

2024 STI Update

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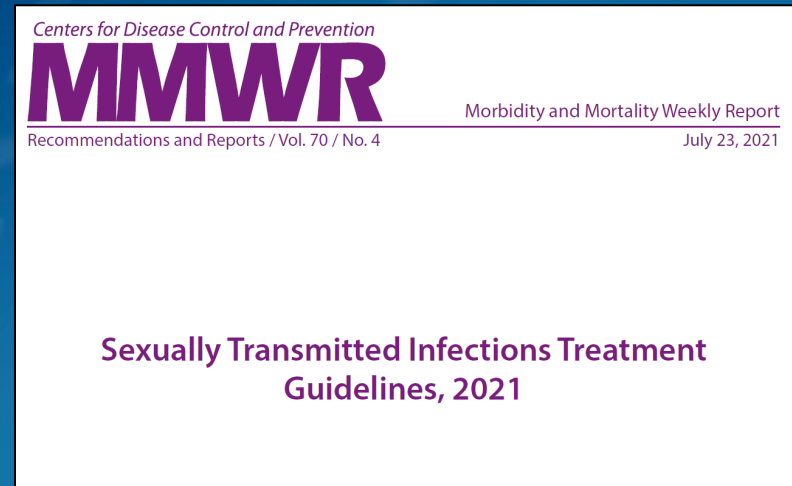
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- No conflicts of interests or relationships to disclose

Disclaimer

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THE
STATE OF STIs
IN THE
UNITED STATES,
2022

CDC's 2022 STI Surveillance Report underscores that STIs must be a public health priority



1.6 million
CASES OF CHLAMYDIA
6.2% decrease since 2018



648,056
CASES OF GONORRHEA
11% increase since 2018



207,255
CASES OF SYPHILIS
80% increase since 2018

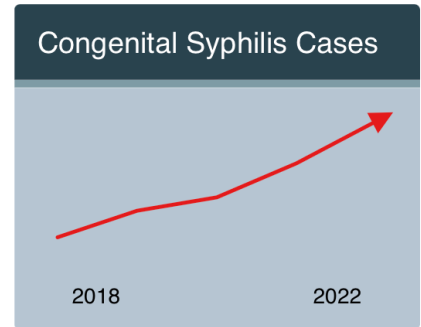
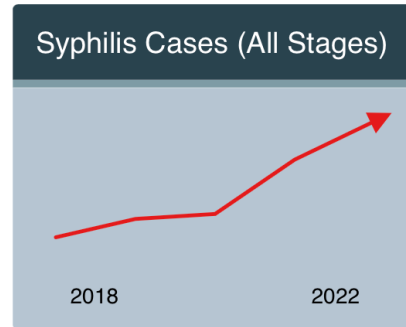
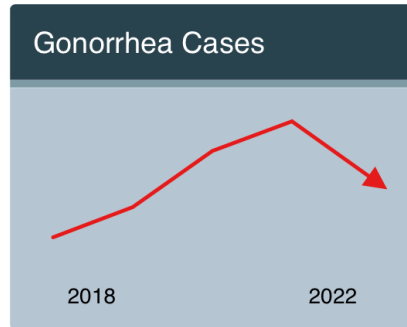
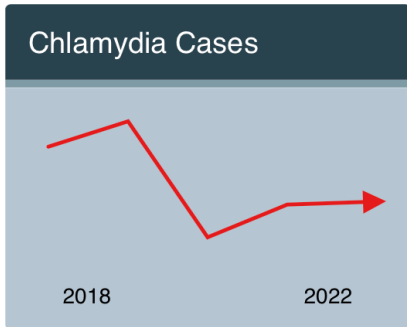


3,755
CASES OF SYPHILIS
AMONG NEWBORNS
183% increase since 2018

LEARN MORE AT: www.cdc.gov/std/

ANYONE WHO HAS SEX COULD
GET AN STI, BUT SOME GROUPS
ARE MORE AFFECTED

- YOUNG PEOPLE AGED 15-24
- GAY & BISEXUAL MEN
- PREGNANT PEOPLE
- RACIAL & ETHNIC MINORITY GROUPS



Disease	Cases					Percent Change	
	2018	2019	2020	2021	2022	5 Year	1 Year
Chlamydia	1,758,668	1,808,703	1,579,885	1,644,416	1,649,716	-6.2	0.3
Gonorrhea	583,405	616,392	677,769	710,151	648,056	11.1	-8.7
Syphilis (All Stages)	113,739	127,943	131,797	173,858	203,500	78.9	17.0
Congenital Syphilis	1,325	1,882	2,162	2,875	3,755	183.4	30.6
Total Reported STIs	2,457,137	2,554,920	2,391,613	2,531,300	2,505,027	1.9	-1.0

“

There are no shortcuts, and we have to meet people where they are. Some people face tremendous barriers to STI prevention and health services. So, the most important work is often outside the clinic, whether it be reaching out to communities with testing, interviewing patients to offer services to their partners, or delivering treatment directly to someone.

- Laura Bachmann, MD, MPH, Acting Director, CDC's Division of STD Prevention

”

We have a plan! (June 2023)

STI

Focused on:
Chlamydia
Gonorrhea
Syphilis
HPV/HPV vaccination
HSV is coming!

Sexually Transmitted Infections

National Strategic Plan

for the United States | 2021–2025



VISION

The United States will be a place where sexually transmitted infections are prevented and where every person has high-quality STI prevention, care, and treatment while living free from stigma and discrimination.

This vision includes all people, regardless of age, sex, gender identity, sexual orientation, race, ethnicity, religion, disability, geographic location, or socioeconomic circumstance.

B. Goals

In pursuit of this vision, the STI Plan establishes five goals:



1. Prevent new STIs



2. Improve the health of people by reducing adverse outcomes of STIs



3. Accelerate progress in STI research, technology, and innovation



4. Reduce STI-related health disparities and health inequities



5. Achieve integrated, coordinated efforts that address the STI epidemic

New-ish 2021 CDC STI Guidelines

Centers for Disease Control and Prevention

MIMWR

Morbidity and Mortality Weekly Report

Recommendations and Reports / Vol. 70 / No. 4

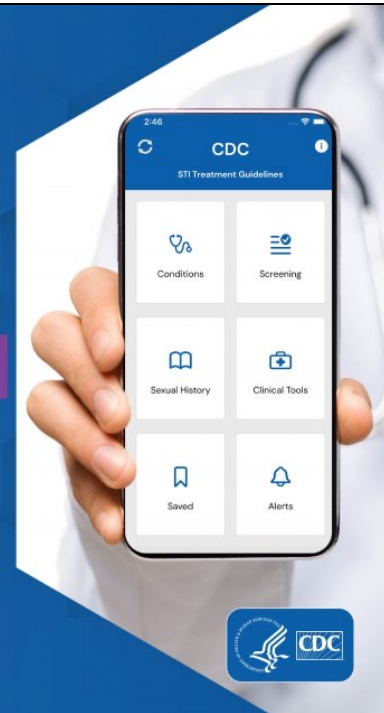
July 23, 2021

Sexually Transmitted Infections Treatment Guidelines, 2021

STI Treatment Guide Mobile App

More Comprehensive
More Integrated
More Features

Download CDC's free app for iPhone and Android devices.



Mobile app now available for Apple and Android devices
Search "STI Tx Guide"

<https://www.cdc.gov/std/treatment-guidelines/provider-resources.htm#MobileApp>

<https://www.cdc.gov/std/treatment-guidelines/default.htm>

What's in a Name?

STD

- Sexually transmitted disease
- Refers to disease or illness
- Implies sickness

STI

- Sexually transmitted infection
- Refers to pathogen
- Often asymptomatic

CDC STI Treatment Guideline Development

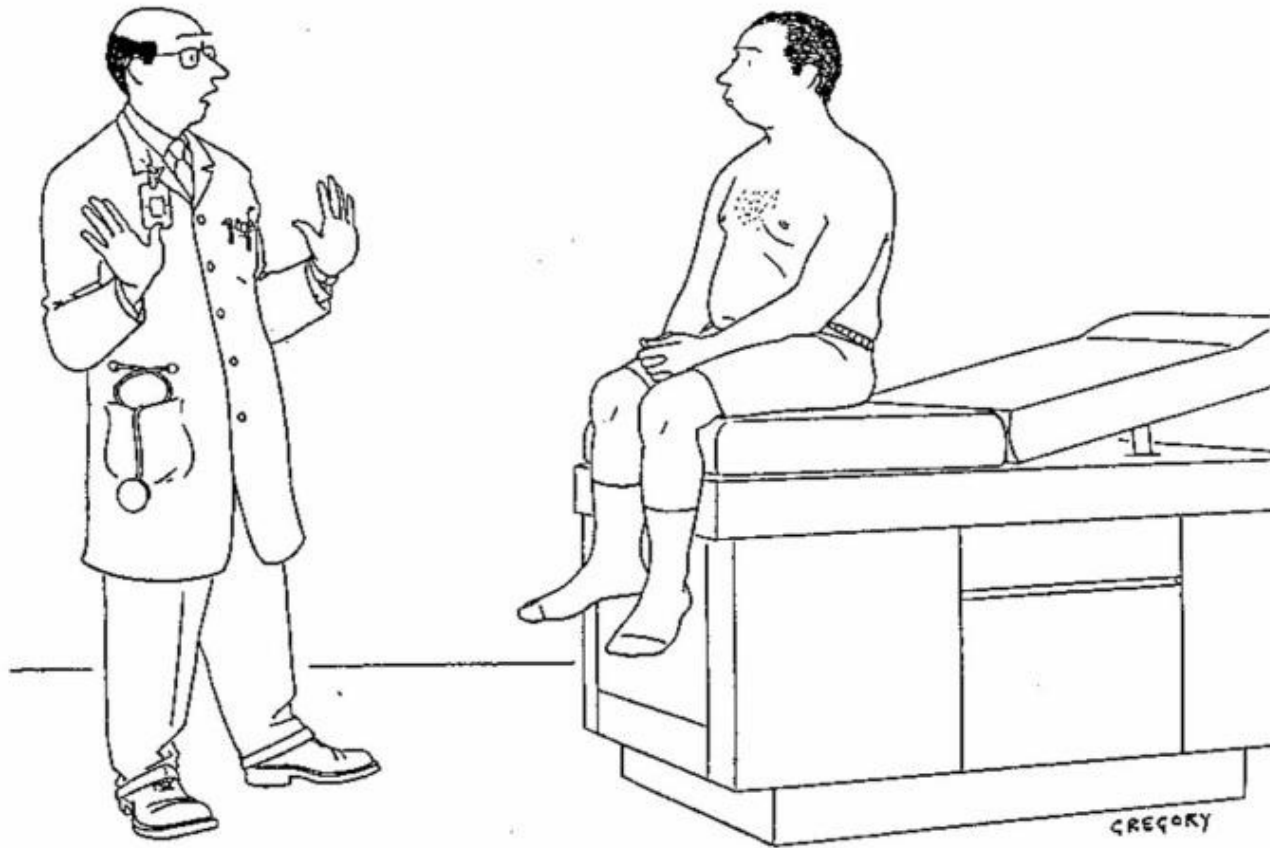
- Evidence-based on principal outcomes of STI therapy
- “Recommended” regimens preferred over “alternative” regimens
- Treatments alphabetized unless there is a priority of choice
- Released July 2021

Some clarifications and caveats...

- CDC uses gender-based recommendations
 - Includes a section about transgender and gender diverse persons
 - Screening guidelines written for “women” and “men”
 - For clinical purposes, consider anatomy and anatomic sites of exposures
- Graphic images ahead
- Racism, not race/ethnicity, creates and perpetuates health disparities

THE INS AND OUTS OF SCREENING: 2021 CDC RECOMMENDATIONS

STI Screening: Don't Be This Person!



"Whoa—way too much information."

New Sexual History Taking Guide: New 5 P's



1. Partners
What are the genders of your partners...
2. Practices
3. Protection from STIs
4. Past history of STIs
5. Pregnancy intention (new)
Previously "prevention"

Additional questions for identifying HIV and viral hepatitis risk:

- Have you or any of your partner(s) ever injected drugs?
- Is there anything about your sexual health that you have questions about?

Updates to Hepatitis C (HCV) screening

All adults

At least once if
 ≥ 18 years*

Pregnant persons

With each
pregnancy*

MSM with HIV

At least once if
 ≥ 18 years* &
annually
thereafter

*unless local prevalence is $<0.1\%$

STI Screening for Women (WSM and WSW)

Women under 25 years of age

Chlamydia/gonorrhea

HIV at least once

Hep C at least once if ≥ 18 yo (unless prevalence of Hep C $< 0.1\%$)

Women 25 years of age and older

Chlamydia/gonorrhea if at risk

HIV at least once

Hep C at least once (unless prevalence of Hep C $< 0.1\%$)

Pregnant persons

Chlamydia (<25 years of age, or older women if at risk, and retest during 3rd trimester)

Gonorrhea (<25 years of age, or older women if at risk, and retest during 3rd trimester)

HIV at 1st antenatal visit, and in 3rd trimester, if at risk

Syphilis serology at 1st antenatal visit, in 3rd trimester, and at delivery, if at risk (WA DOH)

HepB sAg

Hep C (unless prevalence of Hep C $< 0.1\%$) WITH EVERY PREGNANCY

Screening not recommended for *M. genitalium* or trichomonas

STI Screening in Men who Have Sex with Women (MSW)

- No routine screening in the community
 - Except HIV (**age 15-65 and if seeking STI testing**) and Hepatitis C if **age ≥ 18**
- CDC says consider screening for:
 - CT in “young men” in adolescent clinics, correctional facilities, and STI clinics or in populations with high burden of infection
 - Syphilis if increased risk (includes history of incarceration, age <29)
 - Hepatitis B if at increased risk (sexual or percutaneous exposure)

STI Screening for MSM

- HIV*
- Syphilis*
- Urethral GC and CT*
- Rectal GC and CT (if receptive anal sex)*
- Pharyngeal GC (if oral sex)*
- Hepatitis B (HBsAg, HBV core ab, HBV surface ab)
- Hepatitis C: (At least once if ≥ 18 yo, unless prevalence of infection $< 0.1\%$)
- Anal cancer: annual digital anorectal exam may be useful (no anal Pap rec yet)
 - BUT STAY TUNED!!! Awaiting guidelines...
- HSV-2 serology (consider)

***At least annually, more frequent (every 3-6 months) if multiple/anonymous partners, drug use, or partners with risk**

Routine screening not recommended for *M. genitalium*

STI Screening for Transgender Persons

Based on current anatomy and gender of sex partners

- Offer HIV screening to all transgender persons
- TG persons who have sex with cisgender men or transgender women, at similar risk for STIs as cis-MSM

Transgender women post vaginoplasty

- GC/CT (all sites of exposure: oral, anal, genital)

(urine vs neovaginal swab not specified, best specimen type based on tissue type used to construct neovagina)

Transgender men post metoidioplasty

- If vagina still present and need to screen for STIs, cervical (or front hole) swab should be used as “a urine specimen will be inadequate for detecting cervical infections”

EXTRA-GENITAL SCREENING: IF YOU JUST
CHECK THE PEE, YOU'LL MISS GC AND
CT...

What is “Extragenital” Screening?

- Extragenital screening = testing for STIs at any body site other than genitourinary (urethral/urine/vaginal/cervix)
- Usually refers to rectal and oropharynx
- Typically for gonorrhea and/or chlamydia only
- Previously recommended routinely only for MSM, but now *permissive* for other individuals

Importance of Extragenital GC/CT Infections

- Transmission
 - 30% of symptomatic gonococcal urethritis is attributable to oro-pharyngeal exposure¹
- HIV Transmission
 - Can increase risk of acquisition²⁻⁴
- Treatment can differ
 - Pharyngeal GC⁵
 - Ceftriaxone > Cefixime
 - Rectal CT⁶
 - Doxy >>> Azithromycin

1. Barbee et al, *STI*, 2015; 2. Vaughan, *BMC Med Res Methodol*, 2015; 3. Kelly, *AIDS Res Hum Retroviruses*, 2015; 4. Jin, *JAIDS*, 1999; 5. Moran, *STD* 1995; 6. Kong, *JAC*, 2015

Extragenital Gonorrhea & Chlamydia is Common

- Among MSM, high rates of extra-genital GC & CT
 - Pharyngeal GC: 9.2%¹
 - Rectal GC: 9.7%³
 - Rectal CT: 12%³
- The majority of infections are asymptomatic
 - 92% of pharyngeal GC²
 - 84-86% of rectal GC²

1. Kent CK. CID 2005

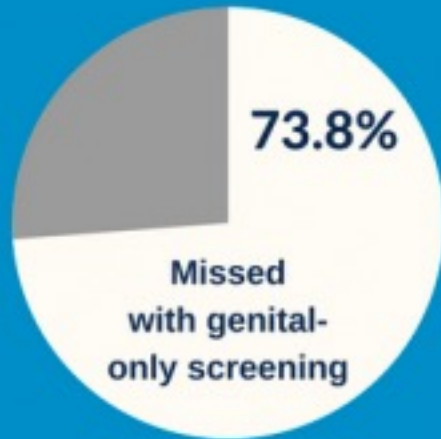
2. Morris, CID 2006

3. Barbee, STD 2014

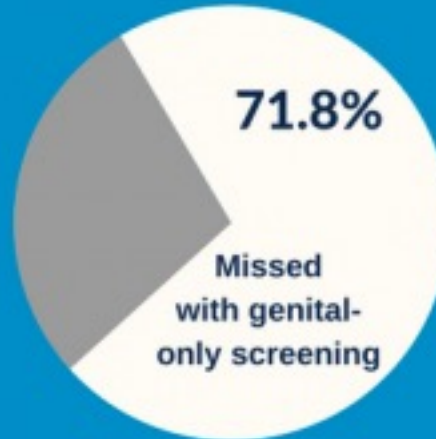
Checking Urine Alone Insufficient in MSM

FOR PROVIDERS: DID YOU KNOW?

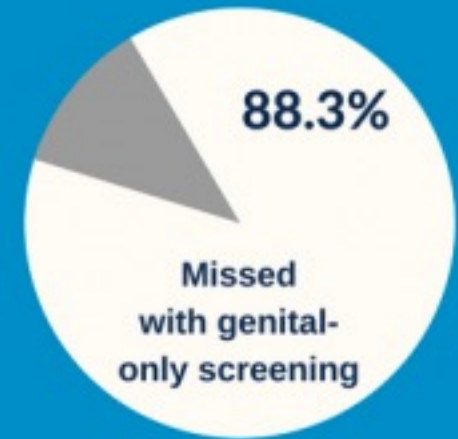
Pharyngeal Gonorrhea



Rectal Gonorrhea



Rectal Chlamydia



STD Surveillance Network, July 2010- June 2012 ,
STD clinic data for 11 SSuN jurisdictions. Patton, et al. Clin Infect Dis. March 2014.

Don't forget the triple dip: *STI Screening for MSM*

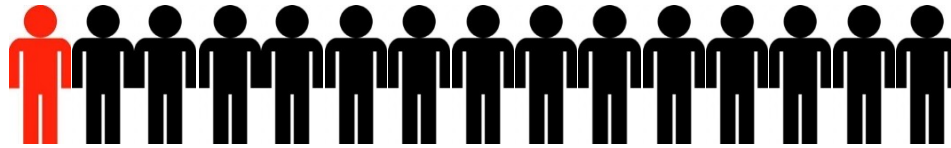


- ← Syphilis & HIV serology
- ← Pharyngeal GC
- ← Urine GC/CT
- ← Rectal GC/CT

Annually for all sexually active MSM
Every 3-6 months for high-risk MSM

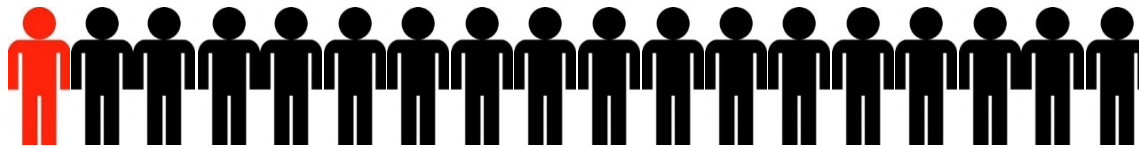
STDs predict future HIV Risk among MSM

Rectal GC
or CT



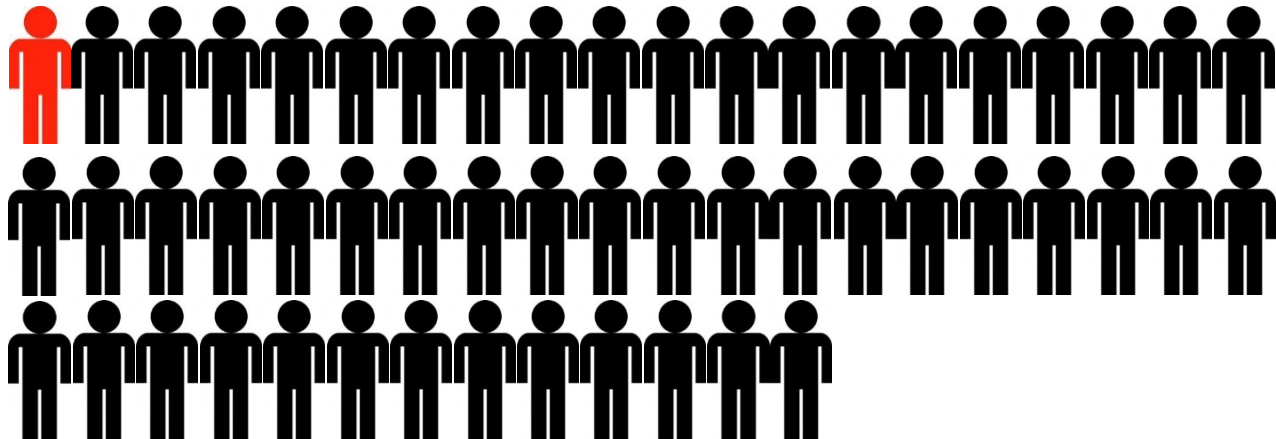
1 in 15 MSM were diagnosed with HIV within 1 year.*

Primary or
Secondary
Syphilis



1 in 18 MSM were diagnosed with HIV within 1 year.**

No rectal STD
or syphilis
infection



1 in 53 MSM were diagnosed with HIV within 1 year.*

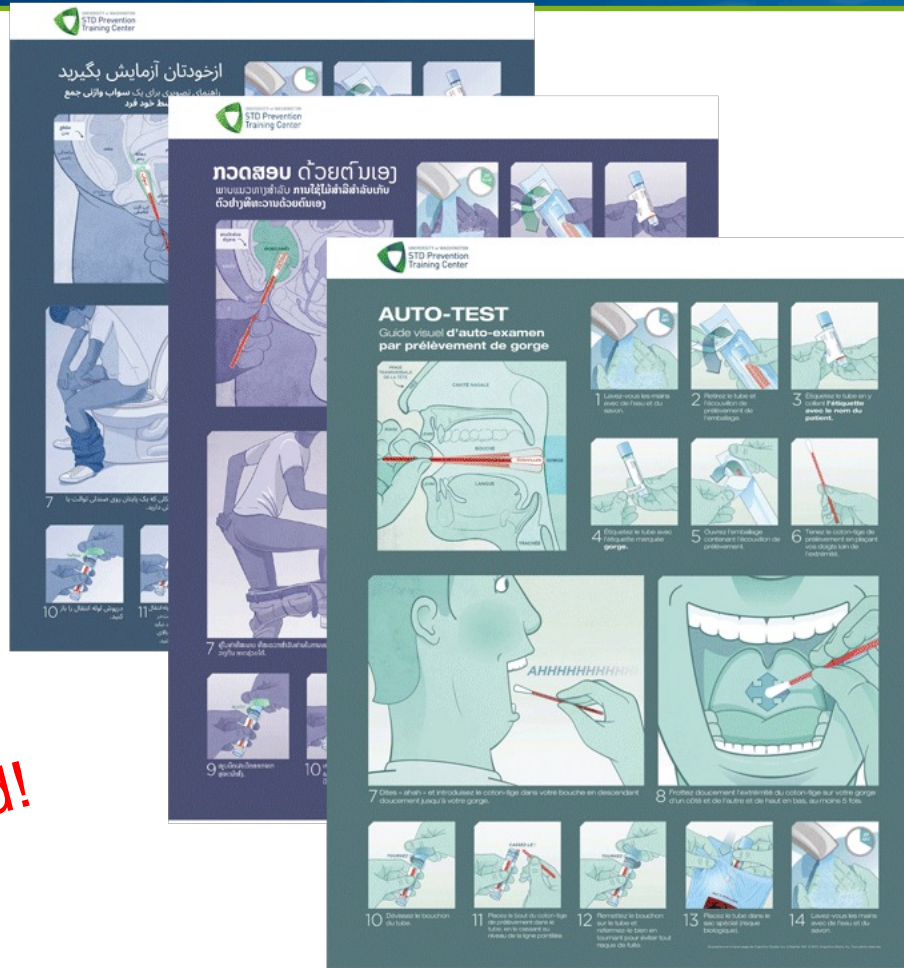
*STD Clinic Patients, New York City. Pathela, CID 2013:57;

**Matched STD/HIV Surveillance Data, New York City. Pathela, CID 2015:61

What about extragenital screening for women?

- Not routinely recommended by CDC STD Guidelines
 - ***BUT MORE PERMISSIVE LANGUAGE IN THE 2021 GUIDELINES***
 - ***Rectal CT and pharyngeal/rectal GC “can be considered in females based on reported sexual behaviors and exposure, though shared clinical decision...”***
- Meta-analysis of 14 studies of rectal testing¹
 - Overall 6.0% rectal CT positivity
 - When urogenital CT detected □ 68.1% also rectal positive
 - 2.2% isolated rectal CT
 - Rectal CT not associated with reported anal intercourse
- Can increase rates of chlamydia case-finding
- Should be treated if found

TEST YOURSELF Visual Guides for Self-Collection



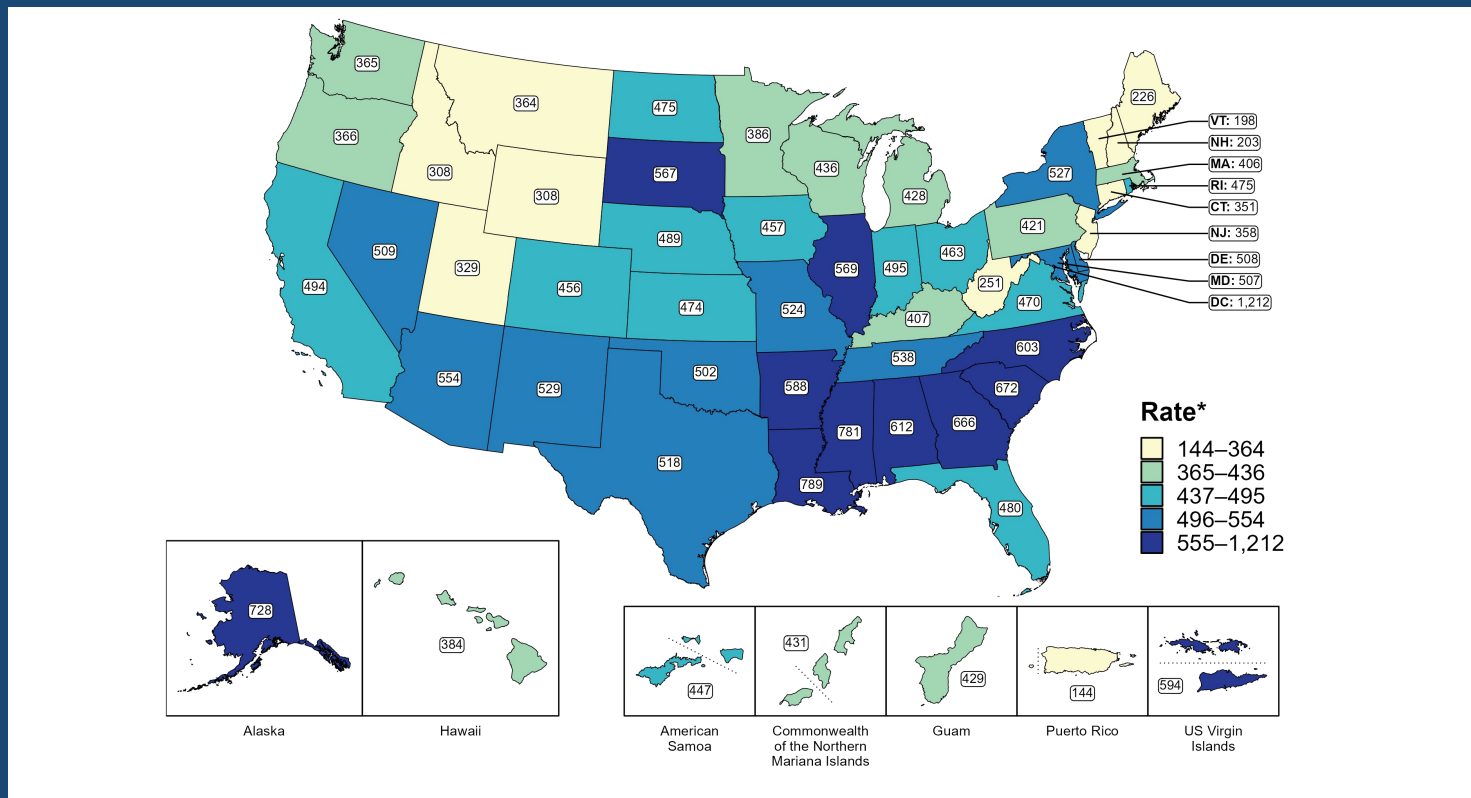
Now available
in 22
languages!

Gender
de-emphasized!

Visit <https://www.uwptc.org/visual-guides> for free posters for your clinic

CHLAMYDIA

Chlamydia – Rates of Reported Cases by State, United States and Territories, 2022



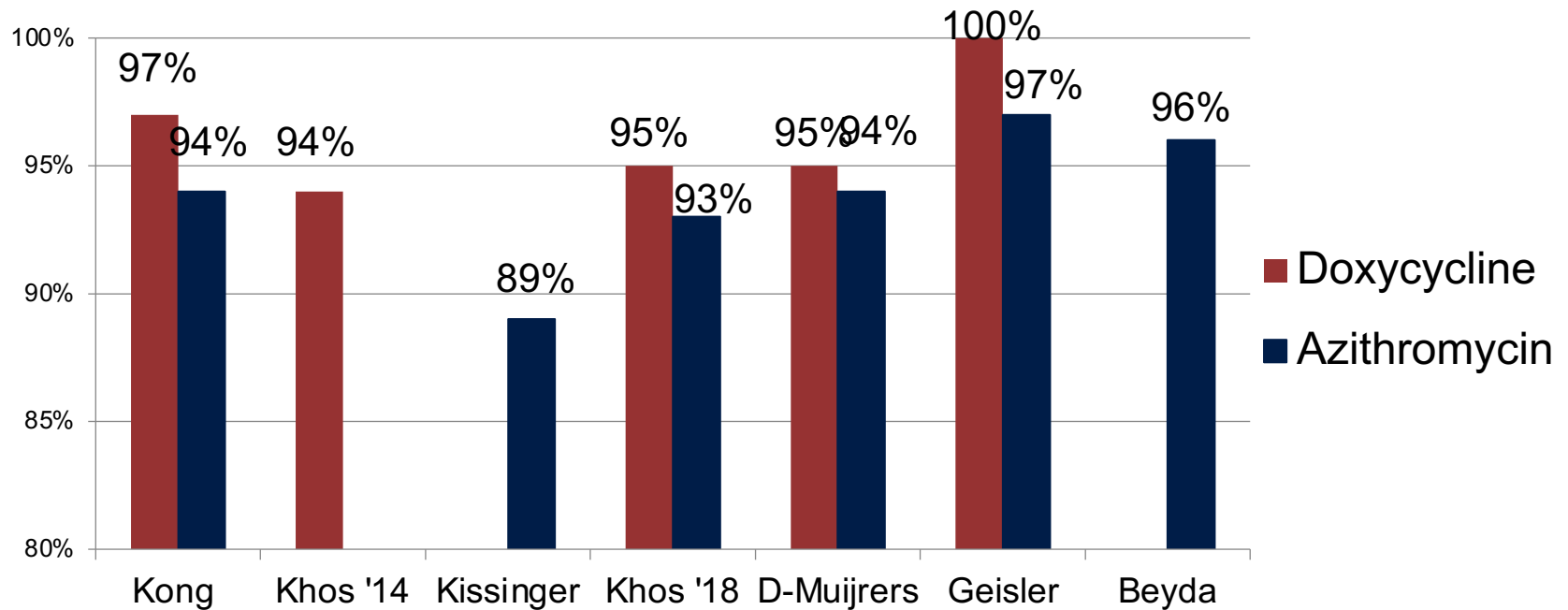
► * Per 100,000

You diagnose a 24 yo man who has sex with men with rectal CT after implementing a self-testing program in your clinic. What is the best treatment for this?

1. Azithromycin 1 gm orally once
2. Doxycycline 100 mg twice daily for 7 days
3. Either is fine

Doxycycline vs Azithromycin for Urogenital Chlamydia

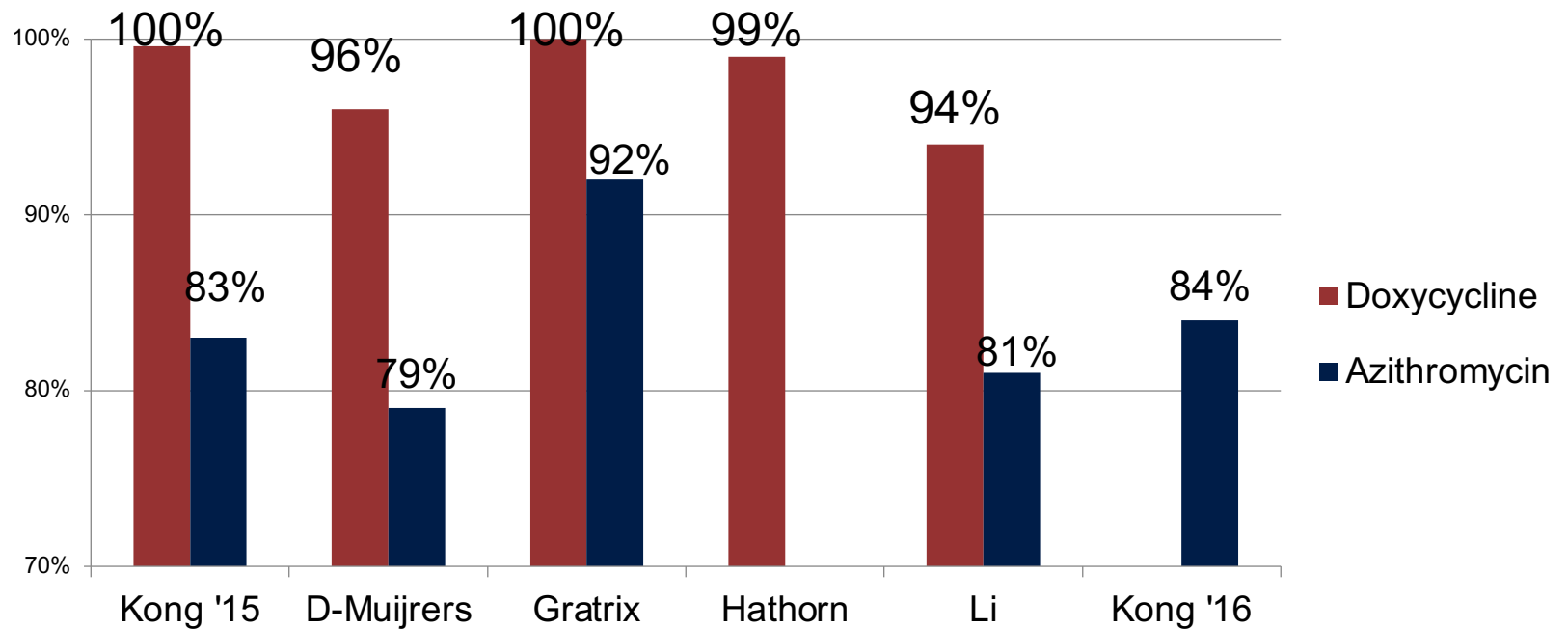
Efficacy



Slide credit: Dr. Will Geisler

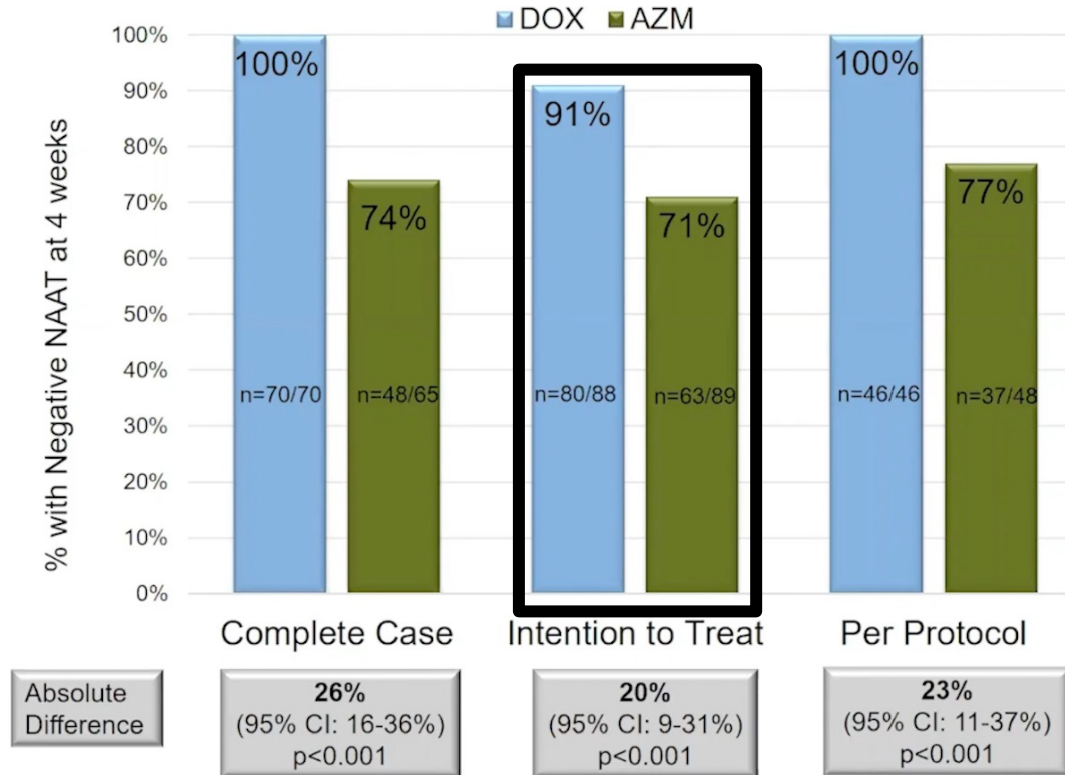
Doxycycline vs Azithromycin for Rectal Chlamydia

Efficacy



Slide credit: Dr. Will Geisler

First RCT of Doxycycline vs Azithromycin for Rectal CT: Microbiologic cure at 4 weeks



Only one participant randomized to doxycycline had a +NAAT, other seven lost to follow-up

Chlamydia Treatment: Urogenital/ Rectal/ Pharyngeal

Change in 2021 STI
Treatment Guidelines

Recommended regimens (non-pregnant):

- Doxycycline 100 mg orally twice daily for 7 days*

Alternative regimens (non-pregnant):

- Azithromycin 1 g orally in a single dose OR
- Levofloxacin 500 mg orally once daily for 7 days

*Doxycycline delayed-release 200 mg, once-daily dosing for 7 days effective for urogenital CT. More costly but lower frequency GI side effects than standard doxycycline.

Chlamydia Treatment: Pregnancy

Recommended regimen (pregnant*):

- Azithromycin 1 g orally in a single dose

Alternative regimens (pregnant*):

- Amoxicillin 500 mg orally three times a day for 7 days

*** Test of cure at 3-4 weeks only in pregnancy**

But Azithromycin, How We Love Thee...

- Advantages
 - Can be dispensed in clinic, directly-observed therapy
 - Single dose
 - Better for adherence issues
 - More discreet, better for adolescents, confidentiality
 - Better tolerated, fewer adverse effects
 - Safe in pregnancy and breastfeeding

*NOTE: CDC STD Treatment Guidelines are guidance not prescriptive. Clinicians may use judgment with clinical decision making.

Sure feels like
there are a lot of
changes for me in
the 2021 CDC STI
Guidelines!



Chlamydia

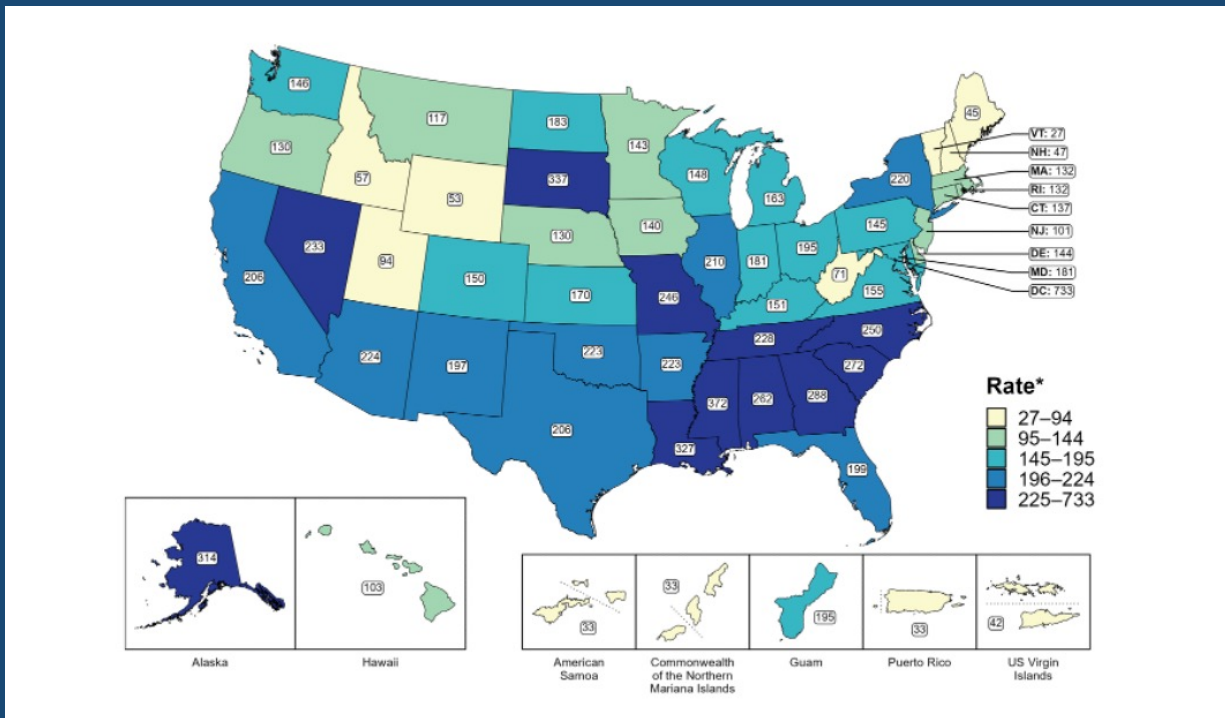
Just you
wait...



Gonorrhea

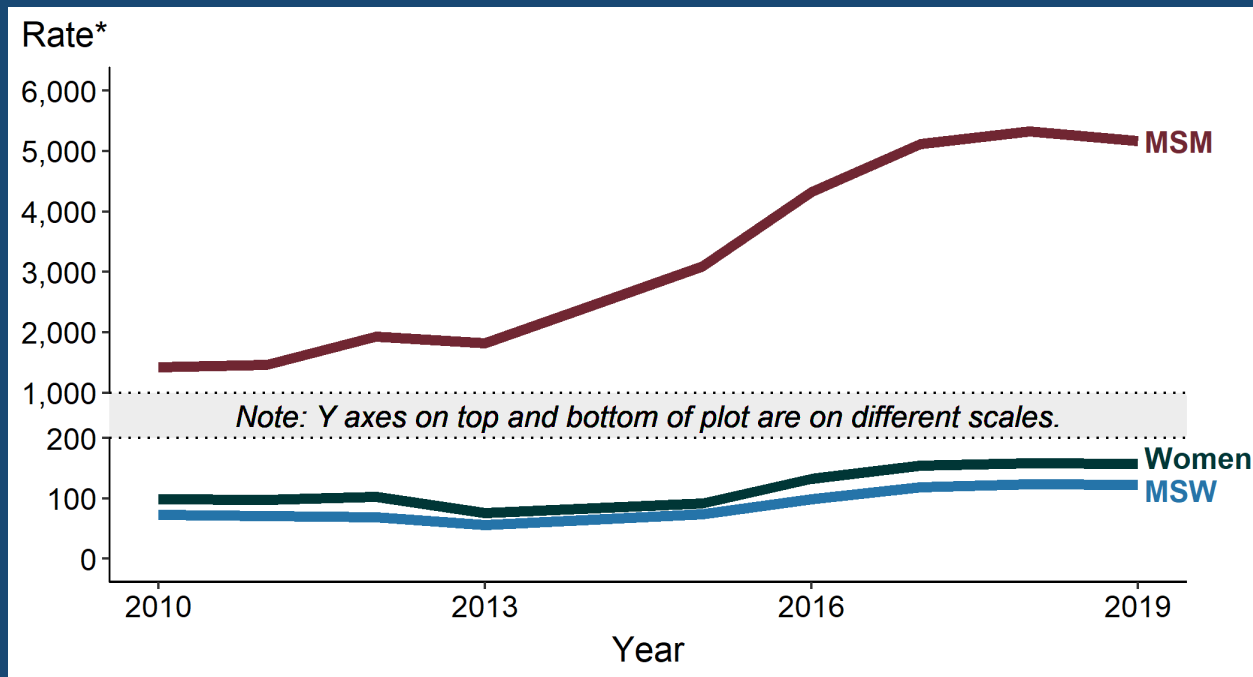
GONORRHEA

Gonorrhea – Rates of Reported Cases by State, United States and Territories, 2022



► * Per 100,000

Gonorrhea – Estimated Rates of Reported Gonorrhea Cases by MSM, MSW, and Women, STD Surveillance Network (SSuN), 2010-2019



► * Per 100,000 population

► **NOTE:** Estimate based on weighted analysis of data obtained from interviews (n=28,979) conducted among a random sample of reported gonorrhea cases. Sites include Baltimore, Philadelphia, New York City, Washington State, San Francisco, and California (excluding San Francisco).

► **ACRONYMS:** MSM = Gay, bisexual, and other men who have sex with men; MSW = Men who have sex with women only

You get a call from the lab telling you that the patient you tested for STIs yesterday has a positive gonorrhea NAAT. Before deciding on treatment, what do you need to know?

1. Site of infection
2. Patient's weight
3. Drug allergy history
4. Chlamydia test result
5. All of the above

New Gonorrhea Treatment Guidelines

for uncomplicated infections

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

*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 for GC with azithromycin
- Test-of-Cure at 7-14 days post treatment for **pharyngeal** gonorrhea

New Alternative Gonorrhea Treatment

for uncomplicated infections of the cervix, urethra, and rectum if ceftriaxone is not available:

Cefixime 800 mg PO x 1

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

Cephalosporin allergy: Gentamicin 240 mg IM + azithromycin 2 g PO

No reliable alternative treatments are available for **pharyngeal** gonorrhea

Any downside to the alternative/allergy regimen?

- Nausea was common
 - 27% for gentamicin + azithro
 - 37% for gemifloxacin + azithro
- Also vomiting
 - 3% and 7% in each group vomited <1 hr after administration



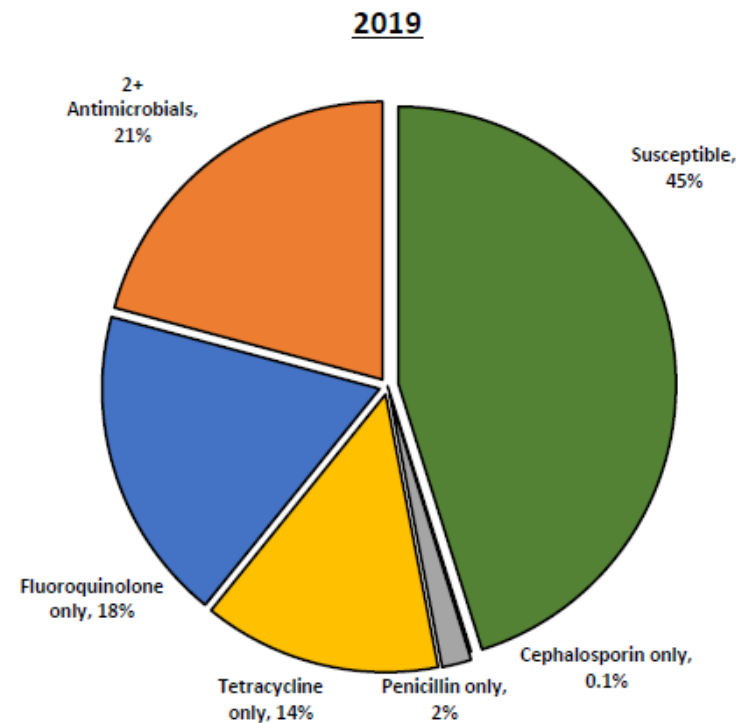
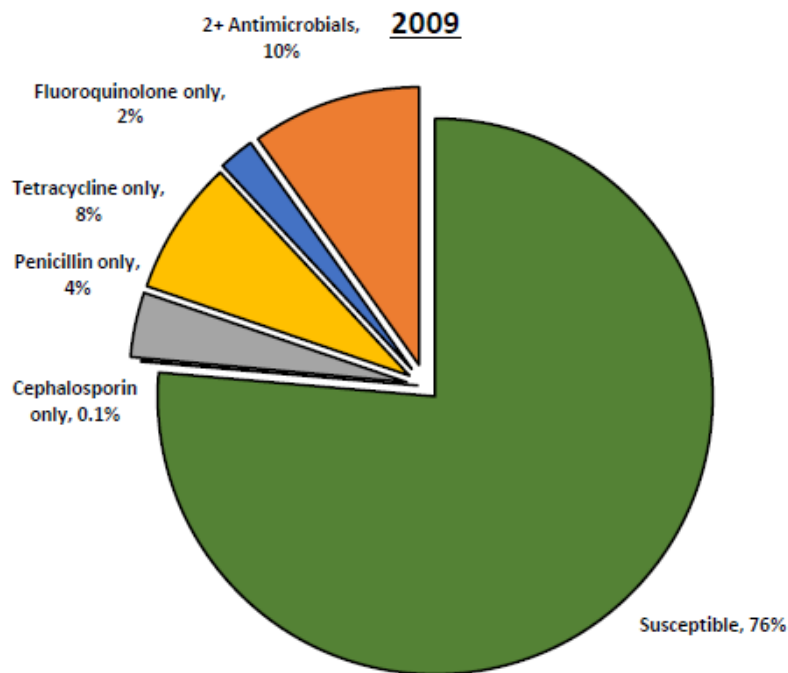
Rationale for GC Treatment Changes

- Growing GC resistance
- Antibiotic stewardship
- Pharmacokinetics/pharmacodynamics
- Decreasing efficacy of azithromycin against CT

- And low ceftriaxone resistance in the US...for now

More than half of GC isolates are resistant to at least one antibiotic

Prevalence of Resistant or Decreased Susceptibility of *N. gonorrhoeae* Isolates to Antimicrobials, GISP, 2009 and 2019*



* 2019 data are preliminary

Why Remove Azithromycin? Growing Resistance

**DRUG-RESISTANT
NEISSERIA GONORRHOEAE**

THREAT LEVEL URGENT

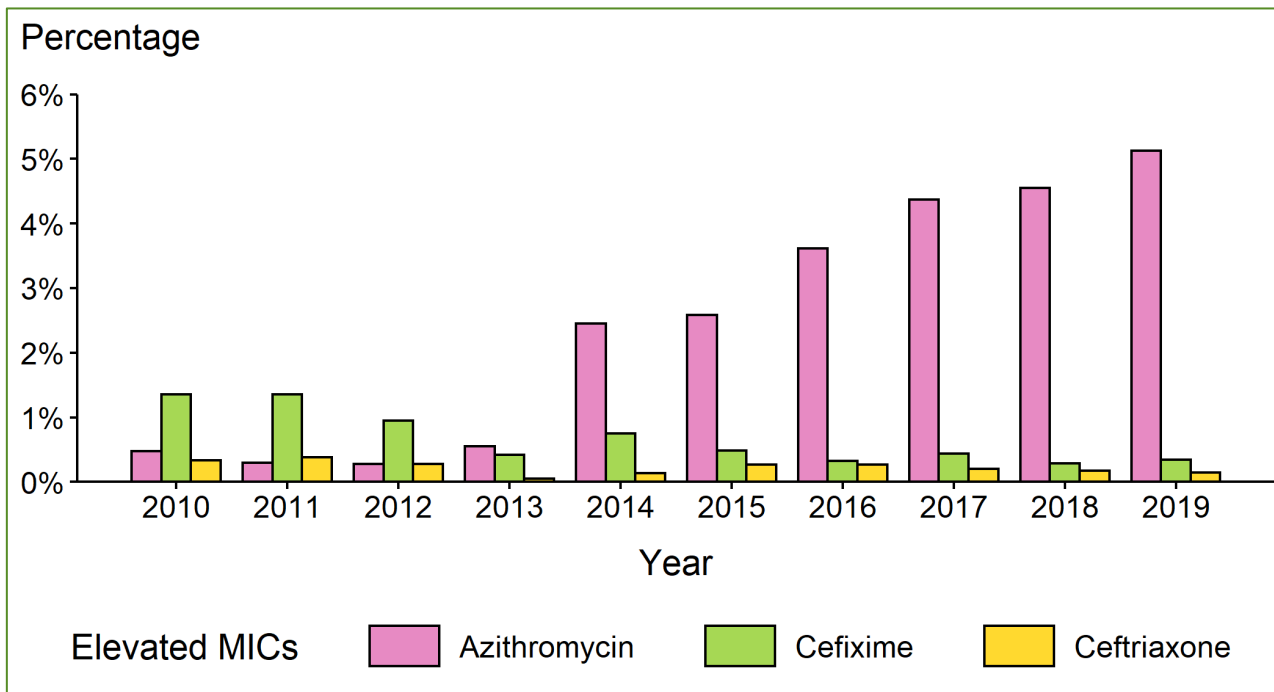
550,000
Estimated drug-resistant infections each year

1.14M
Total new infections each year

\$133.4M
Annual discounted lifetime direct medical costs

Neisseria gonorrhoeae causes gonorrhea, a sexually transmitted disease (STD) that can result in life-threatening ectopic pregnancy and infertility, and can increase the risk of getting and giving HIV.

Rise in GC Isolates with Decreased Susceptibility to Azithromycin (~5%) Gonococcal Isolate Surveillance Project (GISP), 2010–2019

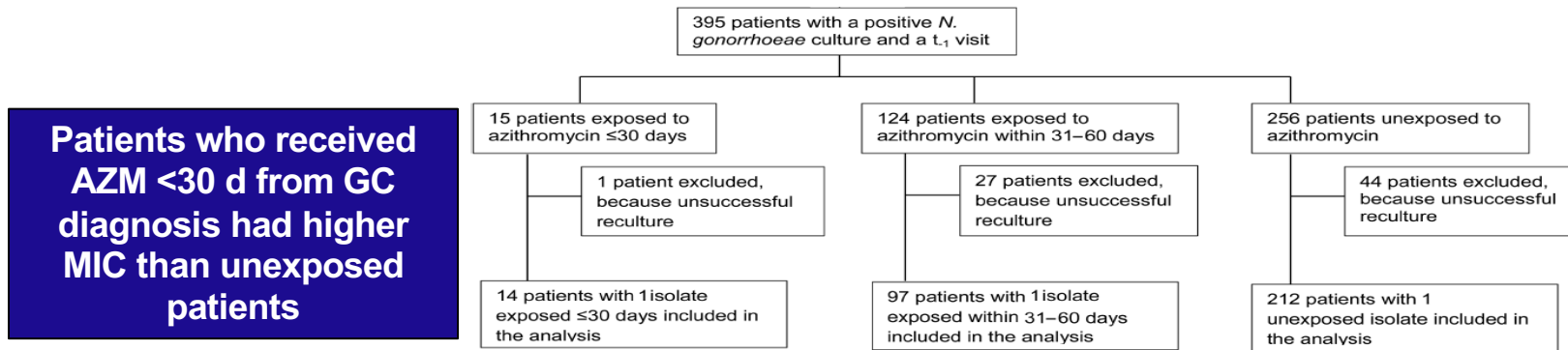


- WHO and CDC guidance suggests removing drug when >5% resistance
- Among MSM, resistance ~10%

Decreased Azithromycin Susceptibility of *Neisseria gonorrhoeae* Isolates in Patients Recently Treated with Azithromycin

Carolien M. Wind,¹ Esther de Vries,¹ Maarten F. Schim van der Loeff,^{2,5} Martijn S. van Rooijen,¹ Alje P. van Dam,^{3,4} Walter H. B. Demczuk,⁷ Irene Martin,⁷ and Henry J. C. de Vries^{1,6,8}

¹STI Outpatient Clinic, ²Research Department, and ³Public Health Laboratory, Department of Infectious Diseases, Public Health Service Amsterdam, ⁴Department of Medical Microbiology, Onze Lieve Vrouwe Gasthuis General Hospital, ⁵Department of General Medicine, and ⁶Department of Dermatology, Academic Medical Center, University of Amsterdam, The Netherlands; ⁷National Microbiology Laboratory, Public Health Agency of Canada, Winnipeg; and ⁸Center for Infection and Immunity Amsterdam, Academic Medical Center, University of Amsterdam, The Netherlands



Patients who received AZM <30 d from GC diagnosis had higher MIC than unexposed patients

Figure 1. Flow chart of included patients. Abbreviations: STI, sexually transmitted infection; t_0 , clinic visit of *Neisseria gonorrhoeae* culture; t_1 , clinic visit in 60 days preceding t_0 with (or without) azithromycin exposure.

Why Increase Dose of Ceftriaxone? Weight-based Pharmacokinetics

Weight	3 mg/kg	5 mg/kg [^]	10 mg/kg
50 kg	150 mg	250 mg	500 mg
80 kg*	240 mg	400 mg	800 mg
100 kg	300 mg	500 mg	1000mg
150 kg	450 mg	750 mg	1500mg

Mouse model
suggested
5 mg/kg dose for
susceptible isolate
(MIC 0.008)

*U.S. adult
average weight:
80 kg

Gonorrhoea Treatment Around the World

Country	Treatment	Comments
United Kingdom	Ceftriaxone 1g x1	If you have susceptibility data prior to treatment, AND it's susceptible to cipro → use cipro 500 mg
Australia & Europe	Ceftriaxone 500mg x1 Plus Azithromycin 2g	
Japan	Ceftriaxone 1g	

EXPEDITED PARTNER THERAPY

A 19 yo cisgender man is diagnosed with rectal GC and CT on routine screening. He reports sex with 3 cisgender men in the past 60 days. What should you do for these partners?

1. Offer cefixime plus azithromycin as patient-delivered partner therapy (PDPT)
2. Offer cefixime plus doxycycline as PDPT
3. Do not offer PDPT

Expedited Partner Therapy (EPT) or Patient-delivered partner therapy (PDPT)

- No states in US prohibit EPT (either allowable or potentially allowable by law/statute in all 50 states)
- Appropriate for partners of patients with GC/CT whose treatment cannot be ensured or is unlikely
 - Not appropriate for syphilis, maybe trichomonas
- Partners in the past 60 days
 - Or if no sex for >60 days, attempt to treat most recent partner(s)
- Previously only recommended for WSM and MSW, due to concerns about missing HIV and syphilis in MSM
 - Now **“shared decision making” for EPT for MSM**
- Providing patients with packaged oral medications is preferred approach
 - Partners (especially adolescents) may not fill prescriptions

Expedited Partner Therapy (EPT) Big Changes in 2021

- Partners should be highly encouraged to present for testing and treatment
- BUT if partners will not or cannot:

EPT for exposure to GC and CT:

cefixime 800 mg PO x 1 AND doxycycline 100 mg PO x 7 days*

EPT for exposure to GC alone:

cefixime 800 mg PO x 1

EPT for exposure to CT alone:

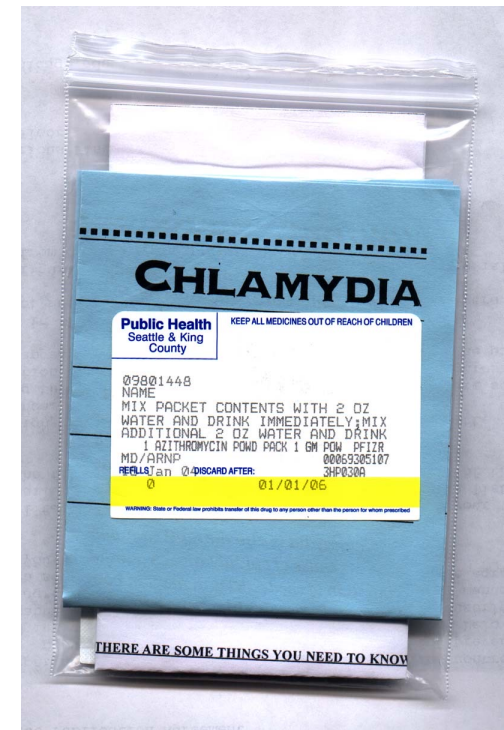
doxycycline 100 mg PO x 7 days*

*Azithromycin 1 g can be considered but decreased efficacy for rectal CT

Expedited Partner Therapy: What to Include

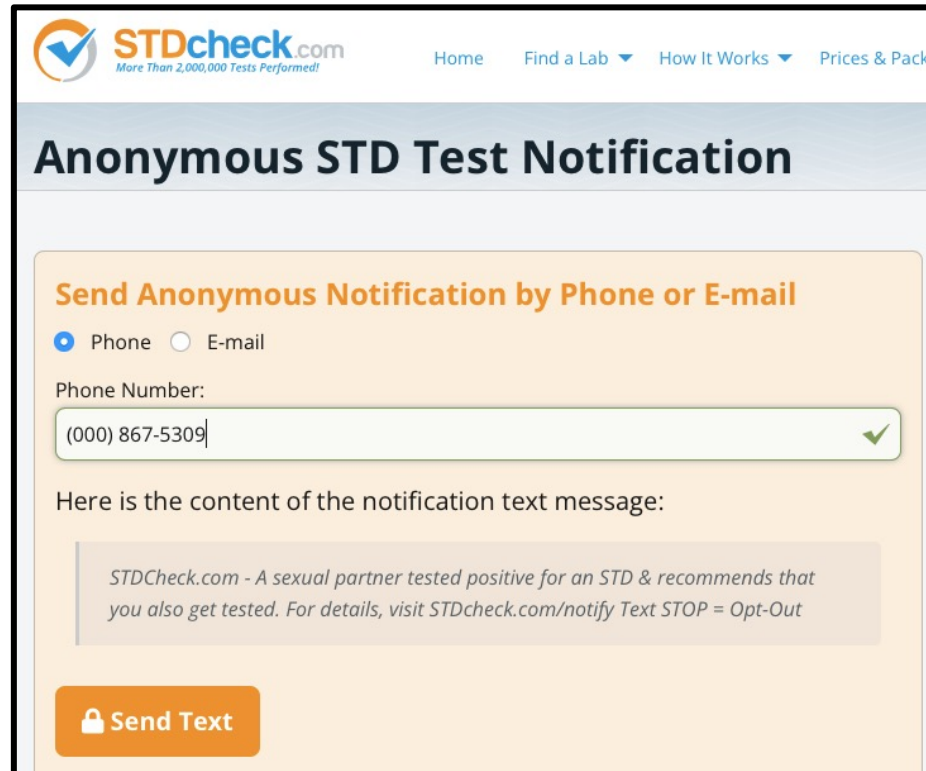
Information provided with EPT

- Information about medications, allergies & STI
- Advice about complications and when and where to seek care (e.g. PID)
- **With new recommendation would also counsel about doxy: pregnancy, GI symptoms, photosensitivity**
- Best resource for fact sheets I have found from Oregon Health Authority:
https://www.oregon.gov/oha/ph/DISEASE_SCONDITIONS/HIVSTDVIRALHEPATITIS/SEXUALLYTRANSMITTEDDISEASE/Pages/partnertherapy.aspx



<https://kingcounty.gov/en/legacy/depts/health/communicable-diseases/hiv-std/providers/partner-notification/ept-guidelines.aspx>

How to find anonymous partners met on the internet? Send an email love letter...



The screenshot shows the 'Anonymous STD Test Notification' page on STDcheck.com. The page header includes the logo for STDcheck.com with the tagline 'More Than 2,000,000 Tests Performed!' and navigation links for Home, Find a Lab, How It Works, and Prices & Packs. The main heading is 'Anonymous STD Test Notification'. Below this, there is a section titled 'Send Anonymous Notification by Phone or E-mail' with radio buttons for 'Phone' (selected) and 'E-mail'. A text input field for 'Phone Number:' contains '(000) 867-5309' and has a green checkmark on the right. Below the input field, it says 'Here is the content of the notification text message:' followed by a preview of the text message: 'STDCheck.com - A sexual partner tested positive for an STD & recommends that you also get tested. For details, visit STDcheck.com/notify Text STOP = Opt-Out'. At the bottom of the form is an orange button labeled 'Send Text' with a lock icon.

<https://www.stdcheck.com/anonymous-notification.php>

MYCOPLASMA GENITALIUM

A Case of Persistent Urethritis

- 29-year-old transgender woman presents with burning with urination and meatal discharge x 2 days
- She reports unprotected sex (IAI) approximately 7 days ago
- She is treated empirically for GC/CT with ceftriaxone and doxycycline
- She returns 1 week later reporting ongoing symptoms; initial GC/CT testing has returned negative and she says she has had no sex at all since last visit

- What are possible causes?

Differential Diagnosis of Urethritis

Gonococcal Urethritis

- *Neisseria gonorrhoeae*

Non-Gonococcal Urethritis (NGU)

- *Chlamydia trachomatis* (15-40%)
- *Ureaplasma urealyticum*
- *Mycoplasma genitalium* (15-40%)
- *Trichomonas vaginalis*
- Herpes simplex virus
- Adenovirus
- Other enteric bacteria
- *Neisseria meningitidis*



Prevalence of Key Pathogens among Men with Symptomatic Urethritis

Study Site (n)	<i>Gonorrhea</i>	<i>Chlamydia</i>	<i>M. genitalium</i>	<i>Trichomonas</i>
Birmingham, AL (n=235)	33%	23%	30%	7%
Durham, NC (n=93)	42%	32%	25%	8%
Greensboro, NC (n=152)	43%	29%	39%	10%
New Orleans, LA (n=103)	37%	25%	29%	2%
Pittsburgh, PA (n=174)	26%	27%	28%	12%
Seattle, WA (n=157)	35%	25%	29%	2%
Overall	35%	25%	29%	7%

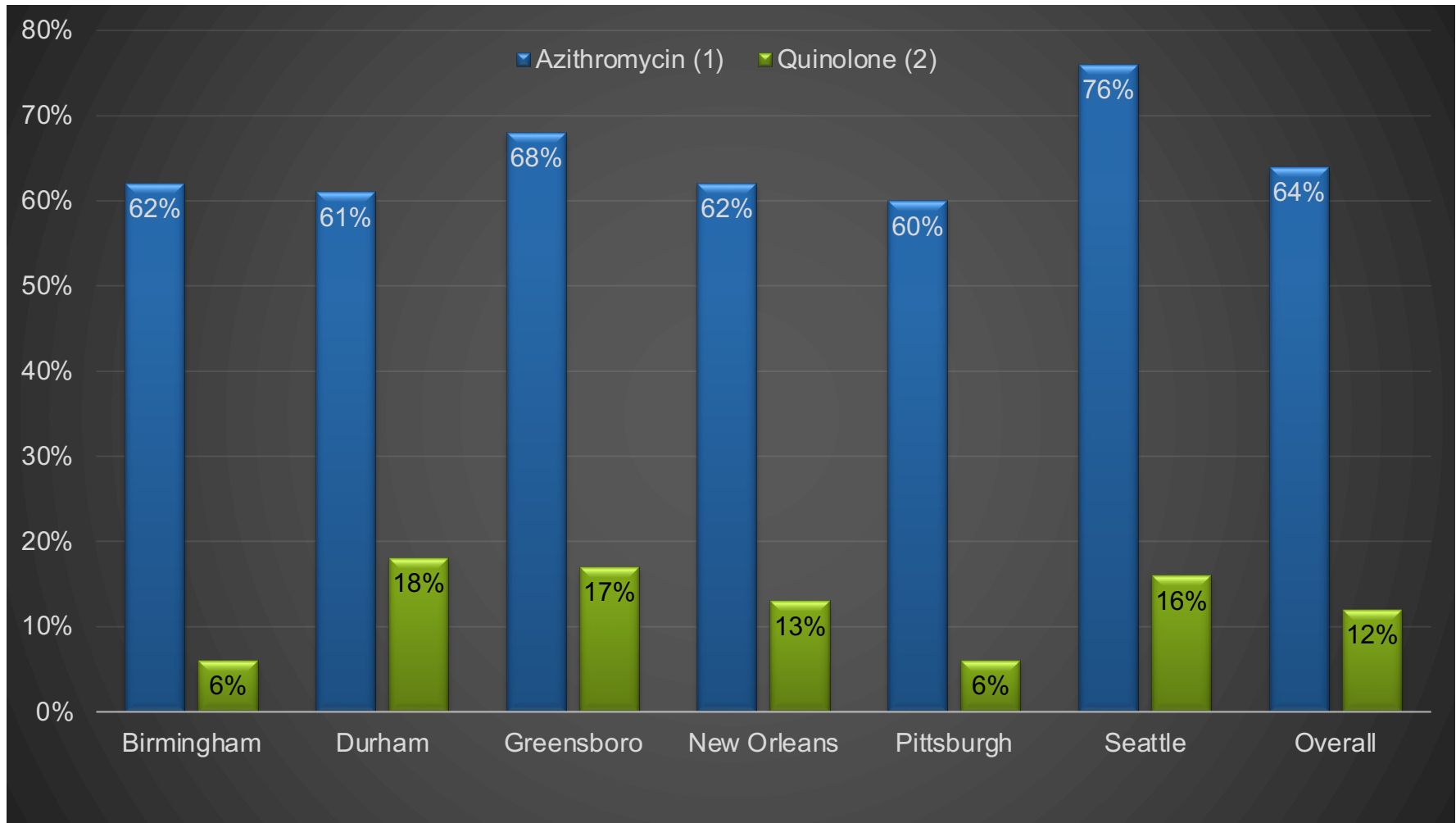
More than 1 in 4 men with urethritis have *M. genitalium*

No longer an emerging pathogen: *Mycoplasma genitalium*



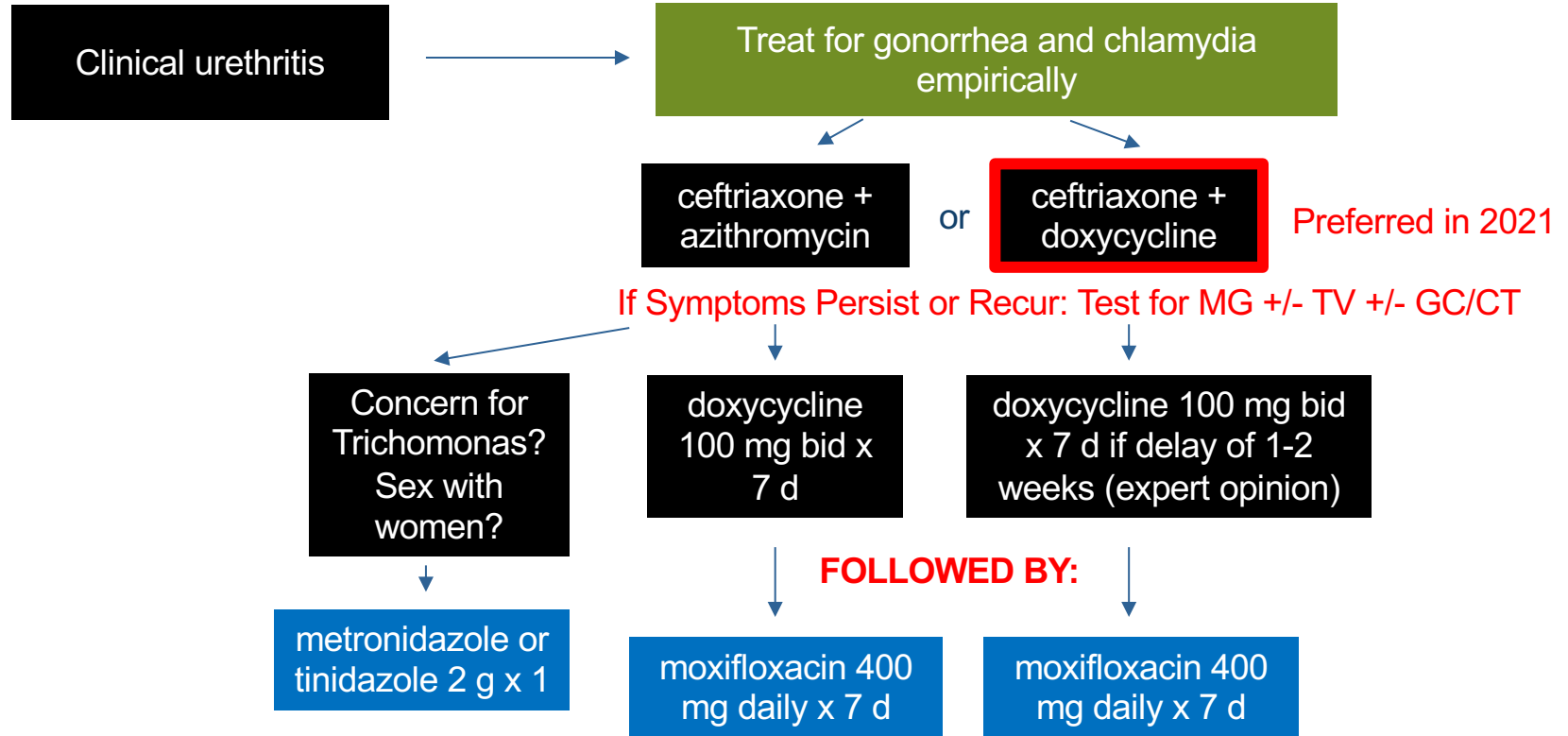
- Bacterial slow-growing pathogen, but does not gram stain
- Role in urethritis and cervicitis; also PID but less clear
- No recommendations for routine screening, **in 2021 test in persistent urethritis that fails initial treatment, consider for persistent PID/cervicitis**
- In 2019 FDA approved 1st MG NAAT (*Aptima*) for urine, urethral, penile meatal, endocervical, vaginal specimens
- Ureaplasma and other mycoplasma species of unclear significance
 - Testing/treatment not recommended
- Macrolide and doxy resistance, also some quinolone
 - Macrolide resistance tests may be available to guide therapy soon

Prevalence of Resistance Mutations in *M. genitalium* among Men with Urethritis



1. 23S rRNA mutation, among those with evaluable results
2. *parC* mutation, among those with evaluable results

2021 Urethritis Treatment: Initial and Persistent/Recurrent



- **MG macrolide resistance testing may change some of these guidelines, but not yet currently available in US.**
- **If macrolide sensitive, after doxycycline course, give azithromycin 1 g, then 500 mg daily x 3**

TRICHOMONAS



Trichomonads on vaginal epithelial cells

10KV X1600

4135



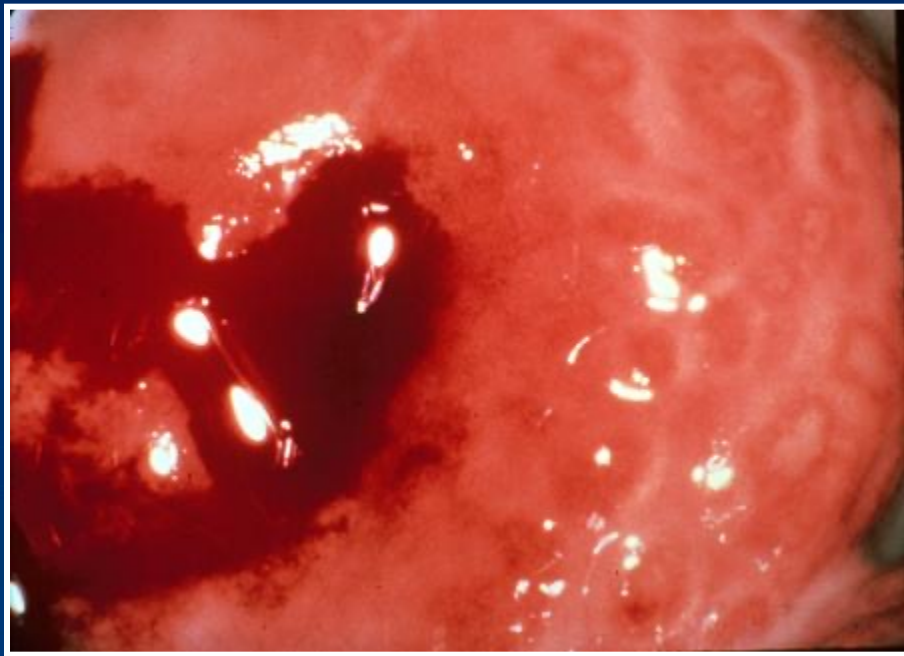
10.00 CIEA

A 56 year old woman tells you she has had some yellow-green vaginal discharge with a strong odor, and she would like it to go away. She denies sexual activity of any kind for over 5 years. Urine NAAT is positive for trichomonas. How should you treat her?

1. Metronidazole 2 gm orally once
2. Metronidazole 500 mg orally twice daily for 7 days
3. It depends whether she has HIV or not

Typical frothy, yellowish vaginal discharge of trichomoniasis



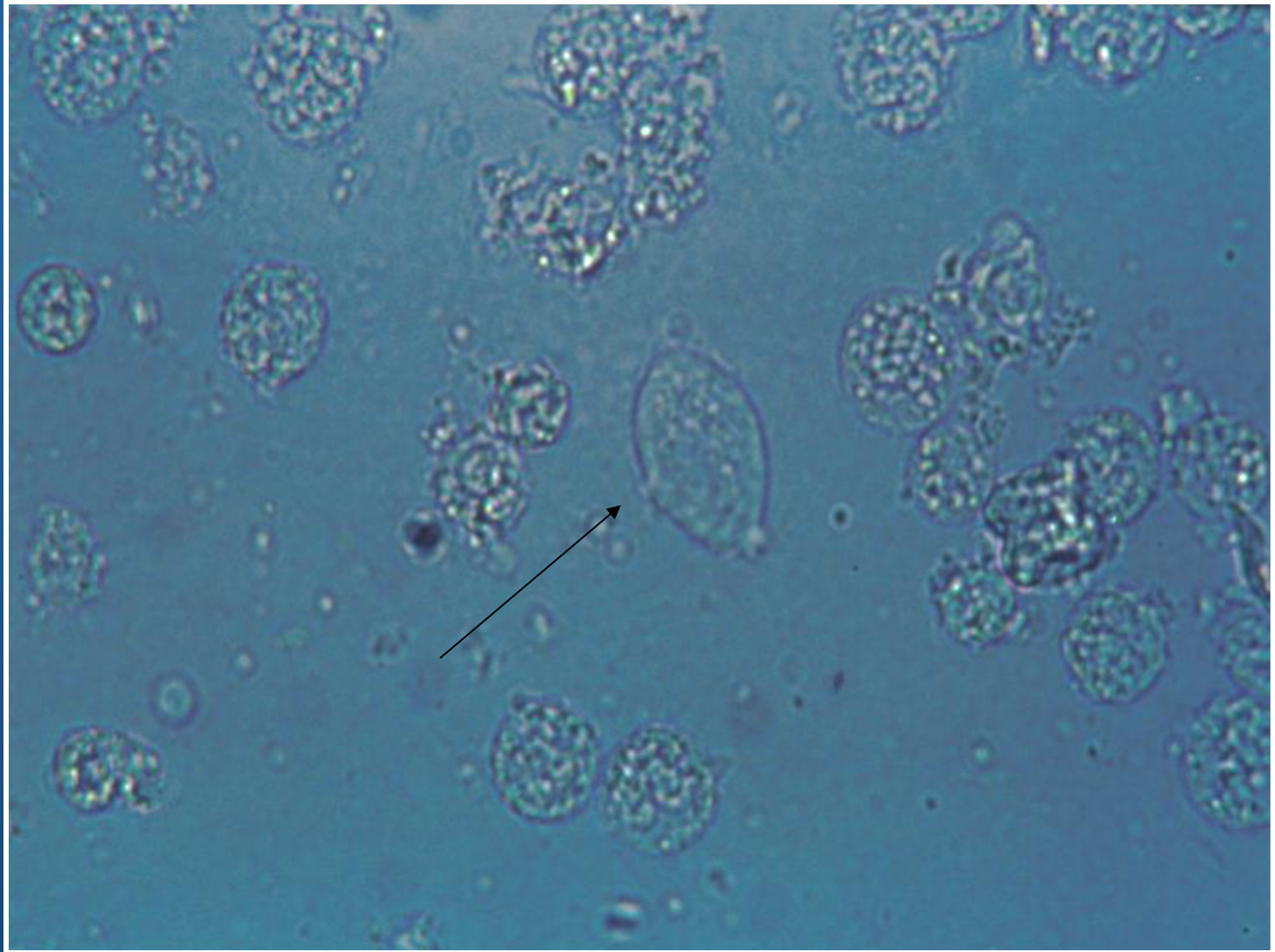


Cervicitis due to
Trichomonas vaginalis

Strawberry cervix
“*Colpitis macularis*”



Saline microscopy of *Trichomonas vaginalis* with PMNs



Trichomoniasis: The “Neglected STD”

- Under appreciated in its importance—most common nonviral STD in US (4-8 million new cases/yr estimated)
 - Not reportable in the US
 - Wider age distribution of 20-45 y
 - Prevalence 3% in US, 15-20% in US black women 30-50 y
 - Very high rates in incarcerated women (9-32%) and men (2-9%) screened
 - 17% in WA DOC pilot screening program at intake (2016)
 - 70-85% asymptomatic, may persist for years
 - Can lead to pre-term delivery, LBW, PID
 - Worldwide—**MAJOR** implications –multiple studies show increased acquisition of HIV if *T. vaginalis* infection (2-3 fold)

T. vaginalis screening/diagnostic testing

Screening for *T. vaginalis* is recommended for

- Cisgender women with HIV (entry to care, then annually)
- Cisgender women in correctional settings
- Consider for other high prevalence settings
- Screening for men is not recommended
 - Rare in MSM
- Extragenital *T. vaginalis* is rare
 - Rectal and oral testing is not recommended!!

Diagnostic testing: Patients with vaginal discharge

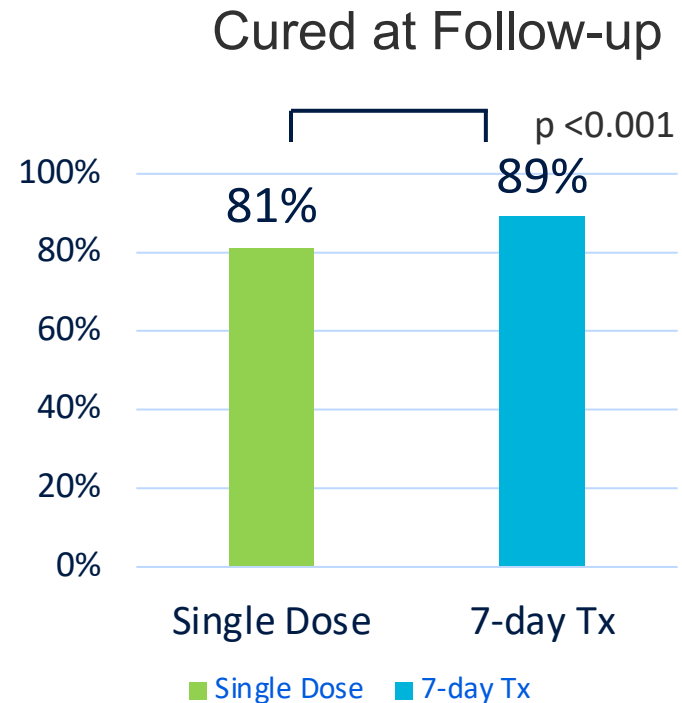
Multiple FDA-cleared NAAT and rapid tests

- Urine, urethral, endocervical (including liquid cytology), vaginal
- Not all tests are approved for men

Treatment Consideration:

Single dose metronidazole is not as effective as 7 days

- Single dose (2 gm) previously recommended for trich in HIV-negative women, 7-day therapy (500 mg BID) recommended for patients with HIV (CDC TX GL 2015)
- N=623 women randomized 1:1 to single dose MTZ vs 7 day
- Culture TOC, 6-12 days post treatment



Trichomoniasis Treatment 2021

Change in 2021 STI Treatment Guidelines

Vaginal trichomonas (HIV+/HIV-/pregnant)

Metronidazole 500 mg PO BID x 7d

Penile/urethral trichomonas or male partners

Metronidazole 2 g PO single dose

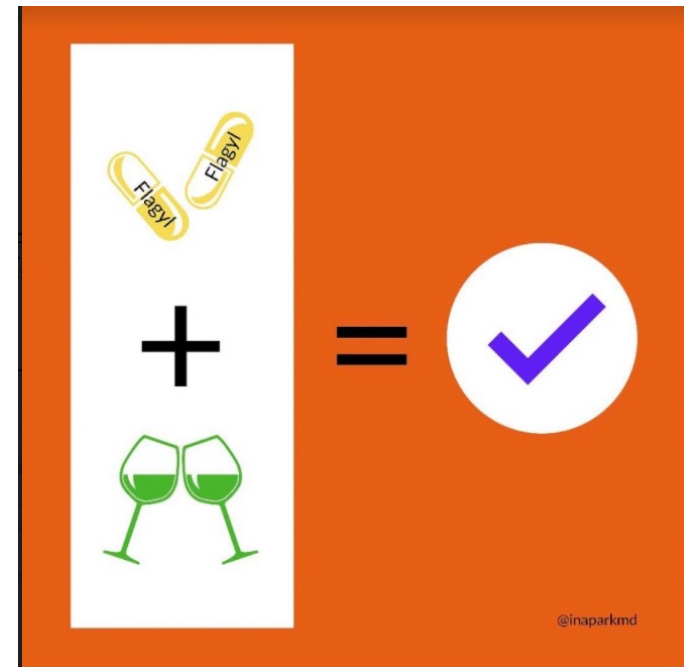
Alternative regimen

Tinidazole 2 g PO single dose

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**

Change in 2021 STI Treatment Guidelines



WHO NEEDS A TEST OF CURE AND WHO NEEDS RETESTING?

Test of Cure vs Retesting

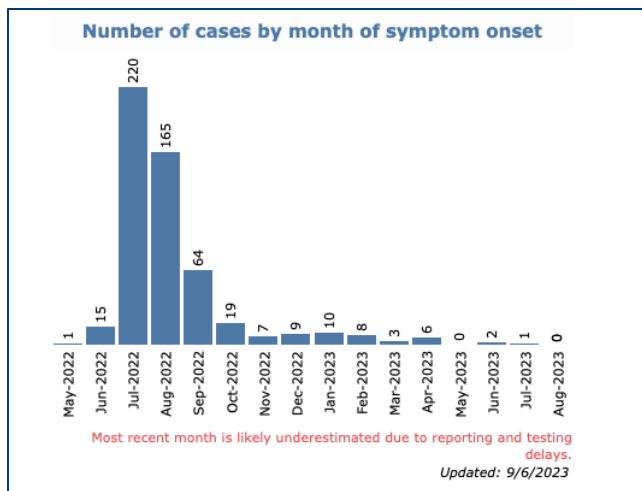
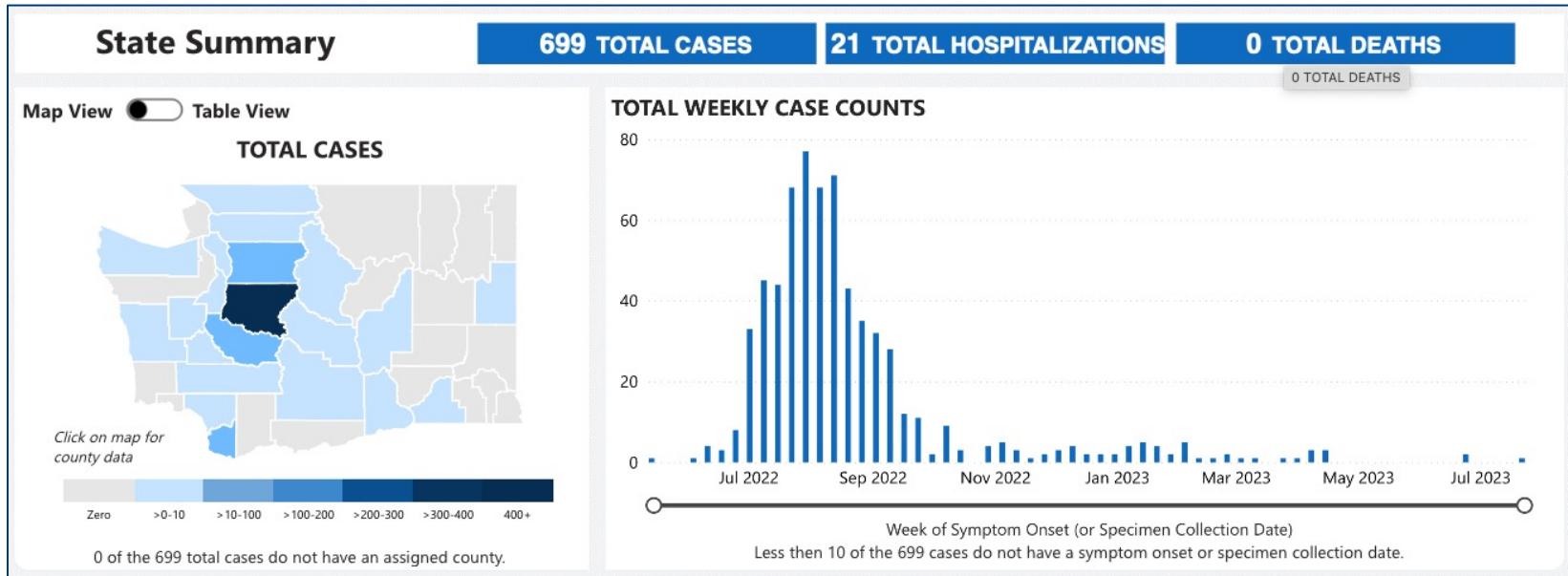
RETEST FOR REINFECTION	Time period	Who
GC/CT/LGV (all sites)	3 m (anytime from 1-12 m ok)	All patients
Trichomonas	3 m (anytime from 1-12 m ok)	Patients w/vaginal infection

TEST OF CURE	Time period	Who
GC (pharynx)	2 weeks	All patients
CT* (cervix)	4 weeks	Pregnant patients only

*Test of cure for GC in pregnancy not mentioned in the guidelines but experts recommend TOC in this setting

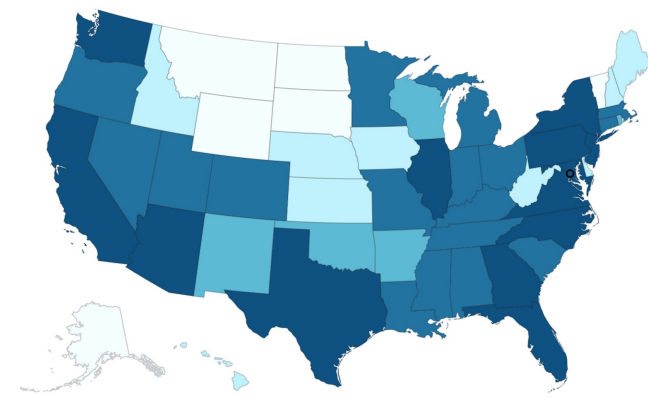
MPOX, THE VIRUS FORMERLY KNOWN AS
MONKEYPOX:
CURRENTLY TAKING A BACKSEAT...FOR NOW

Mpox cases in WA and King County



Don't forget to vaccinate!
 No current rec to booster
 No vax if had mpox infection

Mpox cases in North Dakota



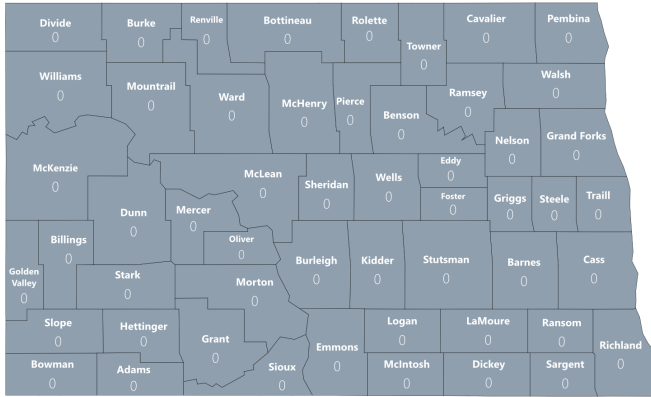
Mpox Case County Analysis

State-wide Mpox Case Summary

6

Total Cases

Data updated on the first Tuesday of every month. Data last refreshed Wednesday, March 06, 2024. Counties with fewer than five cases are not reported individually but are included in the total case count.



Don't forget to vaccinate!
 No current rec to booster
 No vax if had mpox infection

Dashboard Last Updated Wednesday, April 24, 2024

Data as of Tuesday, December 5, 2023

Mpox Vaccine Doses Administered

Doses Administered

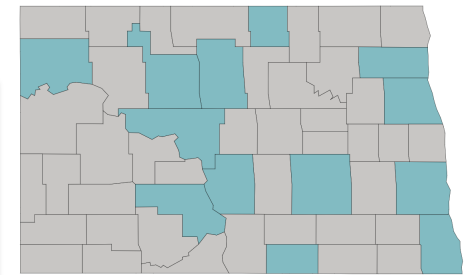
Demographics

Doses Administered Summary	
Total Doses Administered	787
First Doses Administered	465
Second Doses Administered	322

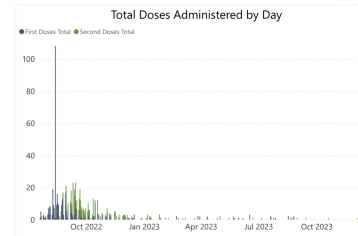
Filters

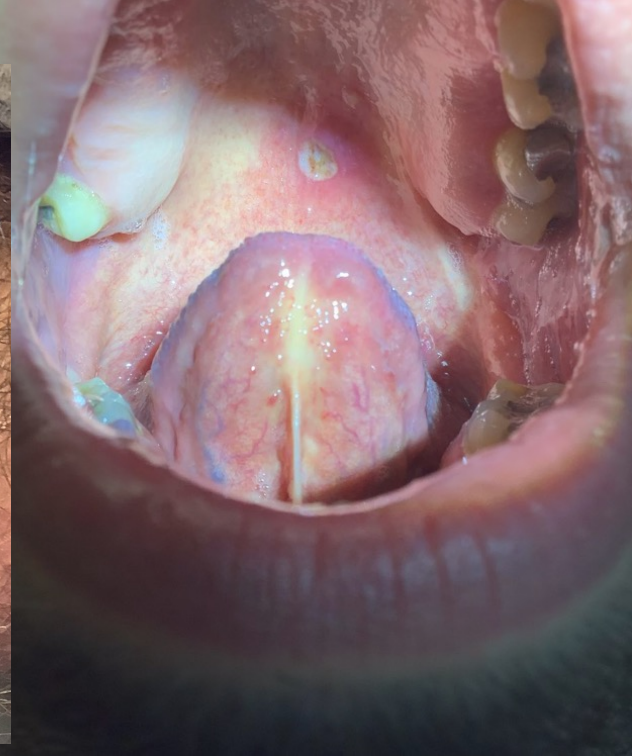
Week Start Date: All
 Dose Number: All Doses

Hover over county to view Total Mpox Doses Administered



County is based on the vaccine recipient county of residence.
 County level data will only be displayed if there are >= 5 doses administered for the defined group.





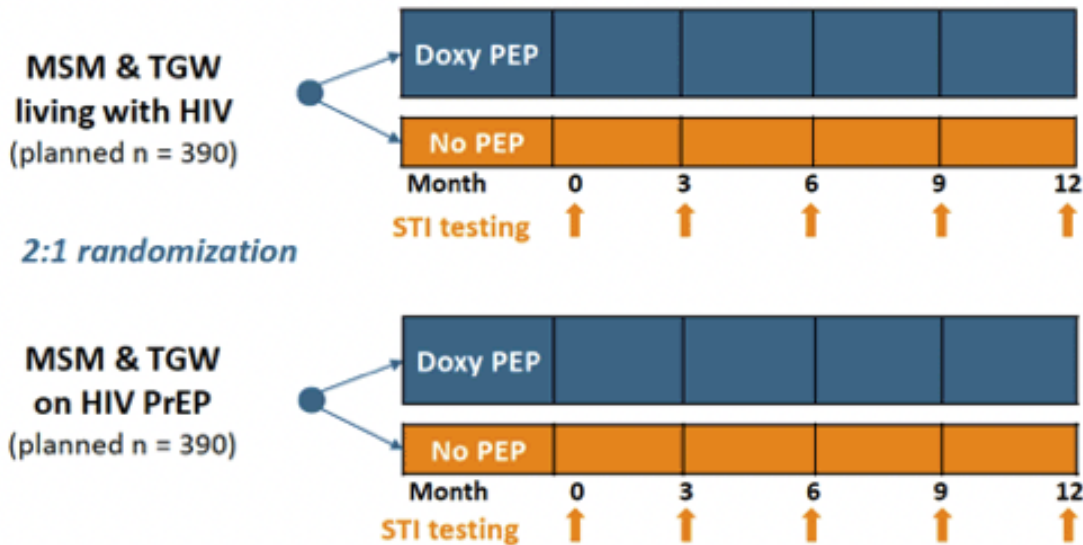
A NEW TOOL IN OUR PREVENTION TOOLBOX: DOXYPEP

A 24 year old MSM on HIV PrEP comes in to be treated for rectal chlamydia found on routine screening. He had secondary syphilis earlier in the year. How would you counsel him to prevent STIs?

1. Always use condoms
2. Get the Hep B and HPV vaccines
3. Have fewer partners and less sex
4. Offer DoxyPEP
5. Just get HIV/STI testing and treatment more often

What is DoxyPEP?

Intervention: Open label doxycycline 200mg taken as PEP within 72 hours after condomless sexual contact
Maximum of 200 mg every 24 hours



Inclusion criteria:

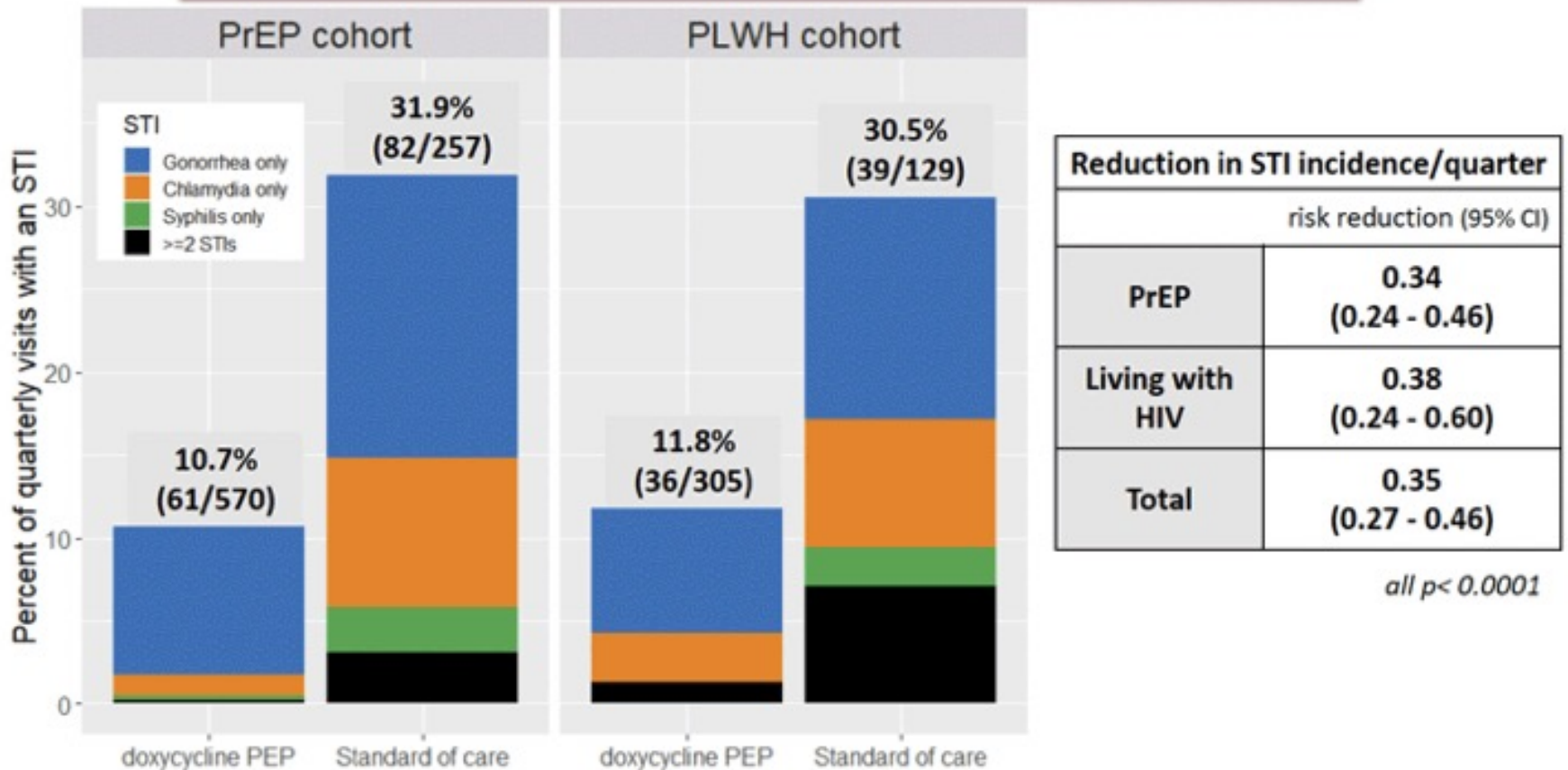
- Male sex at birth
- Living with HIV or on PrEP
- ≥ 1 STI in past 12 months
- Condomless sex with ≥ 1 male partner in past 12 months

STI Testing: Quarterly 3 site GC/CT testing + RPR, GC culture before treatment

Sites: San Francisco & Seattle HIV & STI clinics

DoxyPEP reduced STI incidence by 65%

Primary Endpoint: STI incidence per quarter



DoxyPEP: What we know

DoxyPEP works very well to prevent STIs in this study population: ↓ by more than **60%** each quarter

↓ in *each* bacterial STI per quarter, including gonorrhea

Need to treat about **5 people** to prevent a quarter with an STI, in a population with a high STI incidence (30% per quarter)

Safe & well tolerated

DoxyPEP: What we are still learning

STI resistance, and will it make DoxyPEP less effective? Especially GC and syphilis

Effect on *M. genitalium*

Impact on bystander bacteria like *Staph aureus*, commensal *Neisseria*, and the gut microbiome

Adherence, sexual behavior...

DoxyPEP Local Guidelines

**HIV/STI/HCV Program
Sexual Health Clinic**

Ninth and Jefferson Building
908 Jefferson St, 11th Floor
Seattle, WA 98104
206-744-3590
www.kingcounty.gov/health

Public Health 
Seattle & King County

Guidelines, June 2023

Doxycycline Post-Exposure Prophylaxis (Doxy-PEP) to Prevent Bacterial STIs in Men who Have Sex with Men (MSM) and Transgender Persons who Have Sex with Men

Includes information about who to offer DoxyPEP, counseling messages, dosing and prescribing recs, billing codes, lab monitoring. Also a fantastic fact sheet for patients!

<https://cdn.kingcounty.gov/-/media/depts/health/communicable-diseases/documents/hivstd/DoxyPEP-Guidelines.ashx>

<https://cdn.kingcounty.gov/-/media/depts/health/communicable-diseases/documents/hivstd/DoxyPEP-facts.ashx?la=en&hash=47631D55F34D12F6896792E2B0E975EF>

Monitoring on DoxyPEP

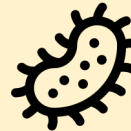
Laboratory

- No serious lab abnormalities in DoxyPEP
- Package insert: LFTs, renal function & CBC checked “periodically” when taking doxycycline for a prolonged period
- Take home:
 - No baseline labs needed
 - Consider checking annually




STIs

- Screen for STIs every 3 months at all anatomic sites of exposure
 - *Can we screen less frequently?*
May depend on patient factors
- If diagnosed with an STI on doxy-PEP, treat according to the CDC STI treatment guidelines



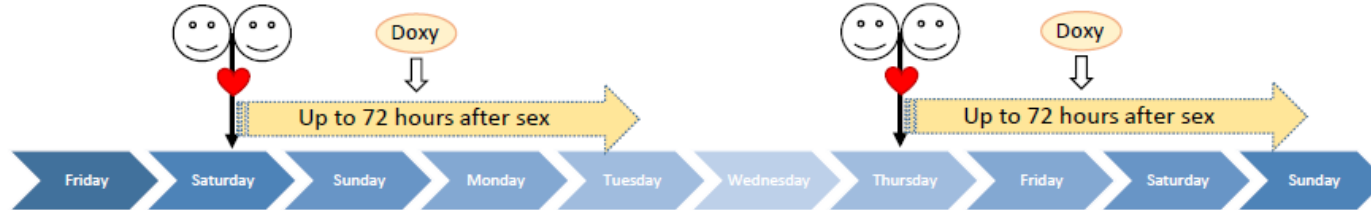
Doxy PEP – How to Take

Two 100mg pills of doxycycline ideally within 24 hours
but no later than 72 hours after condomless sex

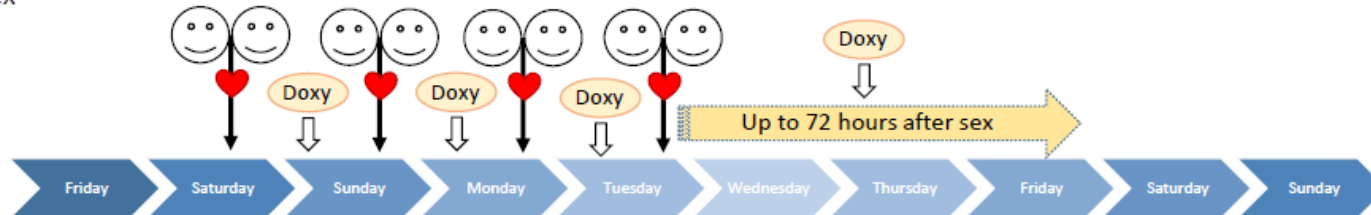
 = sex without a condom,
including oral sex

Example: Sex on Sat; take dose of doxy by Tues

Example: Sex on Thursday; take dose of doxy by Sunday



Example 2: Daily (or more) sex Sat-Tues; take daily dose of doxy and last dose within 24 hours *but not later than 72 hours* after last sex



No more than 200 mg every 24 hours

A few rapid fire updates!

- Pelvic Inflammatory Disease: metronidazole no longer considered optional when treating PID
- Gonorrhea prevention: Meningitis B vaccine?

And so much more to explore...

- Special populations
- Herpes testing
- Penicillin allergy
- Newer vaginitis diagnostics

- And stay tuned for:
 - Anal cancer screening
 - Meningitis B vaccine to prevent gonorrhea

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- Chase Cannon – UW, PHSKC Sexual Health Clinic
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- Laura Bachmann - CDC
- Sancta St. Cyr - CDC
- Will Geisler - University of Alabama Birmingham
- Sharon Adler - UCSF, California Prevention Training Center
- Chris Fox - OHSU

Any Burning
Questions?

OH, I AM
SO WORTH
THE RASH



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Thank you!!

Hillary Liss

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206-744-1035

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