
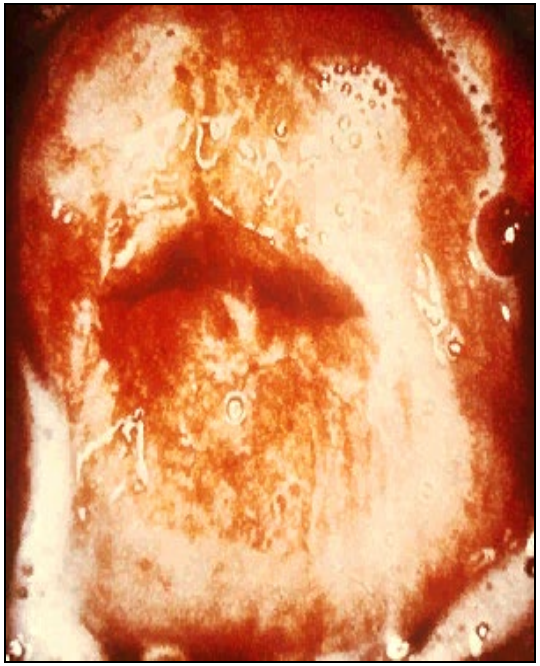
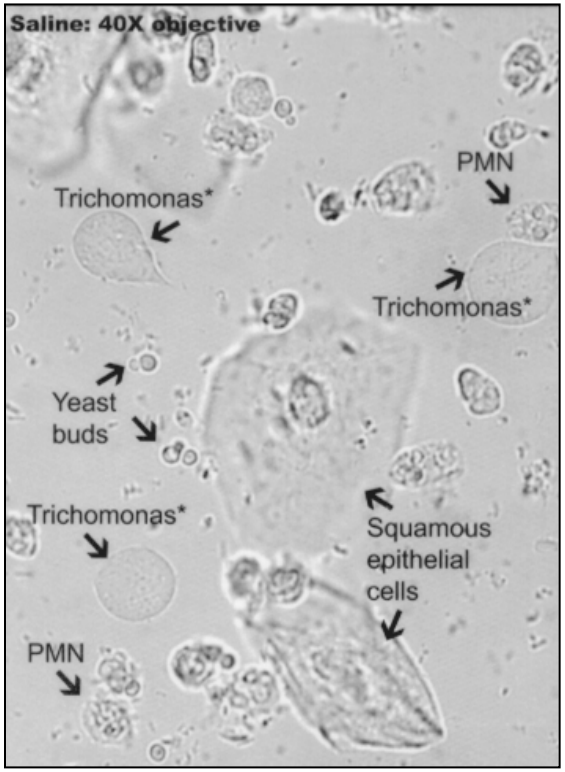
Trichomoniasis
Exam and Lab Findings







Mosby

- Motile trichomonads on saline wet mount
- pH > 4.5
- Whiff test may be positive

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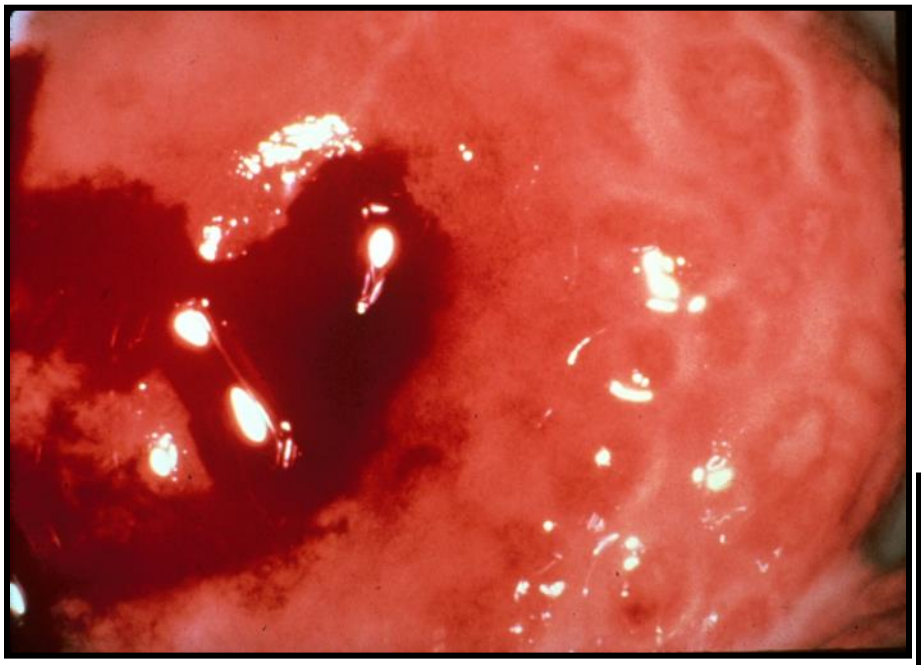
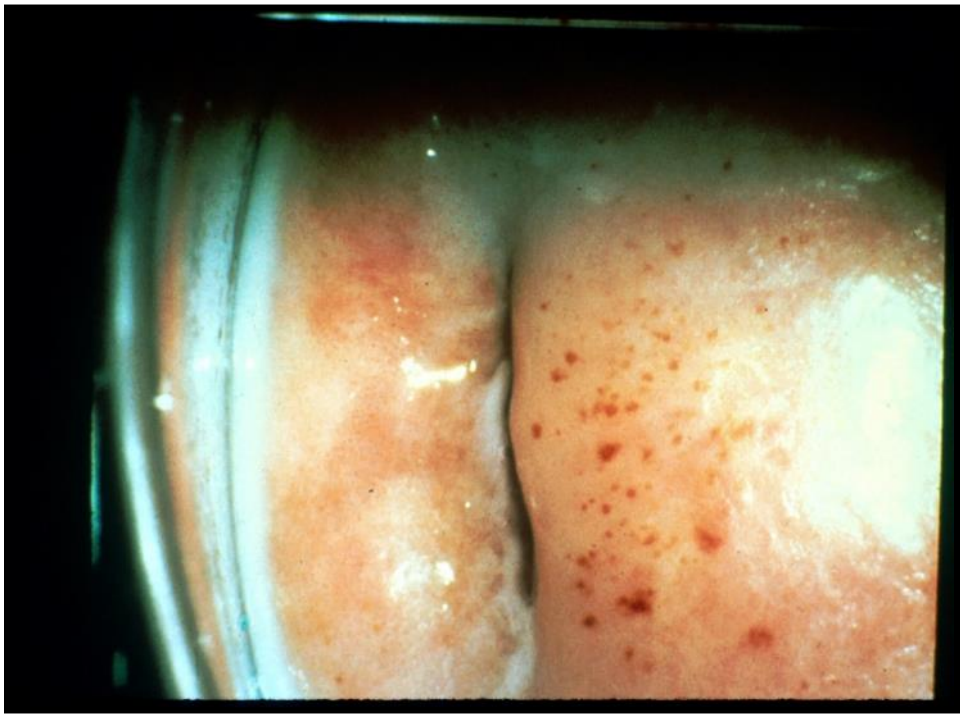


Cervicitis due to *Trichomonas*



Strawberry cervix

"Colpitis macularis"

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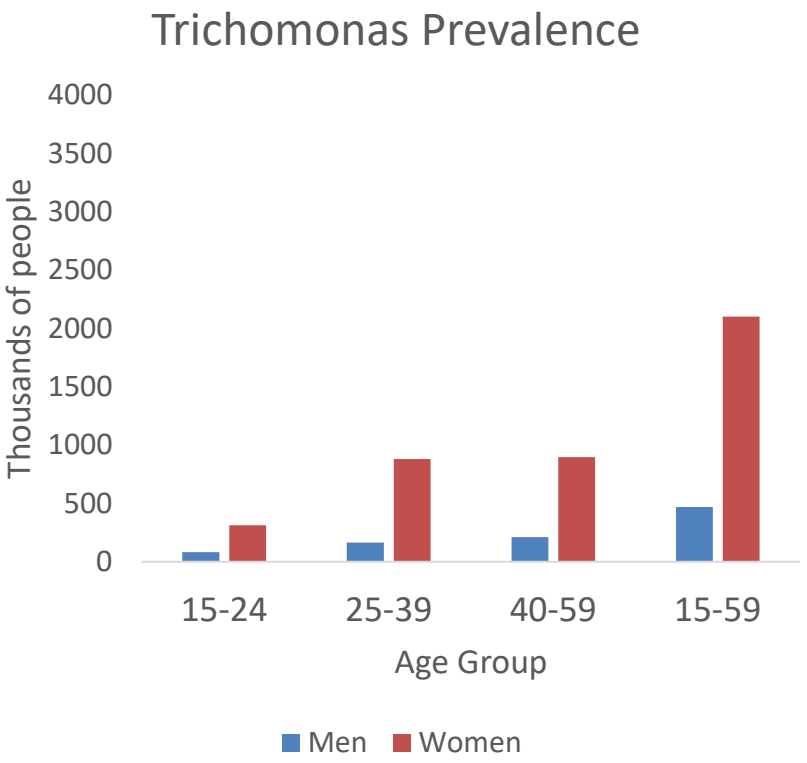
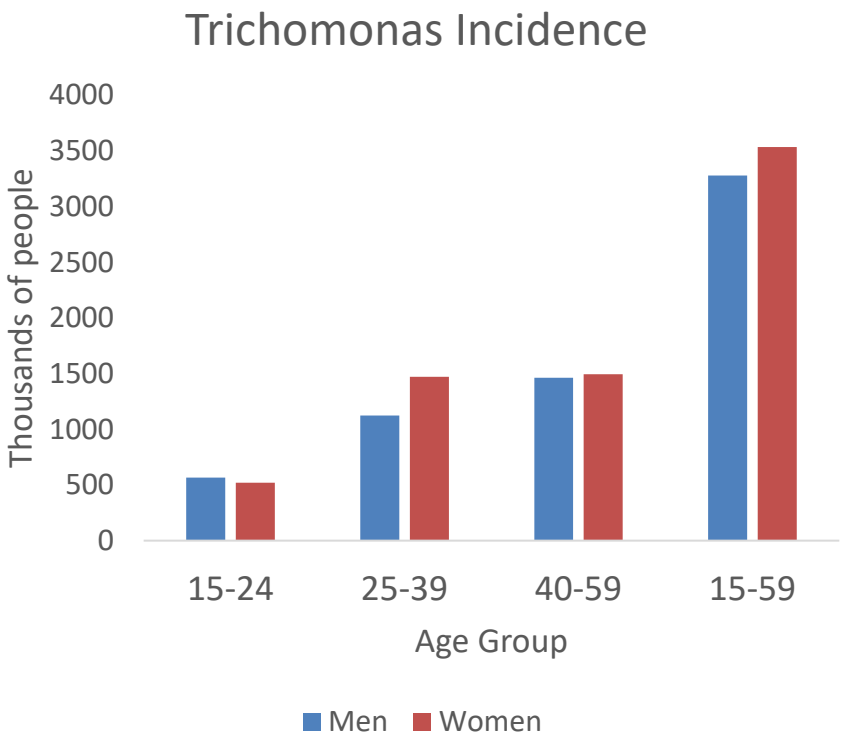
Trichomonas Epidemiology





Prevalent infections: 2.6 million
Incident infections: 6.9 million

Lewis et al, STD 2021;48(4): 232-237

Trichomoniasis: a "Neglected STI"

- Under appreciated in its importance—most common nonviral STI in US behind HPV
- Not reportable in the US
  - Prevalence 3% in US, 15-20% in US African American women 30-50 y
  - Very high rates in incarcerated women (9-32%) and men (2-9%)

- Lewis STD 2021
- Muzny C, CID 2015.
- Soper D, AJOG 2004.
- NHANES, Sutton, CID 2007
- Satterwhite, STD 2013.

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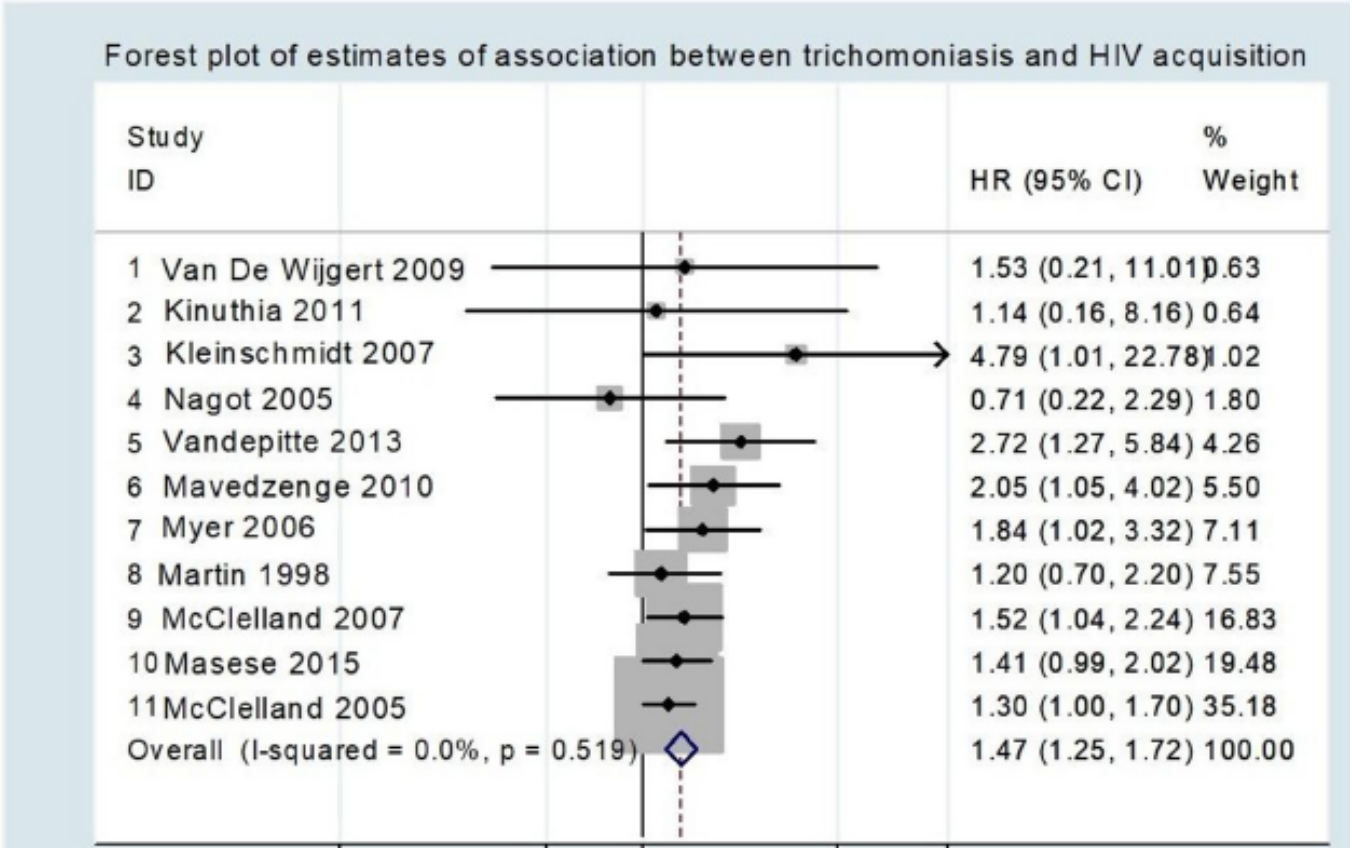
Trichomonas and HIV acquisition

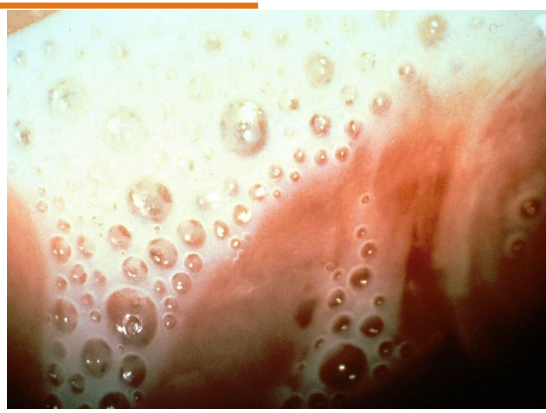


TV increased risk of HIV 1.5X

Masha, STI 2018

CAPTC

Case 1



- Wet mount reveals copious WBC >5 per HPF, no clue cells, no trichomonads, KOH prep negative for fungal elements.
- Could she have trichomoniasis? How can we find out?
- NAAT for Trich should be done

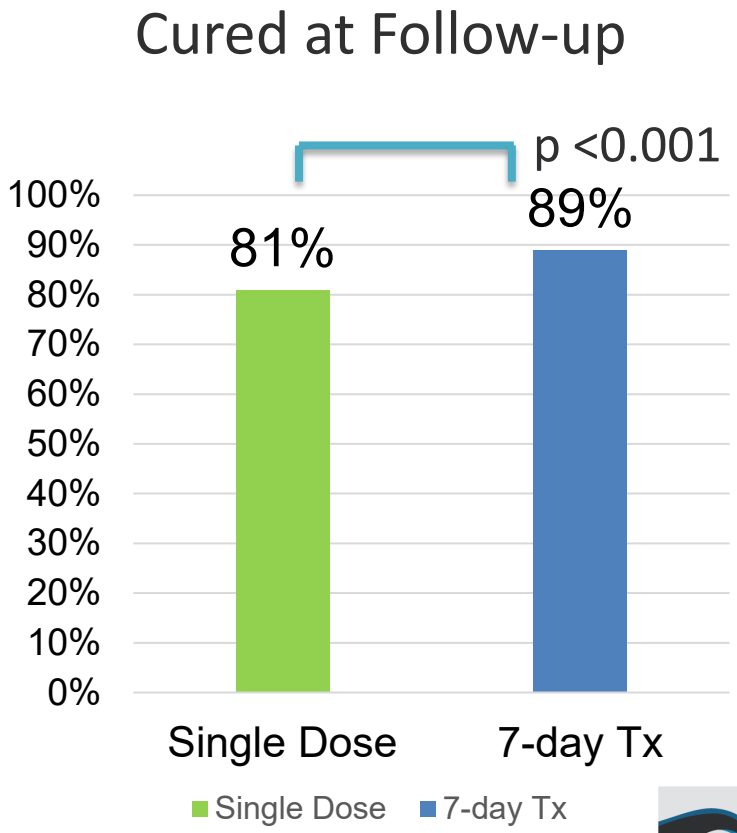
Case 1

- NAAT for Trich is positive

- What treatment should she get?
- What about her partner?

Single Dose Metronidazole is not as effective as 7-day therapy

- Single dose recommended for treatment of trich in HIV-negative patients, 7-day therapy (500 mg BID) recommended for pts living with HIV. (CDC TX GL 2015)
- N=623 women randomized 1:1 to single dose vs 7 day therapy
- Culture for test of cure (TOC), 6-12 days post treatment



Kissinger, 2018 Lancet Infect Dis

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Trichomoniasis Treatment

Change in 2021 STI Treatment Guidelines

Recommended regimen: **Vaginal trichomonas (HIV+/HIV-)**

Metronidazole 500 mg orally BID x 7d

Metronidazole 2 g orally single dose for men w/ trichomonas or male partners)*

Alternative regimen:

Tinidazole 2 gm orally in a single dose

ACOG 2020 Treatment Guidelines

Metronidazole 500 mg orally BID x 7 d

Retest for reinfection in 3 months

*EPT may have a role in partner management for trichomoniasis

CDC 2021 STD Treatment Guidelines,
ACOG Practice Bulletin 215. OB/GYN Vol 135. Jan 2020

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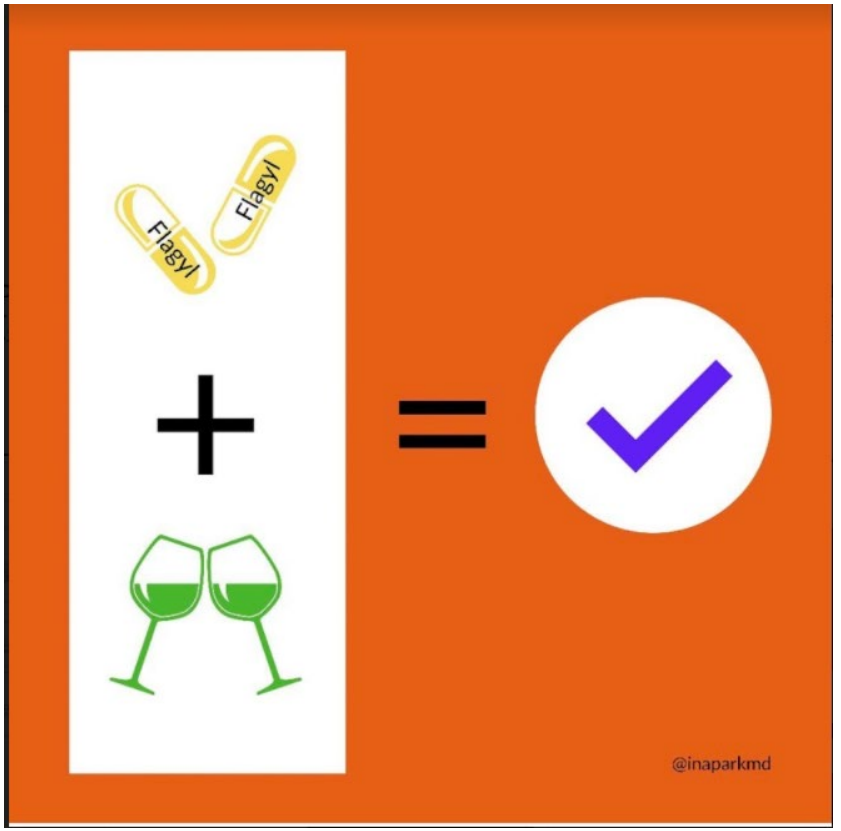
Metronidazole and Alcohol

- Metronidazole does not actually inhibit acetaldehyde dehydrogenase (as occurs with disulfiram)
- Evidence review: no in vitro or clinical studies, no animal models, and no adverse event reporting
- Refraining from ETOH is unnecessary during treatment



2021 CDC STI Treatment Guidelines
Fjeld H, Raknes G. Tidsskr Nor Laegeforen. 2014;134(17):1661–3

What if she fails treatment

- 4-10% of trich infections have nitroimidazole resistance

If reinfection ruled out:

- Metronidazole or tinidazole 2 g once daily for 7 days

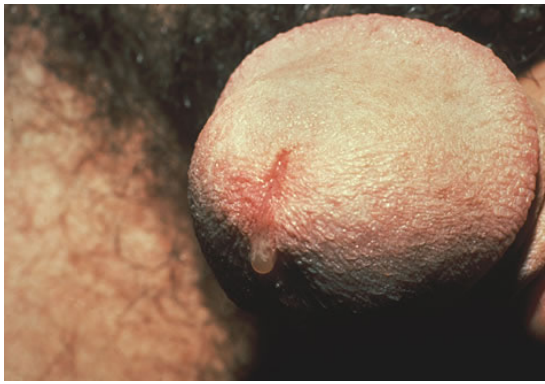
If continued failure:

- Get a culture kit from CDC (see CDC STI GL)
- Oral tinidazole 2 g daily plus intravaginal tinidazole 500 mg 2 times/day for 14 days
- Oral tinidazole (1 g 3 times/day) plus intravaginal paromomycin (4 g of 6.25% intravaginal cream nightly) for 14 days (vaseline at introitus to avoid ulcers)

On tour now…

CAPTC

Case 2:
Urethral Discharge



Seattle PTC

- 20 Year old cis MSMW c/o of dysuria & urethral discharge x 2 days
  - Has received oral sex from 3 male partners and 1 female partner, insertive vaginal sex with female partner
  - His female partner texted him that she had an STI but did not specify diagnosis
  - On exam, clear discharge visible at meatus

CAPTC

How would you treat his urethritis?

1. Metronidazole 2 gm orally
2. Moxifloxacin 400 mg orally QD x 7 days plus metronidazole 2 gm orally once
3. Doxycycline 100 mg po BID x 7 days
4. Azithromycin 1g orally
5. Ceftriaxone 500 mg IM plus doxycycline 100 mg BID x 7 days

Gonorrhea Treatment Guidelines

for uncomplicated infections

Ceftriaxone **500** mg IM x 1
for persons weighing <150kg*

*For persons weighing ≥ 150 kg, 1 g of IM ceftriaxone should be administered

However, if chlamydia has not been excluded, treat for chlamydia with:

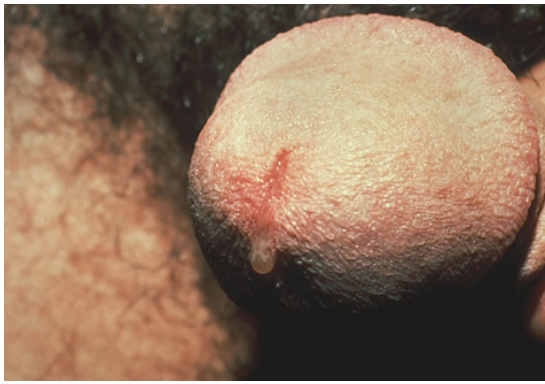
Doxycycline 100 mg PO BID x 7 days

For pregnancy, allergy, or concern for non-adherence, 1 g PO azithromycin x 1 can be used

- No longer recommending dual therapy with azithromycin
- Test-of-Cure at 7-14 days post treatment for **pharyngeal** gonorrhea

Update to CDC's Treatment Guidelines for Gonococcal infection, 2020; MMWR

Case 2:
Urethral Discharge



Seattle PTC

- Patient returns 10 days later. States the discharge never really went away. No sexual exposures.
  - GC/CT NAAT both negative from prior visit
- Urethral discharge confirmed on exam today

CAPTC

How would you treat persistent urethritis?

1. Repeat the ceftriaxone and doxy
2. Metronidazole 2 gm orally
3. Moxifloxacin 400 mg orally QD x 7 days plus metronidazole 2 gm orally once
4. Doxycycline 100 BID x 7 days plus moxifloxacin 400 orally qd x 7 days
5. Test for trich and mycoplasma, then treat based on results

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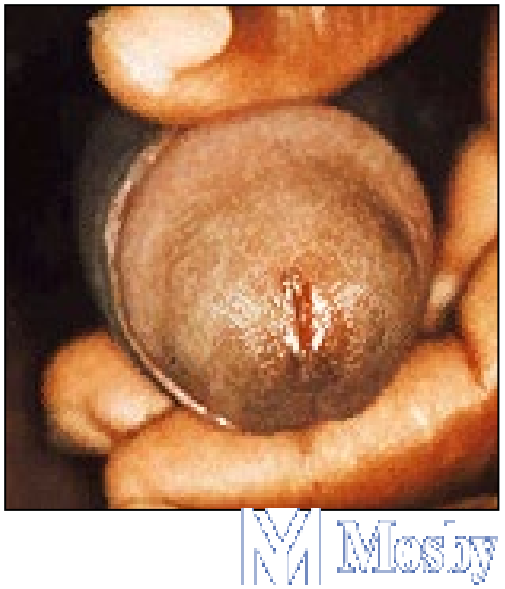
Urethritis
Common Infectious Causes



- Bacterial STIs:
  - GC 5-20%
  - CT 15-40%
  - ***Mycoplasma genitalium* 15-25%**
- Other etiologies:
  - *Trichomonas vaginalis* 5-20% (regional differences)
  - HSV
  - Ureaplasma 0-20%; data inconsistent
  - Adenovirus, enterics, Candida, anaerobes

Sexually Transmitted Diseases, 4th Edition, Holmes et al

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CDC 2021 STD Treatment Guidelines

Appropriate Management of Persistent Urethritis

- Document urethritis
- Rule out noncompliance
- Rule out untreated partner/re-infection
- Consider *M. genitalium*-
- Consider *T. vaginalis** in MSW
  - Get a NAAT (could do culture)

* MSM – low probability of *T. Vaginalis*

FDA News Release

FDA permits marketing of first test to aid in the diagnosis of a sexually-transmitted infection known as *Mycoplasma genitalium*

M.genitalium NAAT FDA approved 2019

- Females: Vag Specimen highest sensitivity 98.9% for patient collected
  - Urine, endocervical (lower sens-78-81%)
- Males: Urine 91% sensitivity
  - urethral clinician-collected 98% sens
  - penile meatal patient-collected 88% sens

Specificity: All ~ 98-99%

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Case 2:Test results

- NAAT for trichomonas and M. genitalium performed

- Trichomonas-negative
- Mycoplasma genitalium-positive

- Now what??

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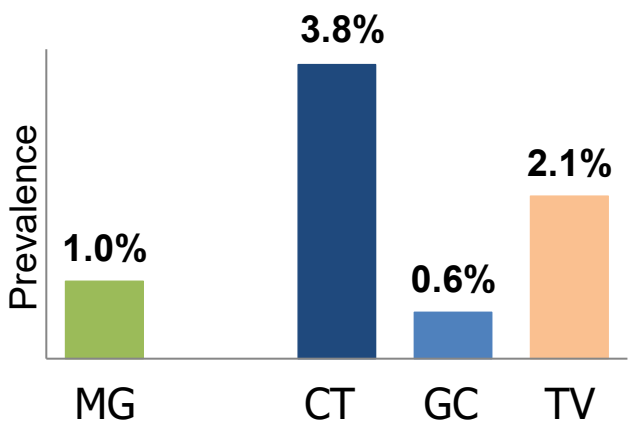
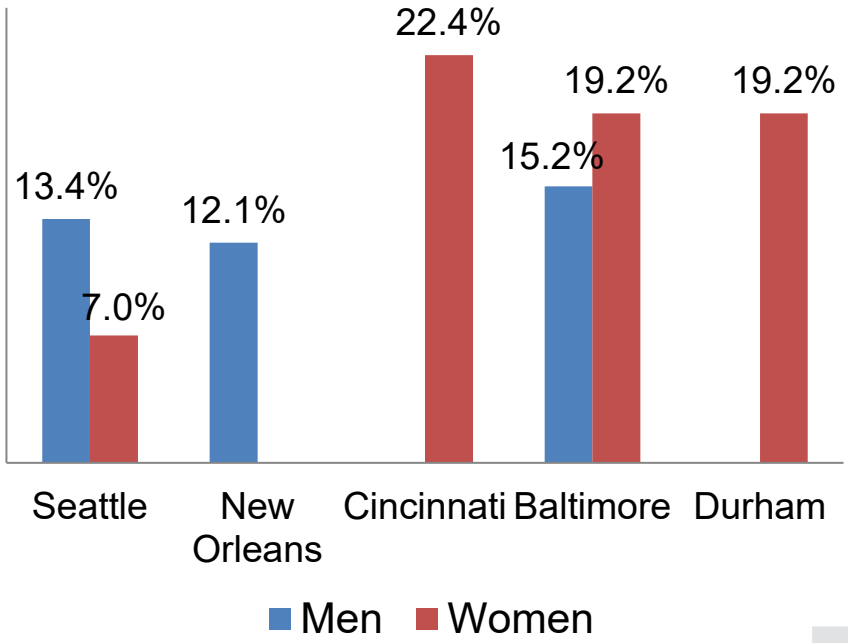
M. genitalium
More common than you think

Young adults 18-24 yrs[1,2]



[1] Miller 2004; [2] Manhart 2007

STD Clinic/ED Attendees[3-9]



[3]Totten 2001; [4]Mena 2002; [5]Manhart 2003; [6]Huppert 2008; [7-8]Gaydos 2009a & 2009b; [9]Mobley 2012

L. Manhart, with permission

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More than 1 in 4 men with urethritis have *Mycoplasma genitalium*

MAGNUM STUDY

Men with urethritis symptoms were enrolled from 6 U.S. STD clinics during 6/2017–8/2018

Study Site (n)	Prevalence of MG (95% CI)
Durham, NC (n=93)	24.7 (16.0–33.5)
Greensboro, NC (n=152)	38.8 (31.1–46.6)
Pittsburgh, PA (n=174)	27.6 (20.9–34.2)
Birmingham, AL (n=235)	29.8 (23.9–35.6)
New Orleans, LA (n=103)	29.1 (20.4–37.9)
Seattle, WA (n=157)	20.4 (14.1–26.7)
TOTAL (n=914)	**28.7 (23.8–33.6)**

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Diagnosis and syndromes

- Screening is NOT recommended
- When to test: persistent urethritis that fails initial treatment, also consider for persistent PID or cervicitis
- Rectal infections have been documented, but relationship to proctitis unclear
- Not thought to be associated with pharyngeal infection

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M. genitalium Treatment

Change in 2021 STI Treatment Guidelines

- **Sequential treatment for suspected/documented M. genitalium**

Start with Doxycycline to reduce bacterial load

Doxycycline 100 mg BID x 7days → THEN → Moxifloxacin 400 mg BID x 7days

If local macrolide resistance is low or known macrolide sensitive

Doxycycline 100 mg BID x 7days → THEN → Azithromycin 2.5 gm over 4 days

(Azithromycin- 1 gm x 1day then 500 mg x 3day)

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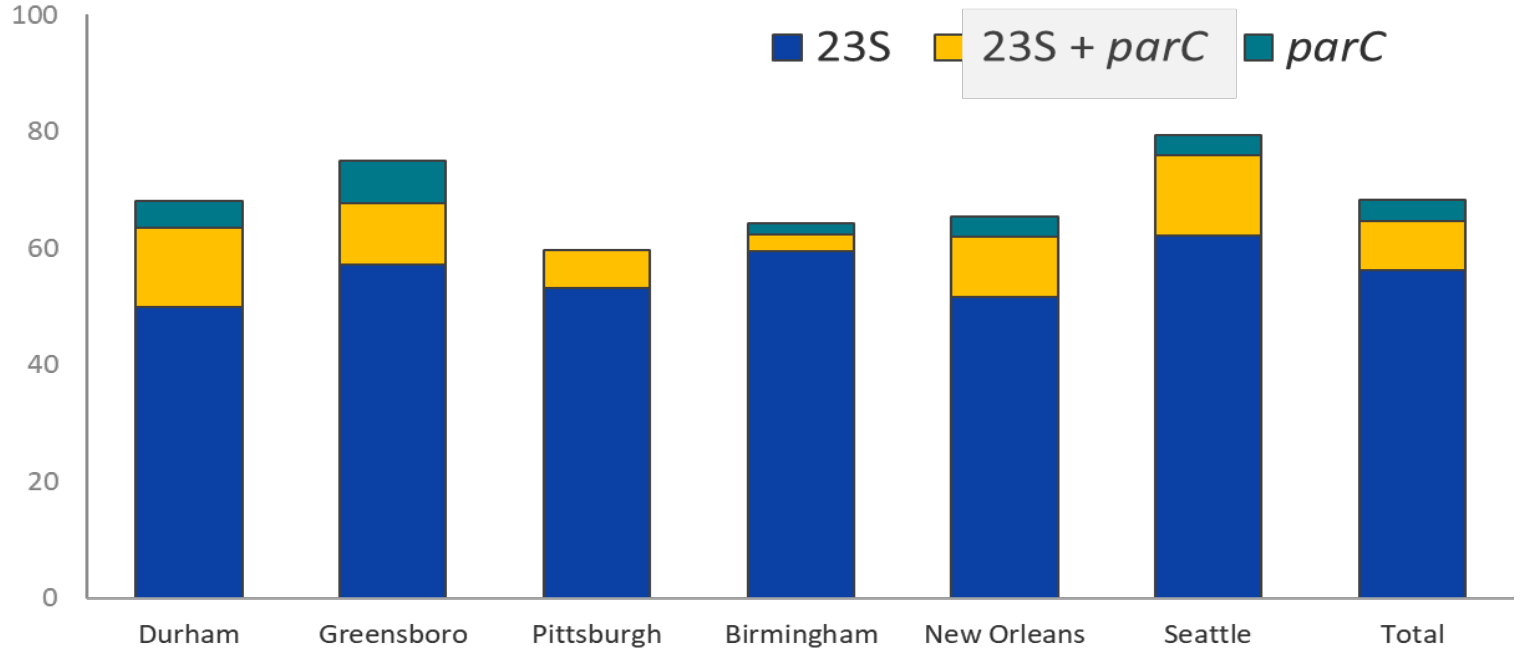
Over 50-60% of M. genitalium infections have resistance mutations to macrolides (azithro)



National Institutes of Health [HHSN2722013000121, HHSN272000010, DIMD16-0039]

Bachmann LH, Kirkcaldy RD, et al. CID 2020

Slide credit: L Bachmann

M. genitalium Treatment Failure: Options

- Minocycline has been effective in small case series
  - 100 mg BID x 14 days

- Lefamulin (approved for PNA, off label for M gen)
  - 600 mg BID x 7 days (pre-treat with doxy x 7d)
  - Can be obtained in US through a study at University of Washington
- Consult the STD Clinical Consultation Network for more info

http://stdccn.org

Unemo and Jensen, Nature Reviews Urol 2017
Glaser et al. Int J STD AIDs April 2019

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What if this had been GC treatment failure? What would you do?

1. Panic
2. Repeat the ceftriaxone 500 mg IM
3. Give ceftriaxone 1 g IM
4. Give azithromycin 2g orally
5. Get a culture and antibiotic susceptibility testing
6. More than one of the above

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Suspected GC Treatment Failure

TEST WITH CULTURE AND NAAT:

- If GC culture not available, send patient to SF City Clinic or call SFDPH (415) 487-5555 for help

REPEAT TREATMENT:

- **Ceftriaxone 1g IM PLUS azithromycin 2g** OR
- **Gentamicin 240 mg IM + azithromycin 2g**
- If reinfection suspected, repeat treatment with CTX 500 IM

REPORT:

- To SFDPH (415) 487-5555 or your local health department within 24 hours.

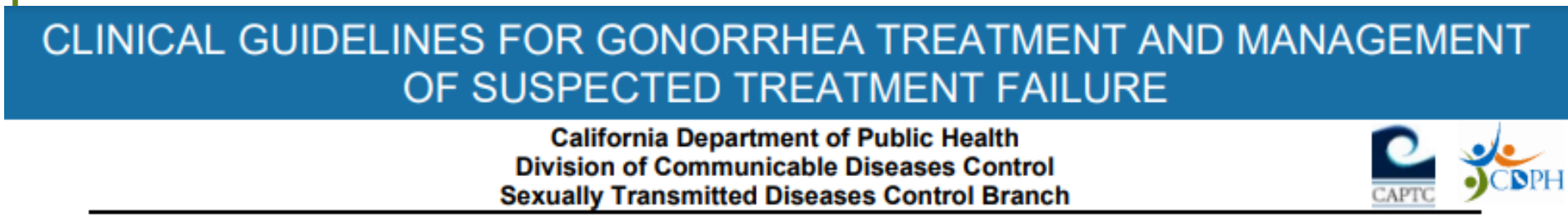
TEST AND TREAT PARTNERS:

- Treat all partners in last 60 days with same regimen as the patient

TEST OF CURE (TOC):

- TOC 7 days for urogenital/rectal infections with culture and NAAT, 14 days for pharyngeal infection

CA GC Treatment Failure Guidelines



CLINICAL GUIDELINES FOR GONORRHEA TREATMENT AND MANAGEMENT OF SUSPECTED TREATMENT FAILURE

California Department of Public Health
Division of Communicable Diseases Control
Sexually Transmitted Diseases Control Branch

Purpose

Gonorrhea is the second most common sexually transmitted disease (STD) in California and is caused by *Neisseria gonorrhoeae*, a bacterial infection that has rapidly acquired resistance to each class of antibiotics. The U.S. Centers for Disease Control and Prevention (CDC) has declared drug-

- https://californiaptc.com/wp-content/uploads/2021/09/CAGCTreatmentFailureProtocol_Providers-2.pdf

CAPTC

DGI Fact Sheet

DISSEMINATED GONORRHEA INFECTIONS:
FREQUENTLY ASKED QUESTIONS FOR HEALTH CARE PROVIDERS

Since late 2020, the California Department of Public Health (CDPH) has received increasing reports of disseminated gonorrhea infections (DGI) throughout our state.[1] Below you will find information on the diagnosis, management, and reporting of DGI to prepare you in the event you see DGI cases in your practice.

1) What is DGI and how commonly does it occur?

DGI is a rare, disseminated form of gonococcal infection.

DGI occurs when the sexually transmitted pathogen *Neisseria gonorrhoeae* invades the bloodstream and travels to distant sites of the body. DGI is rare – occurring in just 0.5-3 percent of untreated gonococcal infections[2] – but carries a risk of serious complications, potentially including death.[3] For this reason, it is essential to quickly diagnose and aggressively treat DGI cases.

2) When should you suspect a diagnosis of DGI?

DGI manifestations include: arthritis-dermatitis syndrome and purulent mono/oligoarticular septic arthritis.

DGI can present as an arthritis-dermatitis syndrome, with petechial/pustular skin lesions (typically on the distal extremities, including the palms/soles), migratory polyarthralgias, and tenosynovitis. It can also present as a purulent mono or oligoarticular septic arthritis. Patients may be febrile and/or bacteremic; they may rarely present with perihepatitis, meningitis, endocarditis, or osteomyelitis.[1,4]

In California in 2020-2021, a proportion of DGI cases occurred among both male and female patients who were experiencing homelessness and/or using drugs, particularly methamphetamine.[1] Hispanic/Latinx individuals have also been disproportionately affected. Medical comorbidities that could increase

https://californiaptc.com/wp-content/uploads/2021/01/DGI-Frequently-Asked-Questions_508.pdf

Me and the Healthy Penis

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Case 3:Teen who wants an STI screen

- Talia is a 15 year old cisgender female with no significant PMHx, she discloses that she has become sexually active in the last year, and that she has had 2 male partners
- What else do you want to know?
  - Age of partners?
  - Any coercion / IPV

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The Five "P"s of a Sexual History

1. Partners (what is the gender of your partners)
2. Practices (anal, vaginal, oral sex)
3. Protection from STIs
4. Past history of STIs
5. Pregnancy intention (new)
   - Previously "prevention"
6. **Pleasure (aspirational)**

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Taking a trauma-informed approach

- Patients who've experienced sexual violence/abuse may become triggered and upset by detailed history taking
- Stop the history. Offer a menu of testing and let patient decide what they want
  - "I can see this is hard for you. We can test your blood for syphilis and HIV, and order gonorrhea and chlamydia testing of the throat, butt, and urine. What would you like?
  - Or hand patient specimen swabs and/or urine cup and asking them to self collect whichever tests they want and leave tests in restroom

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Can she consent for services?

- All 50 states + D.C. allow minors to consent for STI services, but age varies
  - Age of consent in CA is 12, some have no lower age limit
- No state requires providers to notify parents, but 18 states allow it (2019)

https://www.cdc.gov/hiv/policies/law/states/minors.html

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Sexual History

- Her partners are cisgender males, aged 16/17
- She had oral sex with both partners, and vaginal sex once with one partner. She says its possible her partners also have other partners
- Her partner wore a condom during vaginal sex
- She does not intend/desire to be pregnant
- Vaginal sex was consensual but she found it painful/irritating

CAPTC

STI Screening: Adolescents

- **Chlamydia/Gonorrhea**
  - Female – Vaginal swab/urine. Consider rectal screening (GC/CT) and pharyngeal (GC) based on exposures
  - Male with female-only partners - Shared decision, consider in setting serving populations with high incidence
- **HIV:** Offer to all adolescents. Frequency based on risk.

- Routine screening for syphilis, trichomoniasis, BV, HSV, HAV, and HBV not typically recommended.
- **T. vaginalis:** Consider local prevalence
- **Syphilis:** Screen young MSM and pregnant people

Local guidance:
SF City Wide Screening Guidelines

STD PREVENTION AND CONTROL SERVICES, SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH
STD AND HIV SCREENING GUIDELINES

These evidence-based recommendations provide guidance for chlamydia, gonorrhea, syphilis and HIV screening in persons without symptoms or a need for diagnostic testing.[1, 2]

WOMEN

	Chlamydia and Gonorrhea	Syphilis	HIV
25 years and younger	Test every 12 months	At least one lifetime test[2]	At least one lifetime test[2]
Older than 25 years	Not routinely recommended[2]	At least one lifetime test[2]	At least one lifetime test[2]
Pregnant[3, 4]	Test in 1st trimester, repeat in 3rd trimester if at increased risk[2]	Test in 1st and 3rd trimester, and at delivery [3, 4] .	First prenatal visit, repeat in 3rd trimester if at increased risk[2]
HIV+ Women should be screened annually for trichomoniasis (trich)			

MEN WHO HAVE SEX WITH WOMEN

https://www.sfcityclinic.org/sites/default/files/2021-03/Screening%20and%20Surveillance_Citywide%20STD%20screening%20guidance_final.pdf

CAPTC

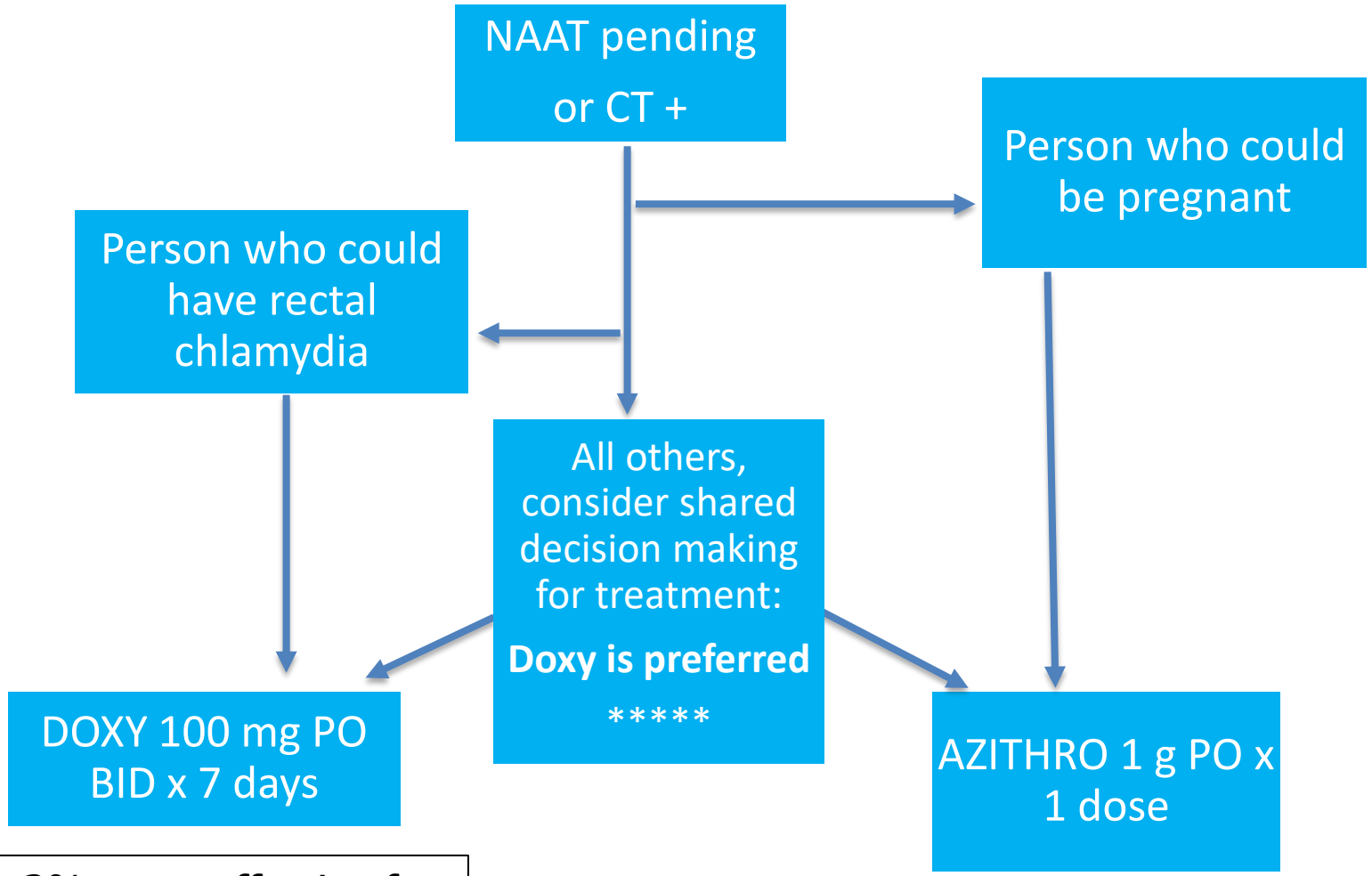
Case 3: Testing

- CT/GC vaginal swab (no pelvic done)
- CT/GC pharyngeal swab
- HIV

- CT vaginal swab= positive

CAPTC

Patient Centered Management of Chlamydia



~3% more effective for urogenital CT

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Treatment/Partner Treatment

- Talia opts for azithromycin because she's afraid that her parents might find a bottle of pills and ask questions

- How would you provide partner treatment?

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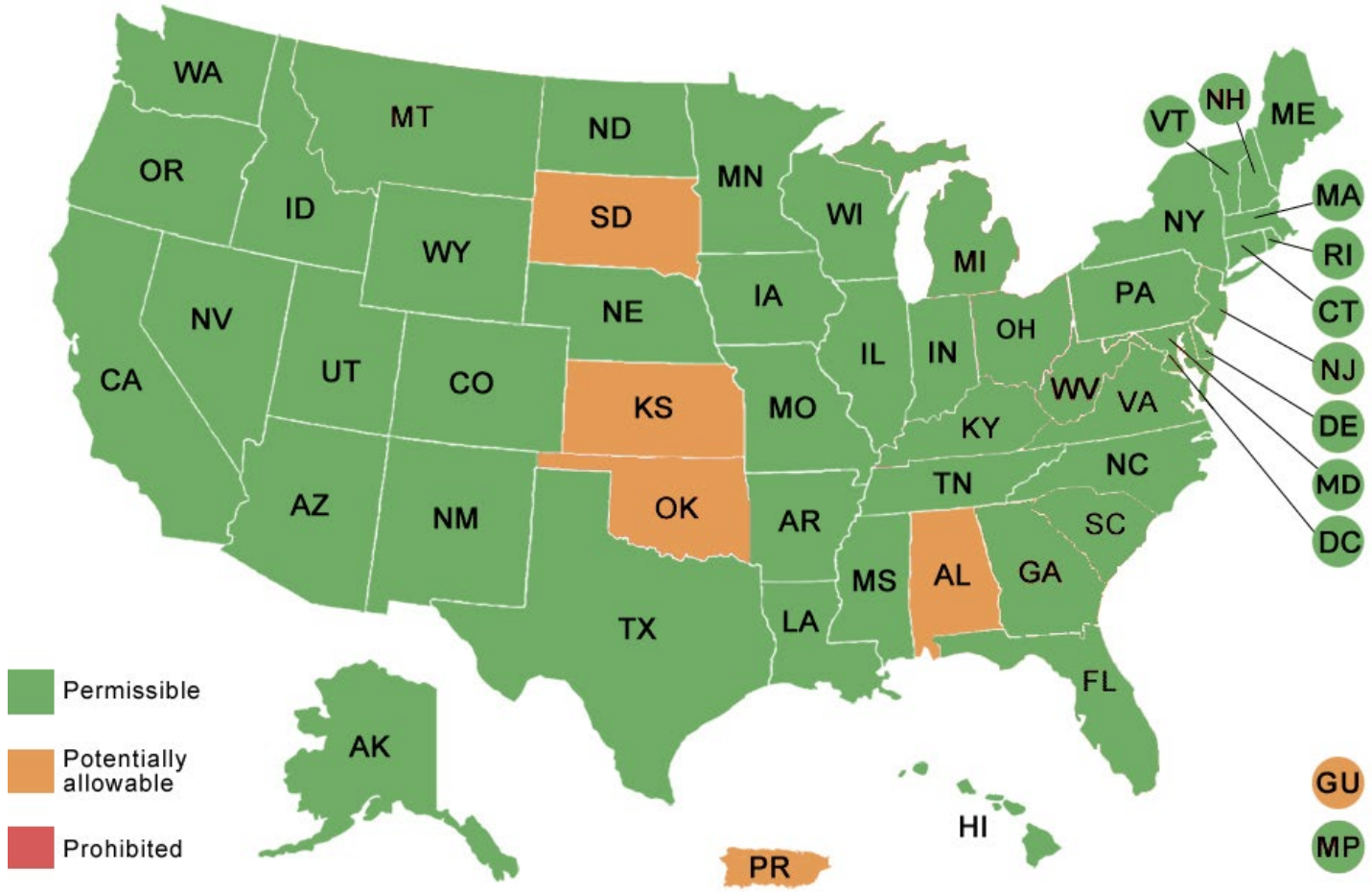
Legal Status of Expedited Partner Treatment, US 2021



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Expedited Partner Therapy for GC/CT

- No states in US prohibit EPT (either allowable or potentially allowable by law/statute in all 50 states/ PR)
-
- SB 306 in CA (10/2021) states providers and pharmacists are not liable if they provide EPT

- Previously only recommended for hetero men/women, now "shared decision making" for EPT for MSM
- Providing patients with packaged oral medications is preferred approach
  - Partners (especially adolescents) may not fill prescriptions

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Miscellaneous Updates

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PID IM/Oral Treatment Regimens: Metronidazole for all

Change in 2021 STI Treatment Guidelines

Oral regimens:

- Ceftriaxone 500 mg IM (or other parenteral 3rd generation cephalosporin) x 1 ***or***
- Cefoxitin 2 g IM ***with*** probenecid 1 g orally once

PLUS

- Doxycycline 100 mg orally twice daily for 14 days

WITH ~~OR WITHOUT~~

- Metronidazole 500 mg orally twice daily for 14 days

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Genital Herpes: Serologic testing

- Serologic two-step testing for HSV-2 should be performed
  - Western blot or Biokit are recommended tests
  - Poor specificity of EIA at low index values (<3.0)
  - Serologic testing 12 wks after suspected recent acquisition
  - IgM not recommended

If confirmatory tests are unavailable, patients should be counseled about the limitations of available testing, and health care providers should be aware that false-positive results occur.

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STD Clinical Consultation Network
STDCCN.org

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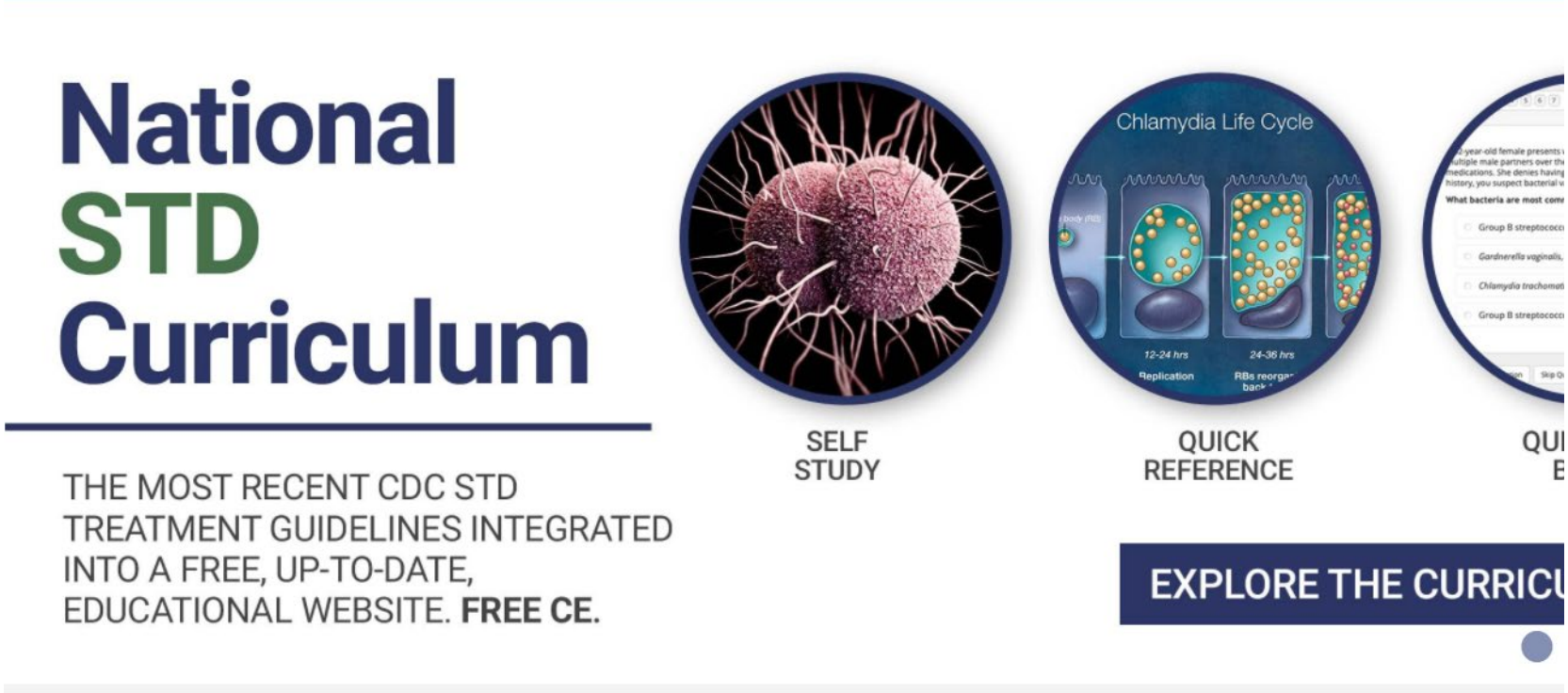
https.//www.std.uw.edu/



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Thank you!

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Next: Oliver Bacon, MD, MPH

Dr. Oliver Bacon is Supervising Physician at San Francisco City Clinic. He is also an Associate Clinical Professor of Medicine at University of California San Francisco in the Division of HIV, Infectious Diseases, and Global Medicine. From 2015 to 2017 he led the RAPID initiative (immediate ART initiation for all persons newly diagnosed with HIV infection in San Francisco) for the Getting to Zero initiative and was Deputy Director of the Capacity Building Assistance Program for high impact HIV prevention at the SFDPH. His areas of interest include diagnosis and treatment of sexually transmitted infections, antiretroviral therapy, management of opportunistic infections, new HIV testing strategies, early treatment of HIV infection, and biomedical prevention of HIV infection.

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November 4, 2021• 9:00 AM - 1:00 PM (PDT)