



WELCOME to the

*Getting In Sync with Sexual Health ECHO:
STIs – Testing, Treatment and Prevention*

Series created in partnership with the

New England AIDS Education and Training Center

This ECHO series is supported by Award # TR7HA53199 from the Health Resources and Services Administration (HRSA), HHS. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the U.S. Government. Any trade/brand names for products mentioned are for training and identification purposes only.



Series Learning Objectives/Schedule

- Describe how to obtain a sexual history in a culturally competent manner in order to provide counseling on STI prevention based on risk
- Explain how to accurately identify individuals who require STI screening, including the procedure for obtaining the appropriate specimens for testing
- Identify the medications used for the prevention and treatment of STIs

Date	Session Title
9/3/2024	STI Epidemiology and At Risk Populations
9/17/2024	Sexual History Taking and Sexual Culture/Practices
10/1/2024	Gonorrhea, Chlamydia/LGV, Trichomonas, DoxyPEP
10/15/2024	Syphilis
10/29/2024	HSV
11/12/2024	HIV (PrEP and nPEP)
11/26/2024	Hepatitis B and C
12/10/2024	HPV, Mpox, Mycoplasma/Ureplasma



STI Epidemiology in the U.S.

Antonia Altomare, DO, MPH

Infectious Diseases and International Health

Dartmouth Health

ES. Evening Standard

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London's gonorrhoea rate doubles in decade amid warning of antibiotic resistant cases



Sky News

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411.4K Followers

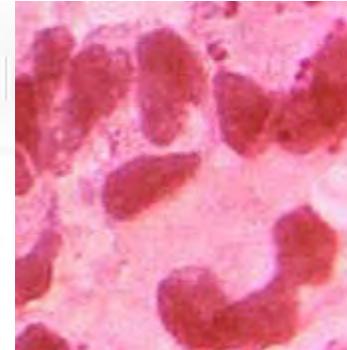


Gonorrhoea could become 'untreatable' as cases of the STI reach record level

ES. Evening Standard

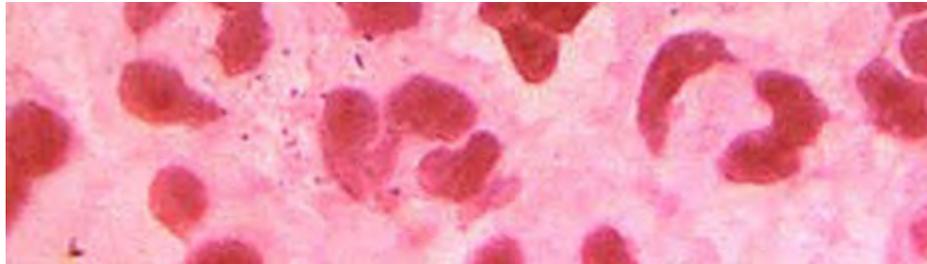
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Rise in drug-resistant STI prompts concern among health officials

Story by Ella Pickover • 14h • 2 min read



STD cases rose 5% from 2020 to 2023, with biggest jumps among older adults, data show

News brief | July 9, 2024

[Mary Van Beusekom, MS](#)



NZ Herald

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Syphilis cases on the rise in New Zealand: What you need to know about the STI



Nova Scotia

Nova Scotia launches take-home STI testing kit, a first in Atlantic Canada

'Getting tested and treated is the way to stop the spread,' says infectious disease specialist

Lyndsay Armstrong · The Canadian Press · Posted: Aug 13, 2024 1:26 PM EDT | Last Updated: August 13

As syphilis cases continue to surge in the US, recent federal efforts aim to tackle the alarming trend



By Deidre McPhillips, CNN

5 minute read · Updated 5:15 PM EST, Tue January 30, 2024



ABC News

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Mpox declared a public health emergency, WHO says

1 in 5

People in the US have an STI



totaling nearly
68 MILLION
infections in 2018

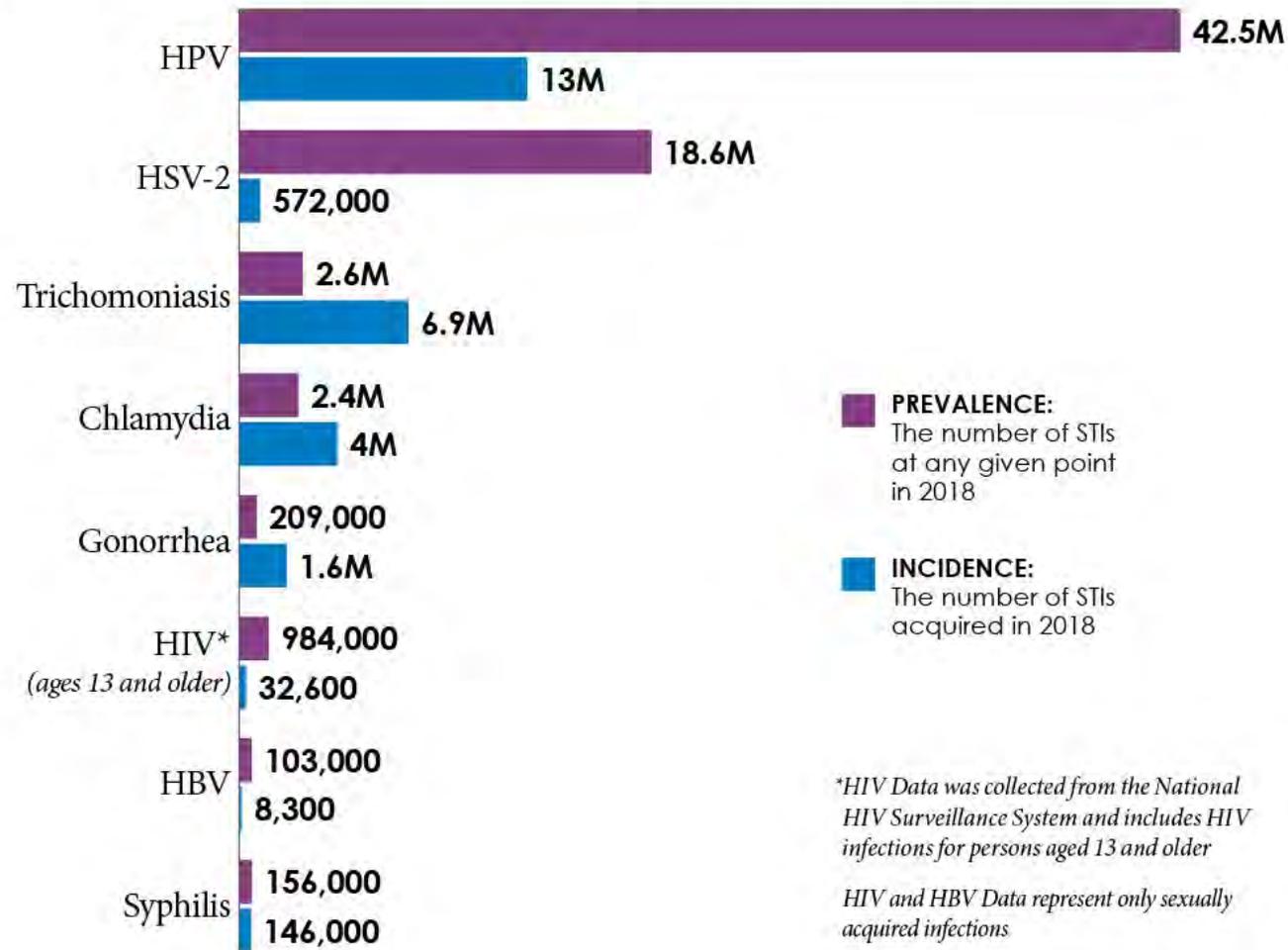
26 MILLION
new STIs in 2018

.....

almost **HALF** of new STIs
were among
youth aged 15-24 in the US

LATEST CDC ESTIMATES REVEAL NEARLY 68 MILLION STIs IN THE U.S., AND MORE THAN 26 MILLION NEW INFECTIONS

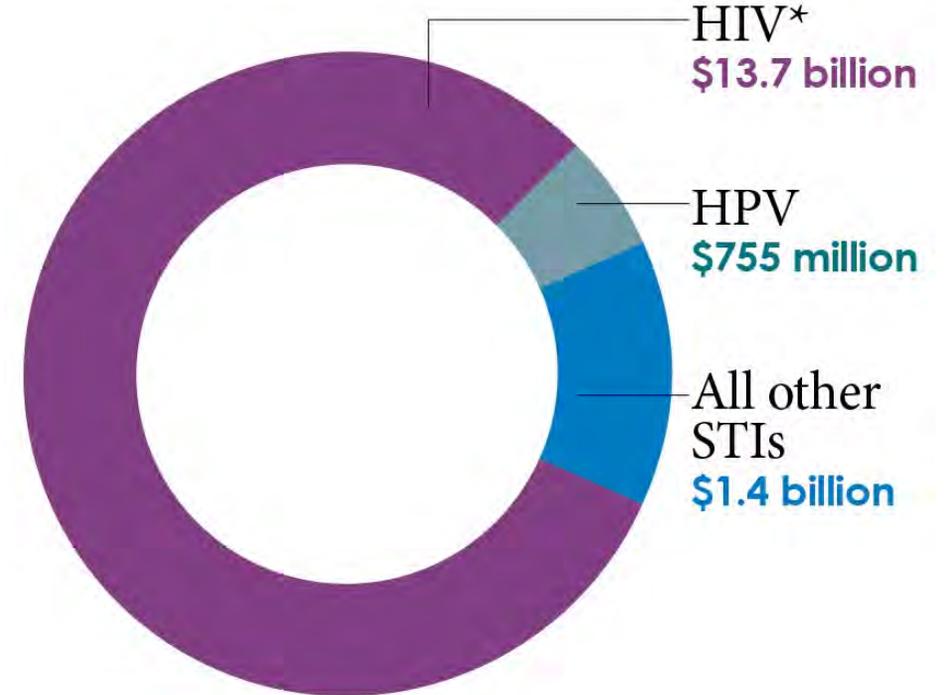
Estimated number of new and existing sexually transmitted infections



*HIV Data was collected from the National HIV Surveillance System and includes HIV infections for persons aged 13 and older

HIV and HBV Data represent only sexually acquired infections

New STIs total nearly **\$16 BILLION** in direct medical costs



*HIV Data represent only sexually acquired infections

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



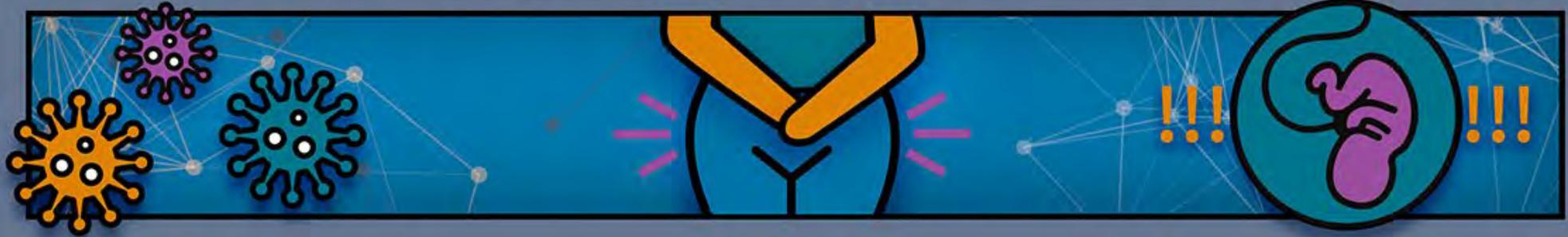
207,255
CASES OF SYPHILIS
80% increase since 2018



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

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

LEFT UNTREATED, STDS CAN CAUSE:



**INCREASED RISK OF GIVING
OR GETTING HIV**

**LONG-TERM
PELVIC/ABDOMINAL PAIN**

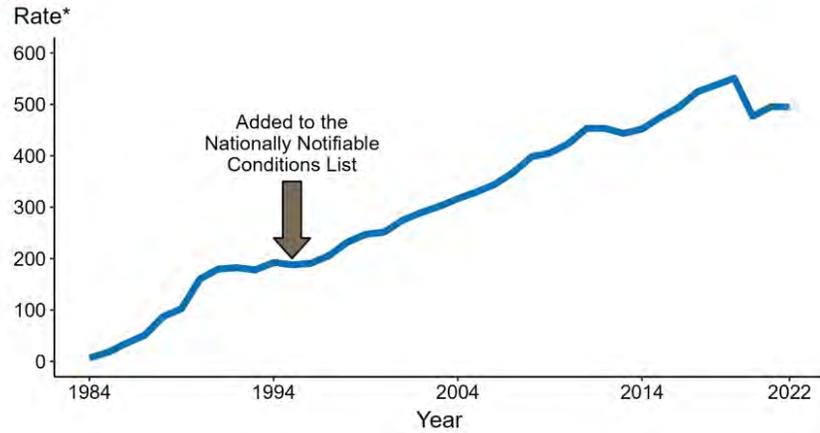
**INABILITY TO GET PREGNANT OR
PREGNANCY COMPLICATIONS**

**PREVENT THE SPREAD
OF STDS WITH THREE
SIMPLE STEPS:**

talk | test | treat

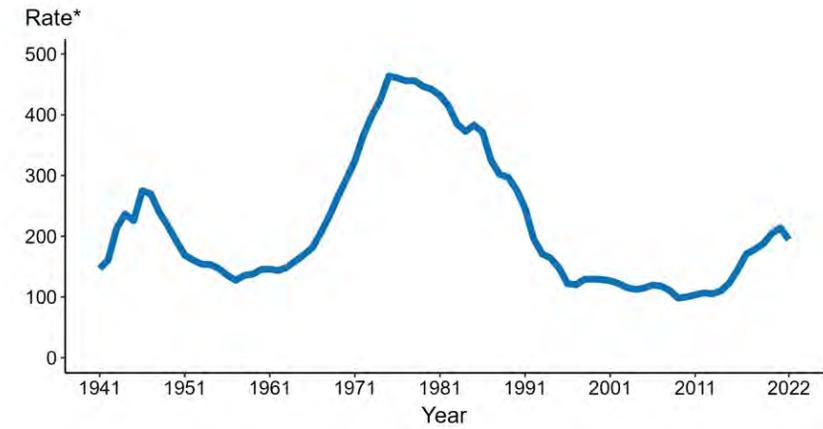


Chlamydia — Rates of Reported Cases by Year, United States, 1984–2022



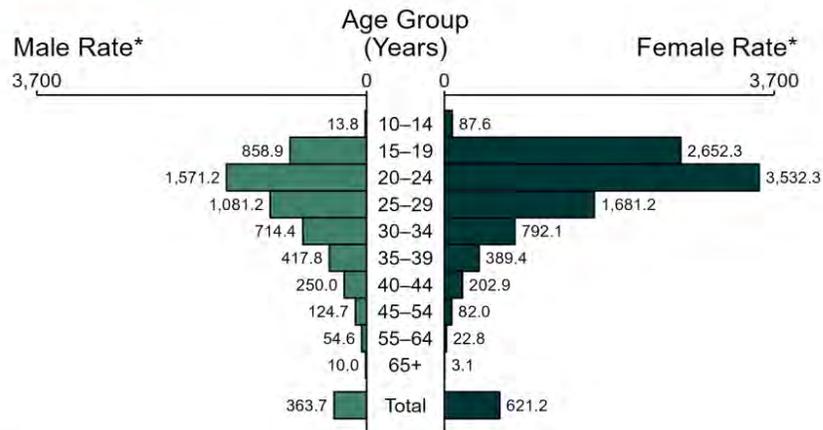
* Per 100,000

Gonorrhea — Rates of Reported Cases by Year, United States, 1941–2022



* Per 100,000

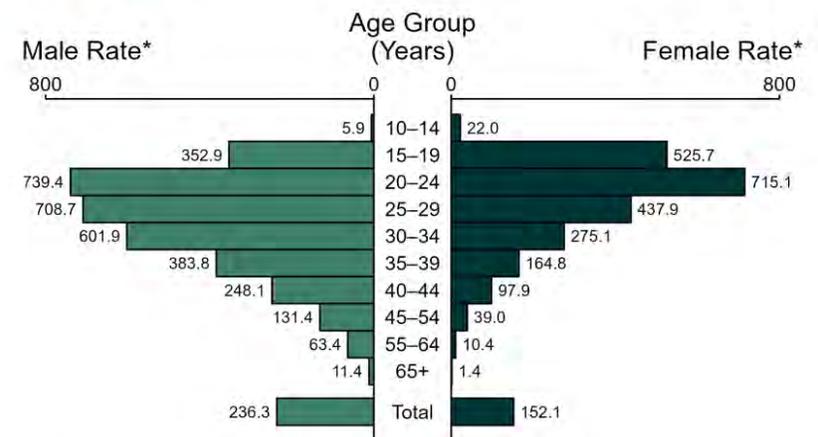
Chlamydia — Rates of Reported Cases by Age Group and Sex, United States, 2022



* Per 100,000

NOTE: Total includes cases of all ages, including those with unknown age.

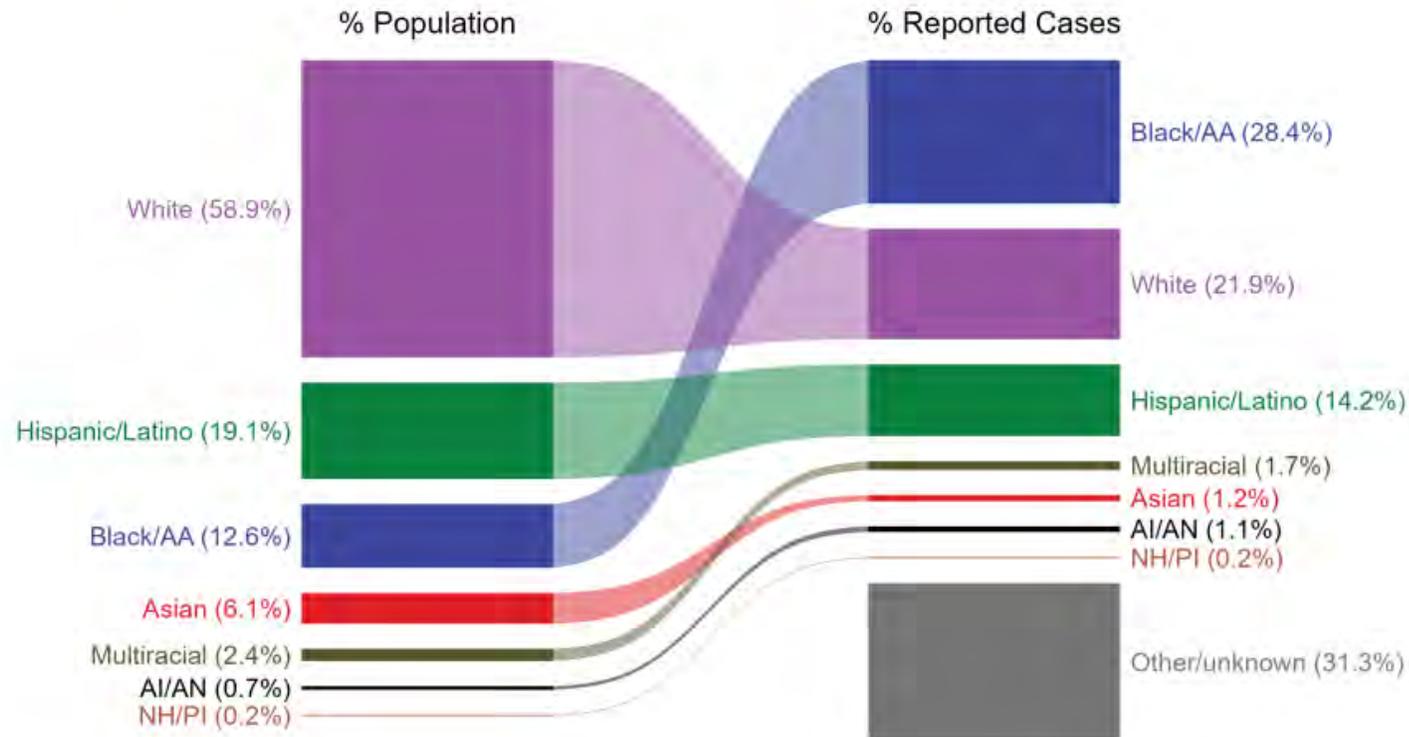
Gonorrhea — Rates of Reported Cases by Age Group and Sex, United States, 2022



* Per 100,000

NOTE: Total includes cases of all ages, including those with unknown age.

Chlamydia — Total Population and Reported Cases by Race/Hispanic Ethnicity, United States, 2022



* Per 100,000

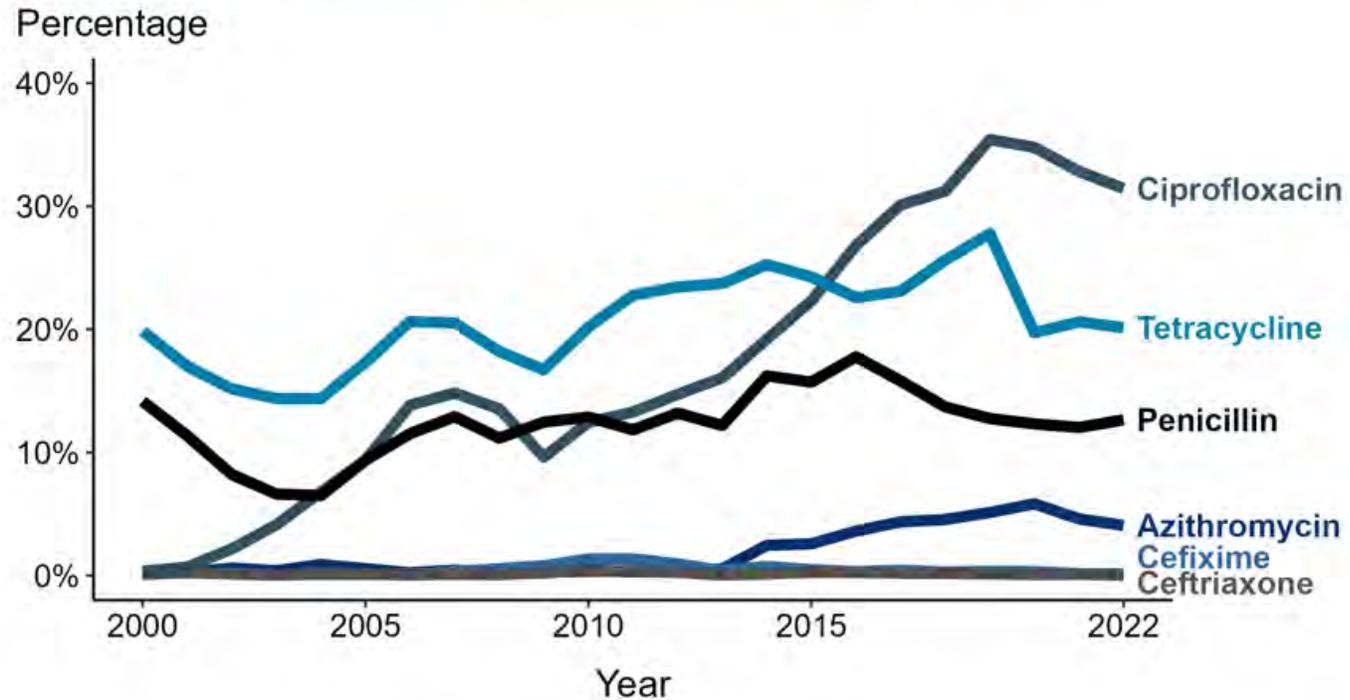
NOTE: In 2022, a total of 515,552 chlamydia cases (31.3%) had missing, unknown, or other race and were not reported to be of Hispanic ethnicity. These cases are included in the "other/unknown" category.

ACRONYMS: AI/AN = American Indian or Alaska Native; Black/AA = Black or African American; NH/PI = Native Hawaiian or other Pacific Islander



***Neisseria gonorrhoeae* — Prevalence of Tetracycline, Penicillin, or Ciprofloxacin Resistance* or Elevated Cefixime, Ceftriaxone, or Azithromycin Minimum Inhibitory Concentrations (MICs)†, by Year — Gonococcal Isolate Surveillance Project (GISP), 2000–2022**

- Half of all infections in 2022 were estimated to be resistant or have elevated minimum inhibitory concentrations (MICs) to at least one antibiotic.
- Almost all circulating strains in the United States remain susceptible to ceftriaxone, the primary recommended treatment for uncomplicated gonorrhea.



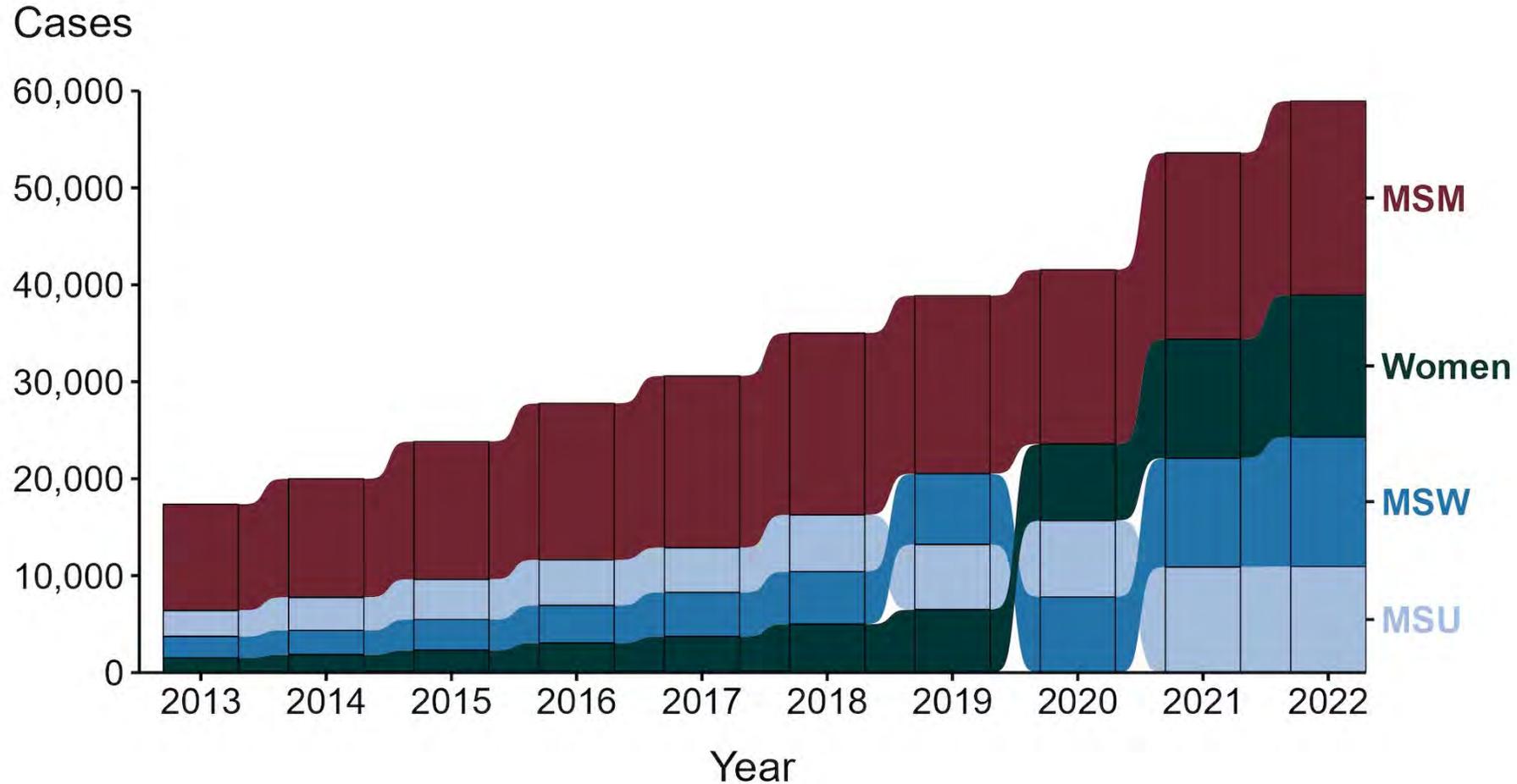
* Resistance: Ciprofloxacin: MIC \geq 1.0 $\mu\text{g}/\text{mL}$; Penicillin: MIC \geq 2.0 $\mu\text{g}/\text{mL}$ or Beta-lactamase positive; Tetracycline: MIC \geq 2.0 $\mu\text{g}/\text{mL}$

† Elevated MICs: Azithromycin: MIC \geq 1.0 $\mu\text{g}/\text{mL}$ (2000–2004); \geq 2.0 $\mu\text{g}/\text{mL}$ (2005–2022); Ceftriaxone: MIC \geq 0.125 $\mu\text{g}/\text{mL}$; Cefixime: MIC \geq 0.25 $\mu\text{g}/\text{mL}$

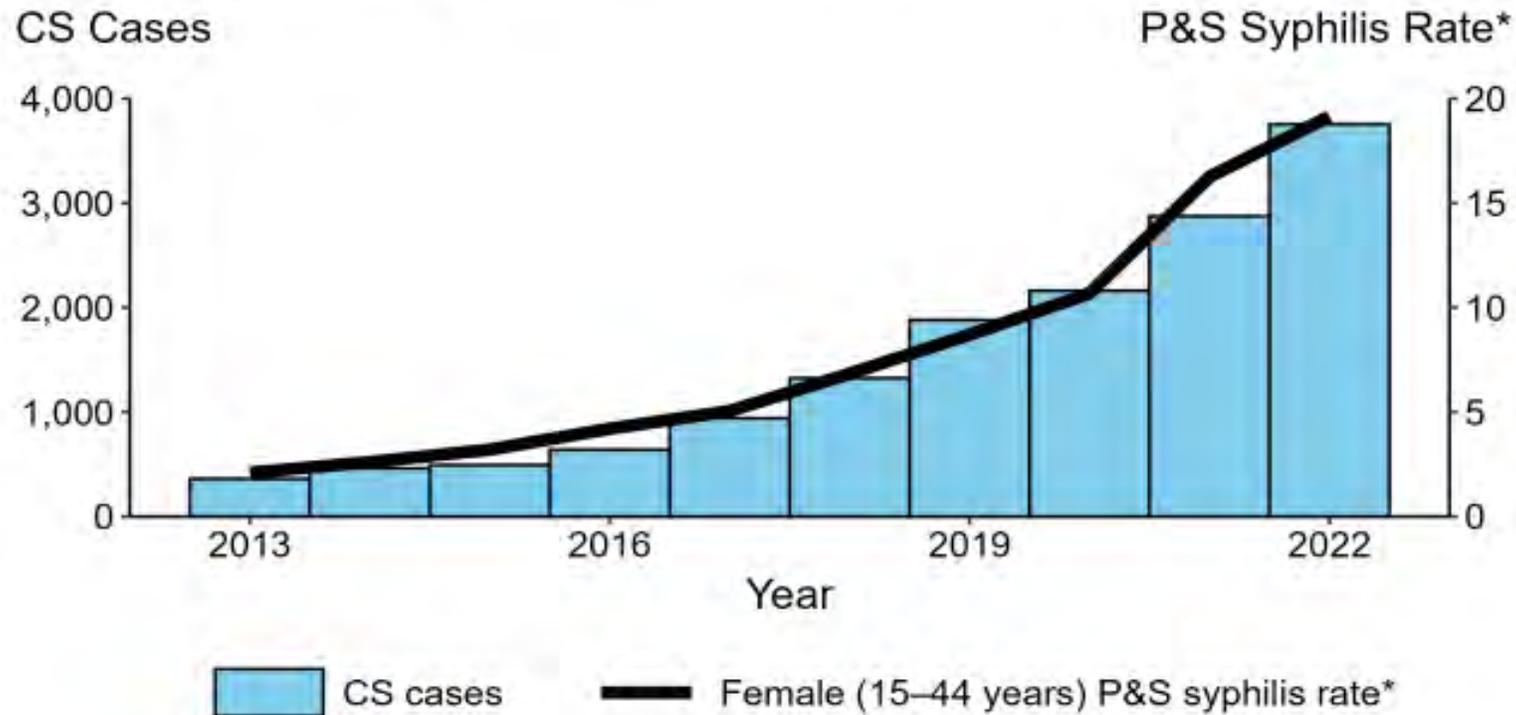
NOTE: Cefixime susceptibility was not tested in 2007 and 2008.



Primary and Secondary Syphilis — Reported Cases by Sex and Sex of Sex Partners, United States, 2013–2022



Congenital Syphilis — Reported Cases by Year of Birth and Rates of Reported Cases of Primary and Secondary Syphilis Among Women Aged 15–44 Years, United States, 2013–2022



[PNG - 128 KB]

** Per 100,000 _ACRONYMS: CS = Congenital syphilis; P&S Syphilis = Primary and secondary syphilis "

Vital Signs: Missed Opportunities for Preventing Congenital Syphilis — United States, 2022

10x

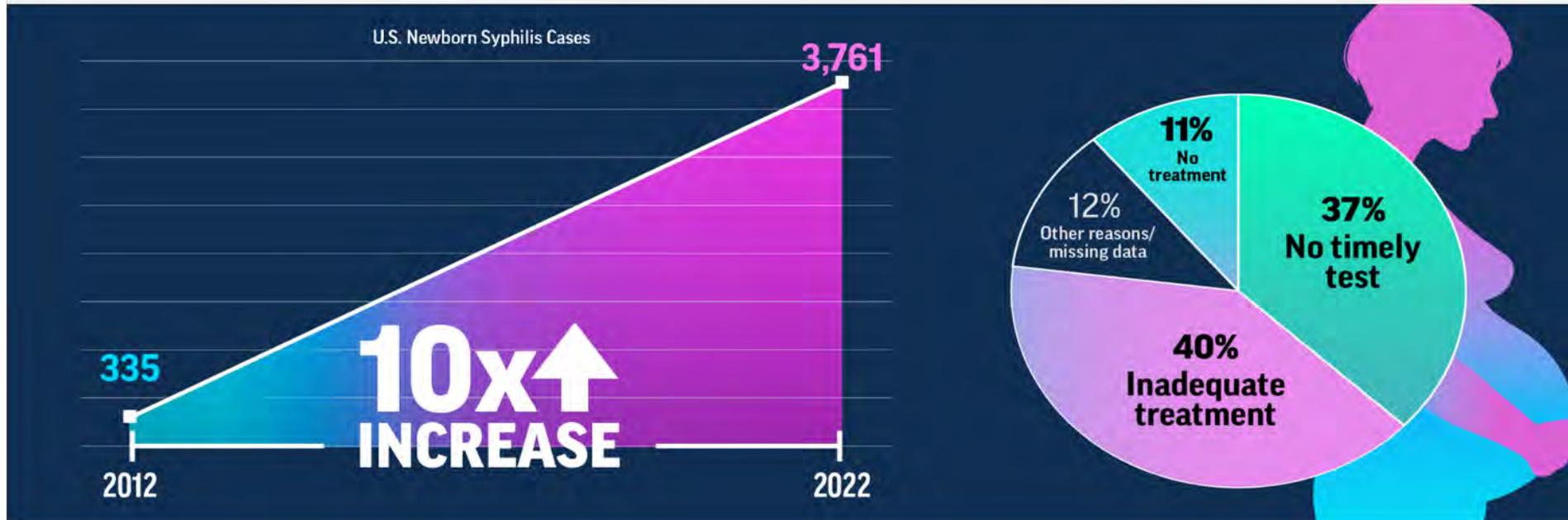
Over 10 times as many babies were born with syphilis in 2022 than in 2012.

9 in 10

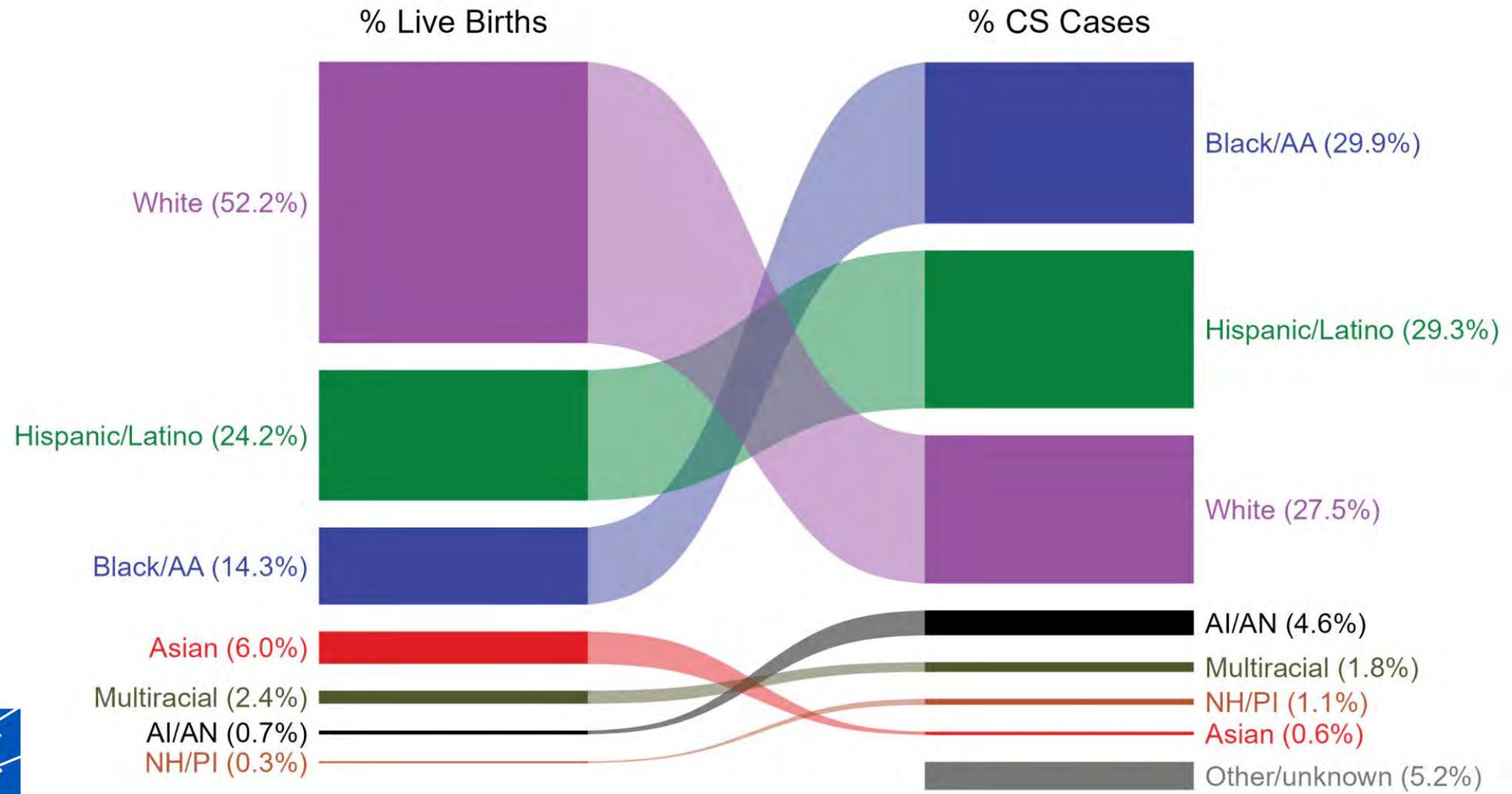
Timely testing and treatment during pregnancy might have prevented almost 9 in 10 (88%) cases in 2022.

2 in 5

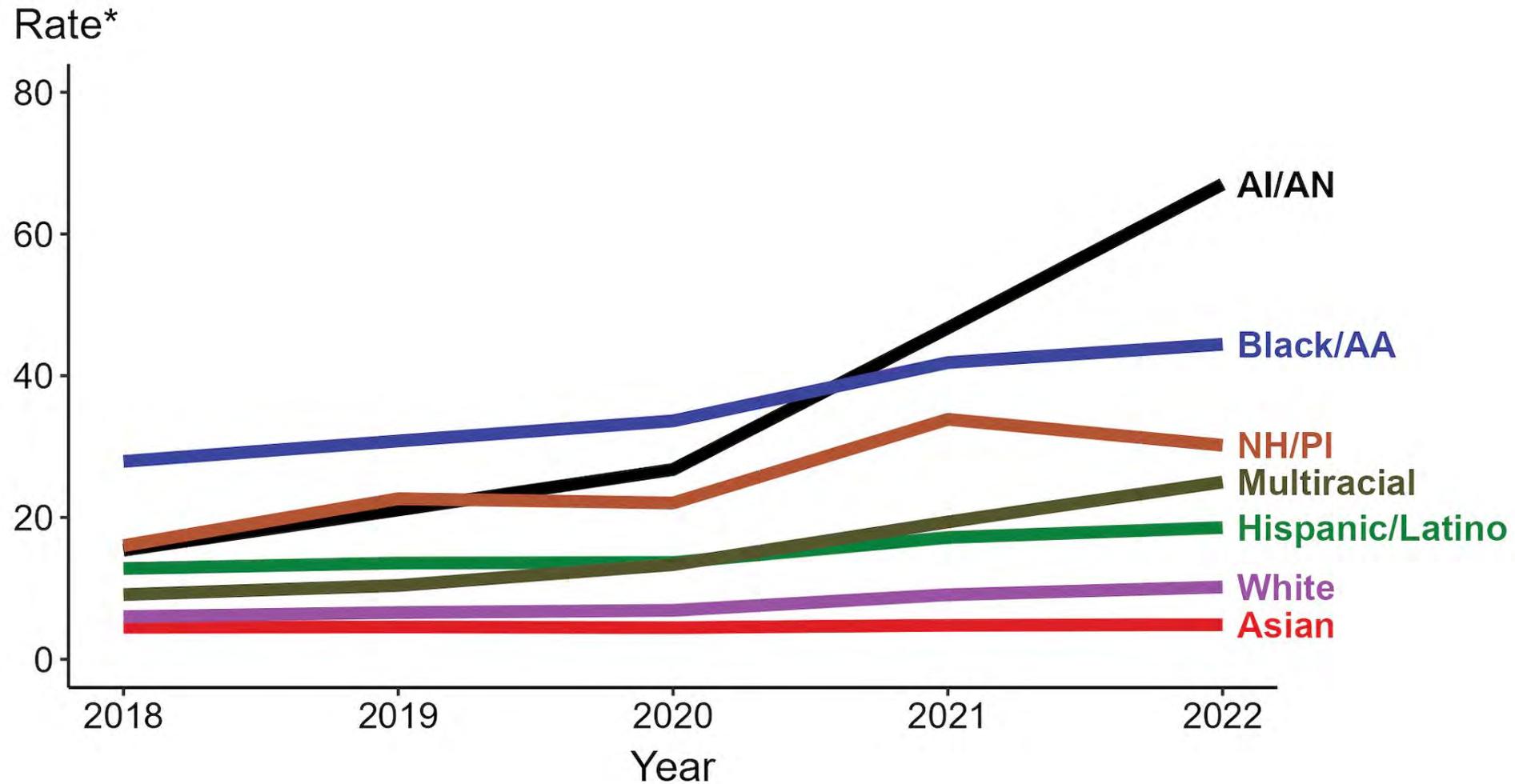
Two in 5 (40%) people who had a baby with syphilis did not get prenatal care.



Congenital Syphilis – Total Live Births and Reported Cases by Race/Hispanic Ethnicity of Mother, United States, 2022



Primary and Secondary Syphilis – Rates of Reported Cases by Race/Hispanic Ethnicity, United States, 2018–2022



* Per 100,000

ACRONYMS: AI/AN = American Indian or Alaska Native; Black/AA = Black or African American; NH/PI = Native Hawaiian or other Pacific Islander



2022 Disparities

- **50%** of reported cases of STIs were among **adolescents and young adults aged 15–24 years**.
- **31%** of all cases of chlamydia, gonorrhea, and syphilis were among **non-Hispanic Black or African American persons**, even though they made up only approximately 12.6% of the US population.
- **MSM** are disproportionately impacted by STDs, including gonorrhea and syphilis.
- **36% of MSM with syphilis** also had **HIV**.

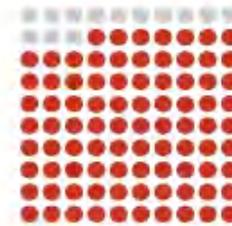
“These disparities are unlikely explained by differences in sexual behavior and rather reflect differential access to quality sexual health care, as well as differences in sexual network characteristics.”

Knowledge of HIV status in the US, 2022*



In 2022, an estimated
1.2 million people had HIV.

For every 100 people with HIV



87
knew their
HIV status.

* Among people aged 13 and older.

Source: CDC. Estimated HIV incidence and prevalence in the United States, 2018–2022. *HIV Surveillance Supplemental Report*, 2024; 29(1).

Ending
the
HIV
Epidemic

Overall Goal: Increase the estimated percentage of people with HIV who have received an HIV diagnosis to at least 95% by 2025 and remain at 95% by 2030.



Estimated HIV infections in the US by transmission category, 2022

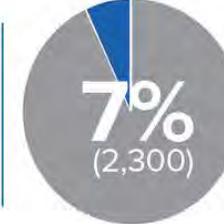
There were **31,800** estimated new HIV infections in the US in 2022. Of those:



were among gay, bisexual, and other men who reported male-to-male sexual contact*



were among people who reported heterosexual contact



were among people who inject drugs

* Includes infections attributed to male-to-male sexual contact *and* injection drug use (men who reported both risk factors).

Source: CDC. Estimated HIV incidence and prevalence in the United States, 2018–2022. *HIV Surveillance Supplemental Report*, 2024; 29(1).

Ending
the
HIV
Epidemic

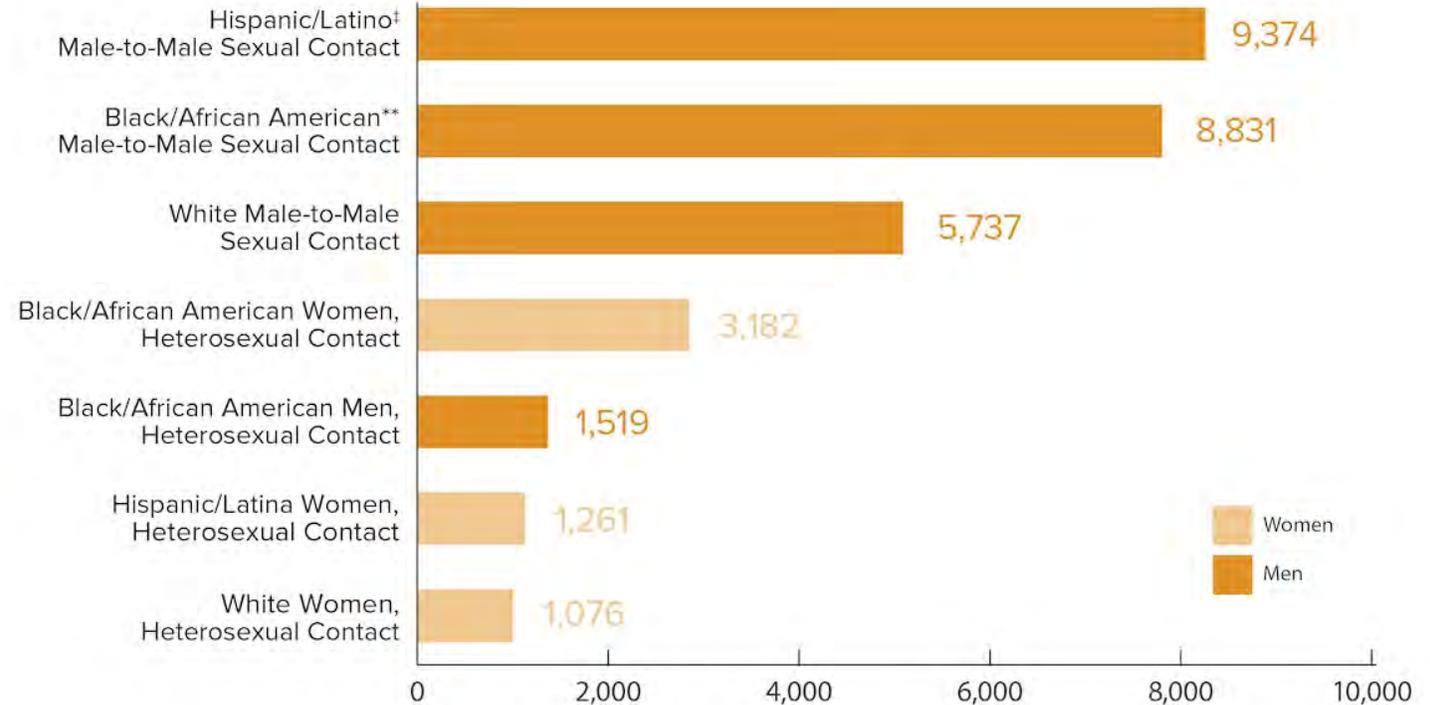
Overall Goal: Decrease the estimated number of new HIV infections to 9,300 by 2025 and 3,000 by 2030.



[Fast Facts: HIV in the United States | HIV | CDC](#)

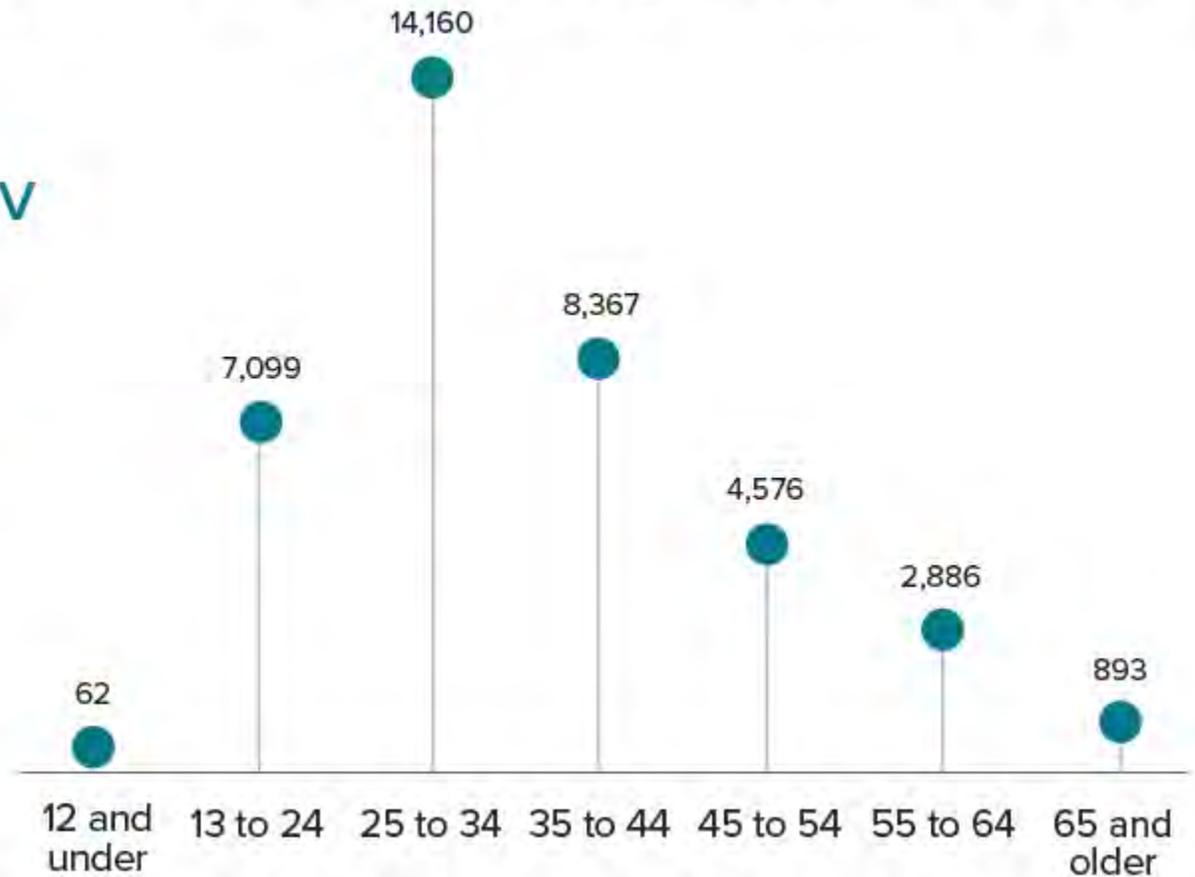
HIV diagnoses in the US and 6 territories and freely associated states for the most-affected subpopulations, 2022*†

Gay and bisexual men are the population most affected by HIV.



HIV diagnoses in the US and 6 territories and freely associated states by age, 2022

In 2022, 37,981 people received an HIV diagnosis in the US and 6 territories and freely associated states. People aged 13 to 34 accounted for more than half (56%) of new HIV diagnoses in 2022.

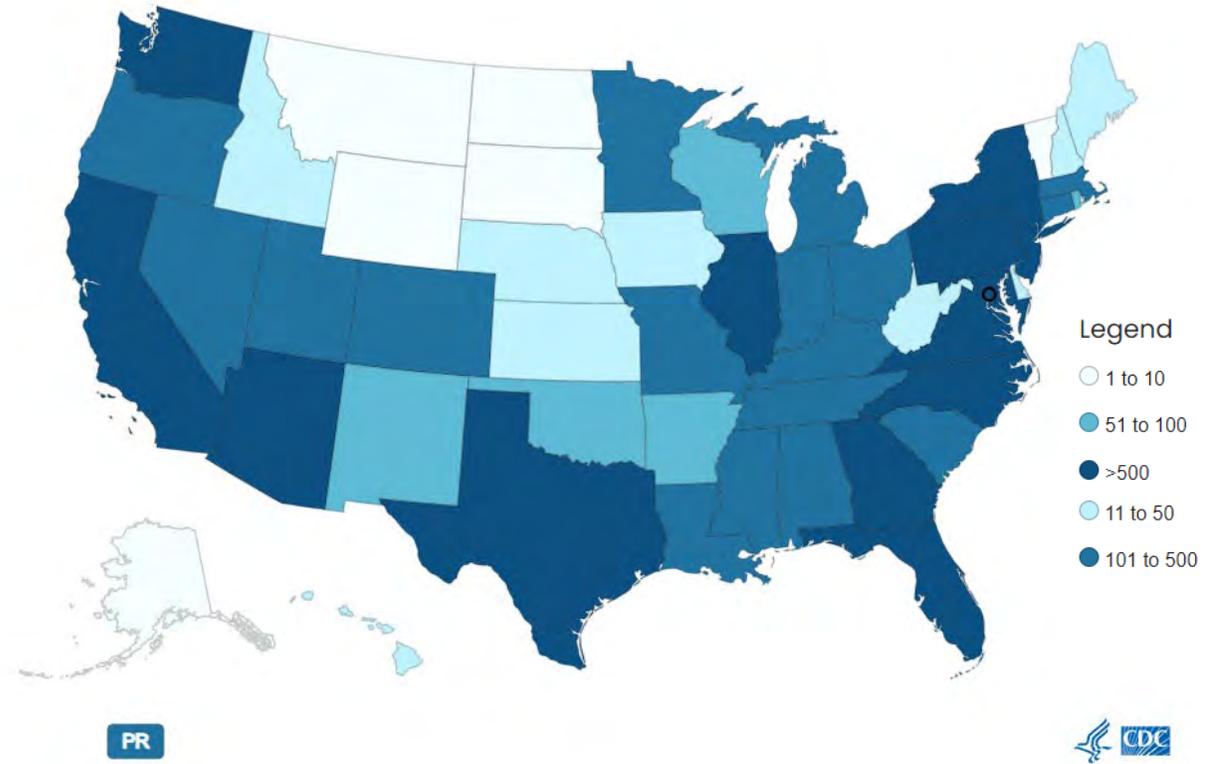
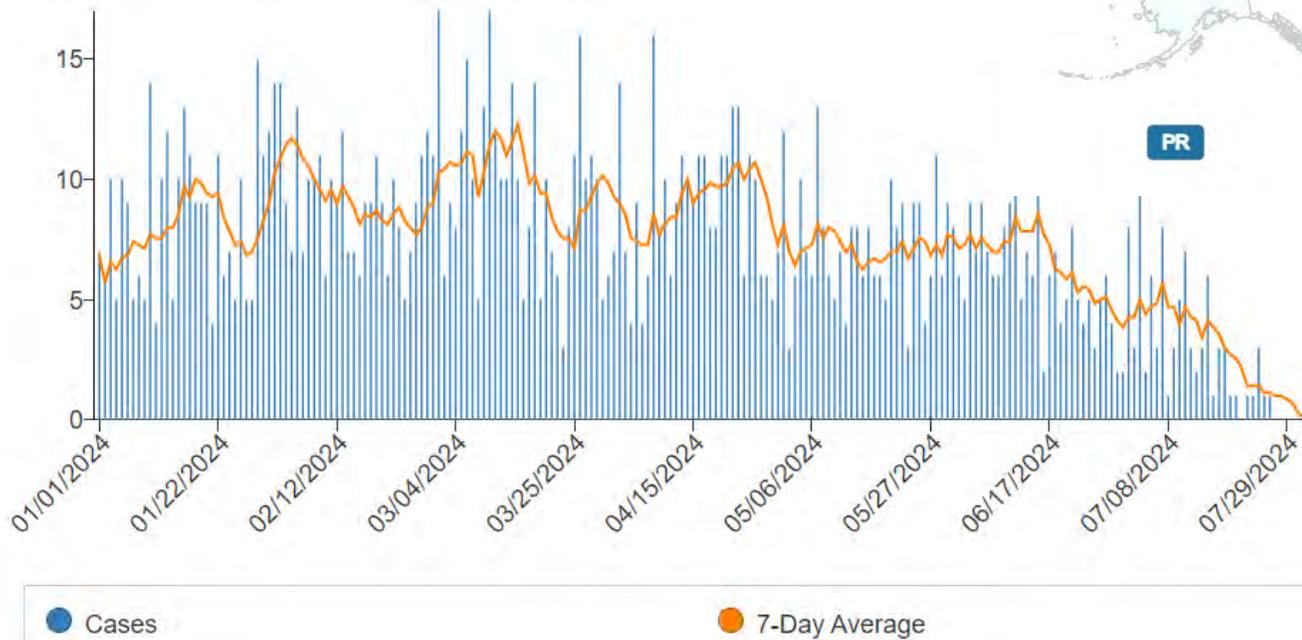


Source: CDC. Diagnoses, deaths, and prevalence of HIV in the United States and 6 territories and freely associated states, 2022. *HIV Surveillance Report*, 2022;35.

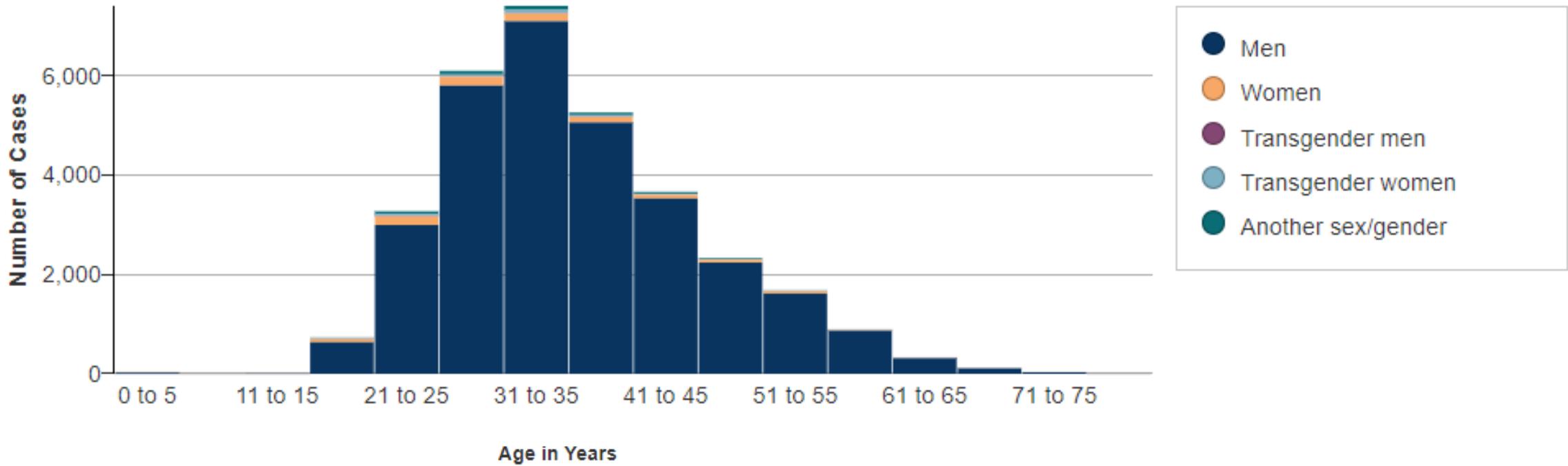
Mpox Outbreak 2022-2023

- Total cases: 32,063
- Total deaths: 58

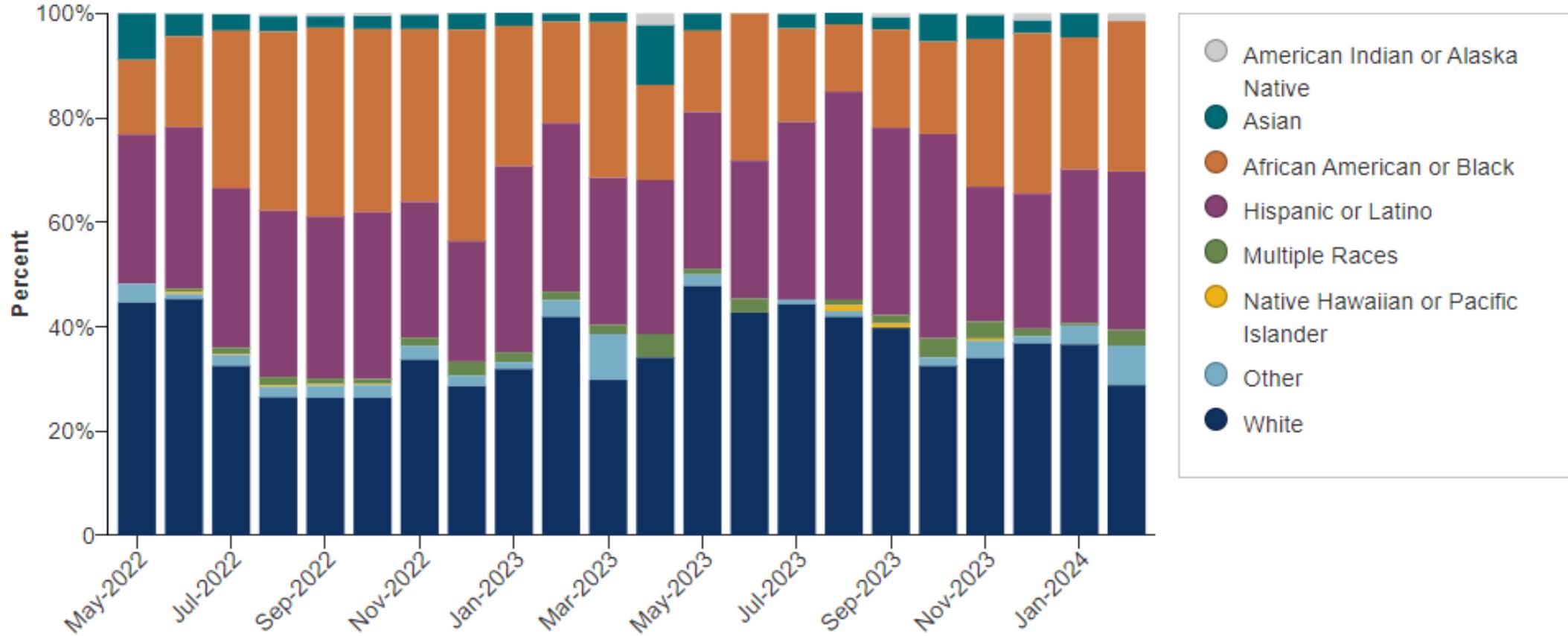
Case Trends



Mpox cases reported to CDC: Age and Gender



Proportion of All Cases by Race and Ethnicity by Month



Hepatitis C

Acute hepatitis C



4,848

There were 4,848 new cases of acute hepatitis C reported during 2022



67,400

There were 67,400 estimated acute HCV infections during 2022

Chronic hepatitis C



93,805

There were 93,805 cases of newly reported chronic hepatitis C during 2022



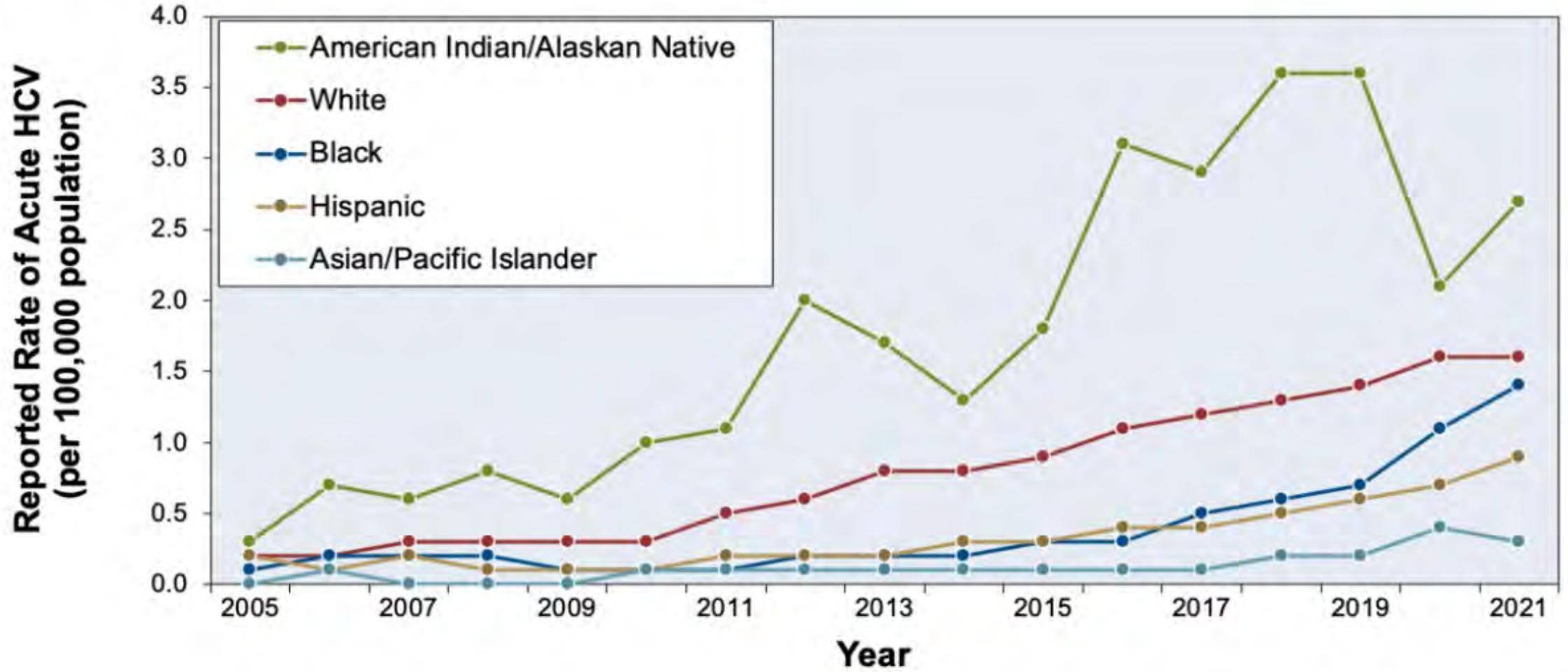
12,717

There were 12,717 hepatitis C-related deaths reported during 2022

During 2022, rates of acute hepatitis C were highest among males, persons aged 30–39 years, non-Hispanic American Indian/Alaska Native (AI/AN) persons, and those living in the Eastern and Southeastern states. Among cases with risk information reported, the most common was injection drug use.

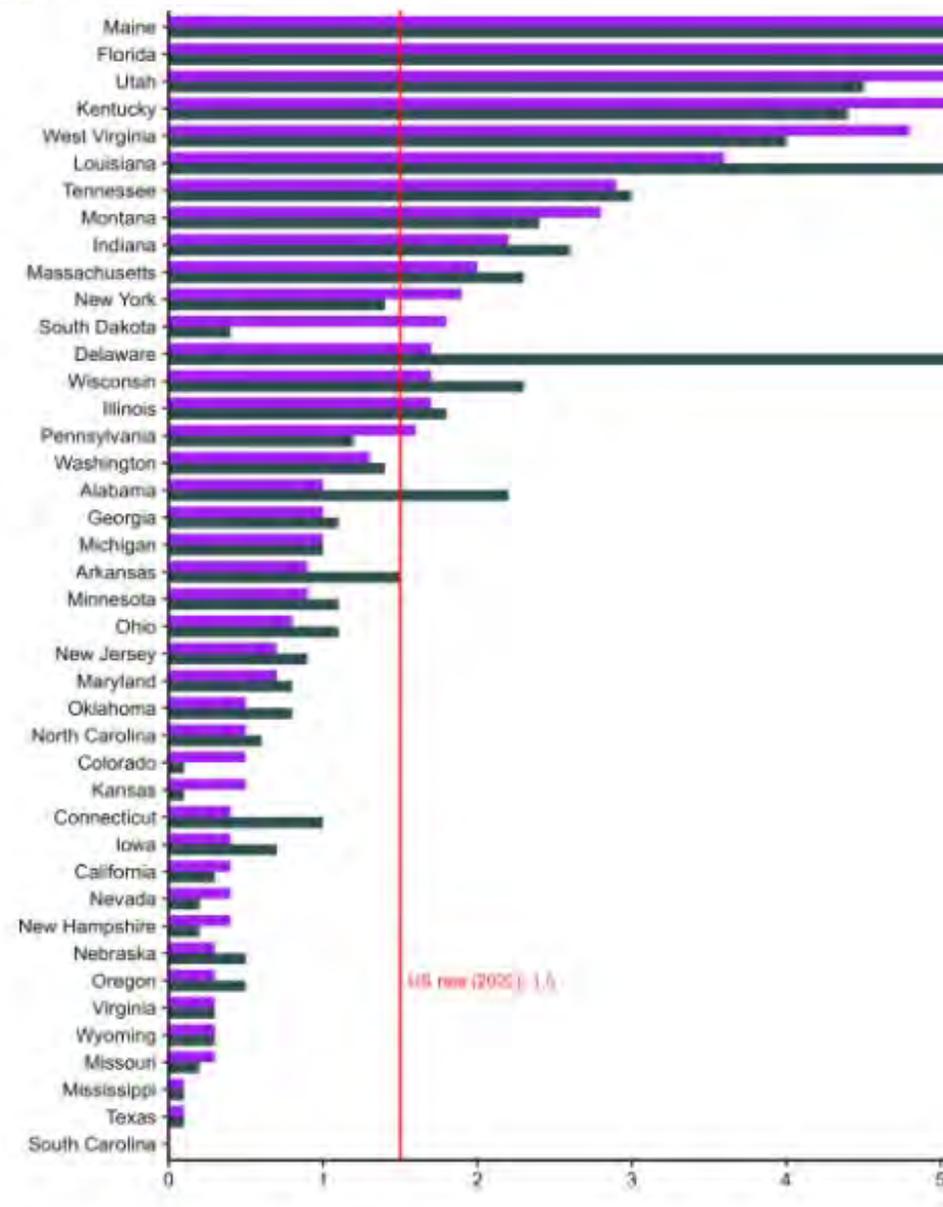
Figure 3. Acute Cases of HCV, United States

Figure 3D. Reported Rates of Acute HCV, by Race/Ethnicity, 2005-2021



Source: Centers for Disease Control and Prevention (CDC). 2021 Viral Hepatitis Surveillance Report—Hepatitis C. Published August 2023.

Rates* of reported cases† of acute hepatitis C, by state or jurisdiction – United States, 2021–2022



Reported risk behaviors or exposures among reported cases* of acute hepatitis C – United States, 2022

[Print](#)

◀ Table 3.2

Table 3.4 ▶

Risk behaviors/exposures†	Risk identified*	Risk not identified	Risk data missing
Injection drug use	834	761	3,253
Multiple sexual partners	164	467	4,217
Surgery	177	767	3,904
Men who have sex with men§	88	236	2,903
Sexual contact¶	63	339	4,446
Needlestick	65	811	3,972
Household contact (nonsexual)¶	12	390	4,446
Occupational	6	1,045	3,797
Dialysis patient	101	1,080	3,667
Transfusion	5	957	3,886

Number of reported cases* and estimated infections† of acute hepatitis B – United States, 2015–2022

[Print](#)

Hepatitis B

◀ Hepatitis B

Figure 2.2 ▶

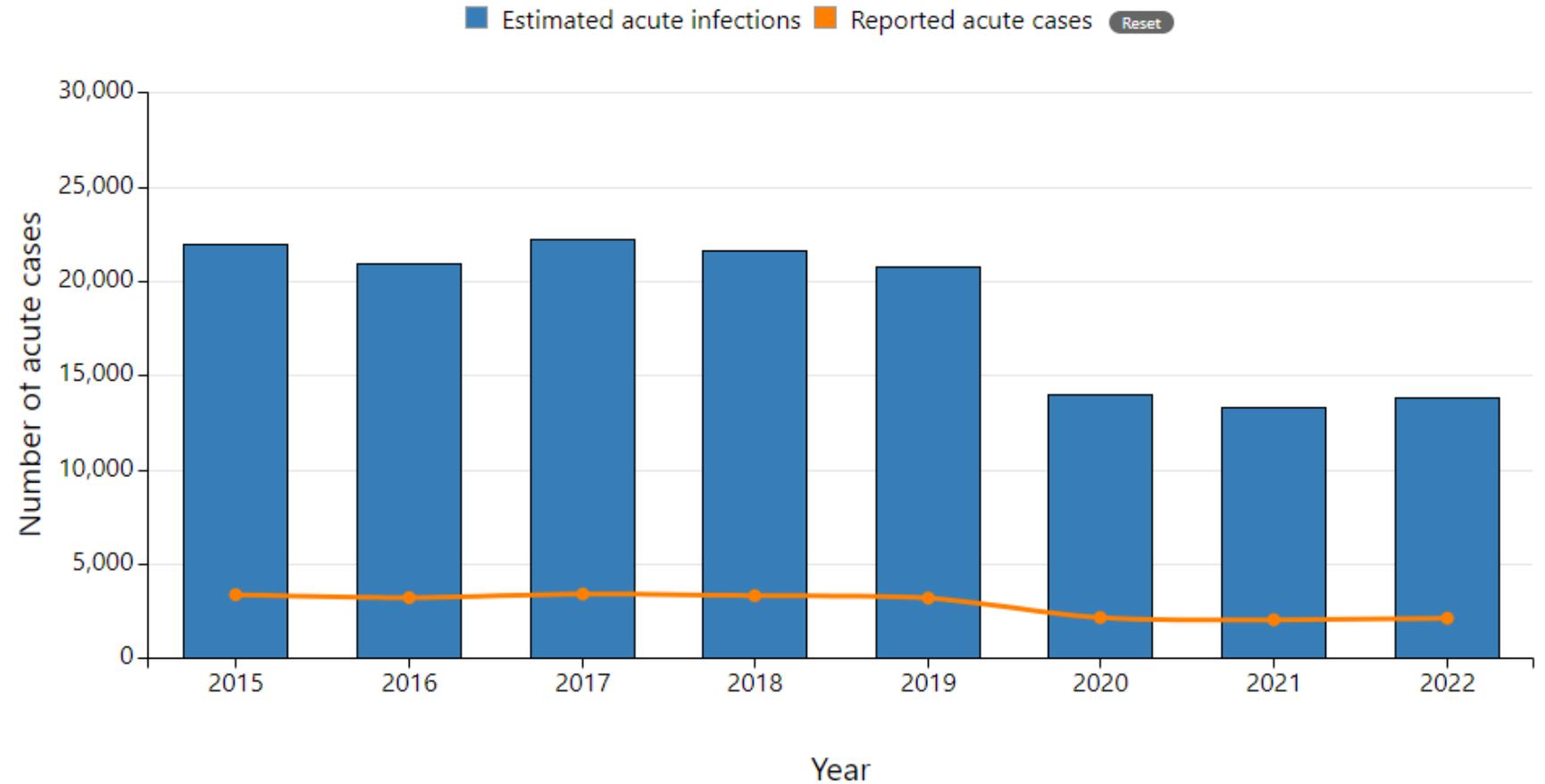
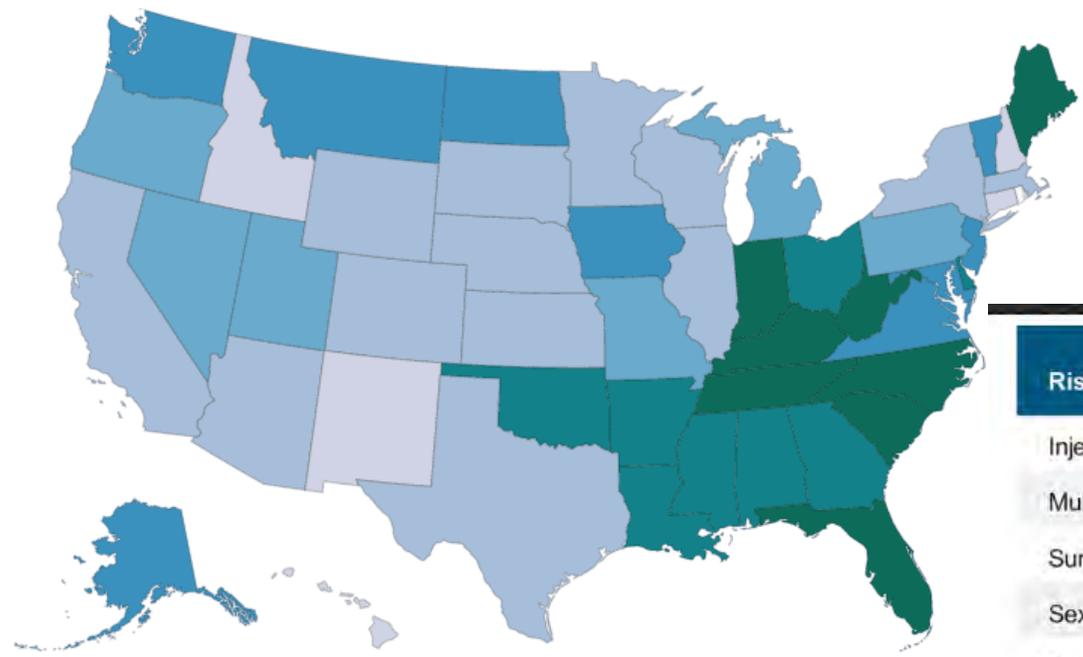


Figure 3 - Rates of Reported Acute Hepatitis B Virus: rates of Reported Cases, by State or Jurisdiction, United States, 2020

Source: Centers for Disease Control and Prevention (CDC). 2020 Viral Hepatitis Surveillance Report—Hepatitis B. Published September 2022.



Risk Behaviors/Exposures	Risk identified*	No risk identified	Risk data missing
Injection drug use	402	713	1,042
Multiple sexual partners	124	512	1,521
Surgery	91	688	1,378
Sexual contact [§]	46	498	1,613
Needlestick	36	742	1,379
Men who have sex with men [¶]	64	281	952
Household contact (non-sexual) [§]	9	535	1,613
Dialysis patient	31	786	1,340
Occupational	1	970	1,186
Transfusion	1	809	1,347

Figure 11 - Acute Hepatitis B Virus: Reported Risk Behaviors or Exposures, United States, 2020

* Reported confirmed cases.
[†] Reported cases may include more than one risk behavior/exposure. Case reports with at least one of the following risk behaviors/exposures reported 6 weeks to 6 months prior to symptom onset or documented seroconversion if asymptomatic: 1) injection drug use; 2) multiple sexual partners; 3) underwent surgery; 4) men who have sex with men; 5) sexual contact with suspected/confirmed hepatitis B case; 6) sustained a percutaneous injury; 7) household contact with suspected/confirmed hepatitis B case; 8) occupational exposure to blood; 9) dialysis; and 10) transfusion.
[§] Cases with more than one type of contact reported were categorized according to a hierarchy: (1) sexual contact; (2) household contact (nonsexual).
[¶] A total of 1,297 acute hepatitis B cases were reported among males in 2020.

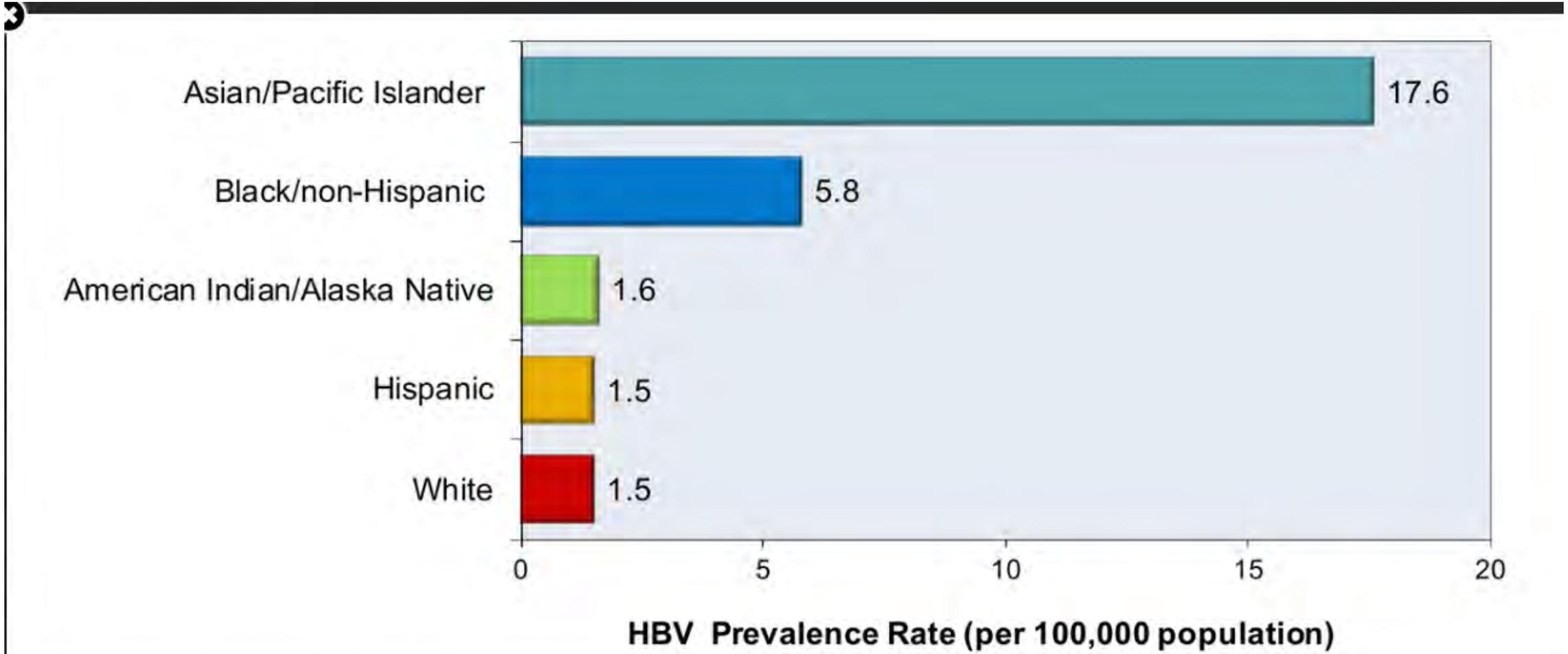


Figure 8 - Hepatitis B Virus Prevalence Rates, by Race/Ethnicity, United States, 2020

Improving Screening, Testing, and Treatment of Bacterial STIs

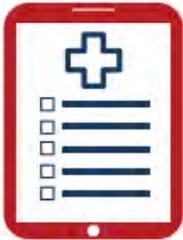


Based on the Rutgers School of Nursing Health Resources and Services Administration funded study, routine sexually transmitted infection (STI) screening and testing found:



94%
of study participants

reported that answering questions about their sexual behaviors on a computer or tablet was "easy" or "very easy."



In only

14%

of cases of detected **chlamydia, gonorrhea and/or syphilis** did study participants report symptoms on their sexual history survey.



That means that

86%

of those found to have a bacterial STI in the study **were asymptomatic**. Without routine screening and testing, these would have been missed.

Of 175 different cases of chlamydia or gonorrhea

67%

were extragenital (rectal or pharyngeal)

and

33%

were urogenital infections. (urine or genital)



← HIV/Syphilis/
HepC* Serologies

← Pharyngeal GC NAAT**

← Urine GC/CT NAAT

← Rectal GC/CT NAAT**



Our goal....

To provide the information, resources, and tools necessary to empower you to confidently assess risk, test, treat and counsel on prevention for a variety of STIs.

Mycoplasma
Gonorrhea
Chlamydia
Syphilis
Trichomonas



Herpes
HIV
Hepatitis A/B/C
HPV
Mpox

Talking about sex and sexual health is the first step in ending the epidemic.



WELCOME to the

*Getting In Sync with Sexual Health ECHO:
STIs – Testing, Treatment and Prevention*

*Session 2, Sexual History Taking and Sexual Culture/Practices,
September 17, 2024*



Sexual History Taking and Sexual Culture and Practices

*Cathleen Morrow MD
Alena Shoemaker MD
DARTMOUTH HEALTH*

Disclaimer

- ‘Expertise’ vs Experience
- Beware considering self an ‘expert’ in this content
- Don’t shy away from gaining experience
- The more you practice, the better you will be at this

Principles - Taking a Sexual History

- No assumptions!
- Curiosity + Concern
- Appreciative Inquiry
- Coming to terms with your personal bias, ideas, 'norms' - this is not easy to do
- Personal comfort -practice and scripts may be helpful
- Recognition that patient age, gender, appearance, attitude strongly impact your capacity to take a good history
- Attention to affect: patients
- Attention to affect: yours

Dialogue with patient

- Many people have concerns about sex at sometime in their lives. Do you have any concerns at this time?
- If you have any concerns related to sexual health is there anything you'd like to discuss?
- Do you currently have any concerns related to your risk of sexually transmitted infections?

Dialogue with patient

- May I ask you a few questions about your sexual health and sexual practices? I understand these questions are personal, but they are important to your overall health.
- At this point in the visit I usually ask some questions about your sexual life. Will that be okay?
- I ask these questions to all my patients, regardless of age, gender, or relationship status. These questions are as important as others about your physical and mental health. Like all our visits this information is strictly confidential unless you or someone else is being hurt or is in danger. Do you have any questions about this before we proceed?

The 5 P's

To further guide your dialogue with your patient, the 5 “Ps” may be a useful way to help you remember the major aspects of a sexual history.

1. Partners
2. Practices
3. Protection from STIs
4. Past History of STIs
5. Pregnancy Intention

Partners

- To assess the risk of STI, important to determine the number and gender of patients sexual partners
- Never make assumptions about gender or sexual identity of patients partners
- If a single partner overall last 12 months still important to know if a new partner
- Directly inquire about partners risks, prior sexual partners, concurrent partners, history of current substance use

Practices

- I have more specific questions about your sexual practices to better understand your risks for STI's. We have different tests depending on body parts involved. Would that be ok?
- What body parts are involved when you have sex? Do you have anal sex? Oral sex? Genital sex? Are you a top and/or a bottom?
- Do you meet partners online or through apps?
- Have you ever exchanged sex for needs? (e.g. housing, money or drugs?)

Past STI History

- Have you ever been tested for STI's and HIV? Would you like to be tested?
- Have you ever been diagnosed with an STI in the past? When? Were you treated?
- Have you had any recurrent symptoms?
- Has your current partner or former been diagnosed with an STI? Treated?
- Were you tested for the same STI?
- Do you know your partners HIV status?



Sexual Culture

Initiation of Sexual Activity

- Average age in US: females 17.2/ males 16.8 and increasing
- Factors associated with sexual initiation include family structure, religious affiliation, mothers education, neighborhood stability/disorder, social networks, gang exposure, experiences of discrimination, school connectedness

Terminology - Review 'sexual culture'

- Array of terms to describe sexual behaviors: allosexual, autosexual, omnisexual, demisexual, finnsexual, zedsexual, allotroposexual, androsexual, asexual
- 'Types' of sexuality: 7, 9, 15, 21, 25

Sexual Culture

- Complex, multifactorial including:
- Age, gender identity, family dynamics, cultural and religious orientation and upbringing, societal 'norms' and pressures, sexual orientation, sexual identities, beliefs, and behaviors
- Can be strongly influenced by social media; particularly so for adolescents

Sexual Culture

- What is normal?
- The patient in front of you!
- Responsibility of the provider to understand their own knowledge gaps, limitations, biases and manage them in order to provide the best care.
- Not a simple matter - case example from my practice

Language and meaning

- Assumptions - does the word 'monogamous' mean the same thing to all of us?
- Gender? Binary vs fluidity?
- SEX?

Race - Ethnicity and Sexual Culture

- Assumptions are dangerous and particularly so if your patient is from a culture or ethnic background you have no experience caring for.
- Beware of your historical ethnic/cultural bias
- “Tell me more” important terminology
- Examination and recognition of your own cultural beliefs about sexuality

Risks/ Don't Miss:

- H/O violence? Past/ present
- Abuse - sexual and other
- Coercion/safety associated with sexual practices
- Physical exam should never be neglected or undervalued
- Training in trauma informed care highly valuable in both the history taking and physical exam portions of the care of patients

Monogamy?

- ‘Play’ partners
- Friends with benefits
- Polyamory aka consensual nonmonogamy
- Relationship anarchy

Prevention of STI's

- Anticipatory guidance: Adolescents
- Anticipatory guidance: Adults
- Newly divorced, separated, re-entering the 'dating' scene after long term monogamous relationships
- Aging

Resources

<https://www.cdc.gov/std/treatment/SexualHistory.pdf>

<https://nationalcoalitionforsexualhealth.org/tools/for-healthcare-providers/video-series>

THANK YOU!

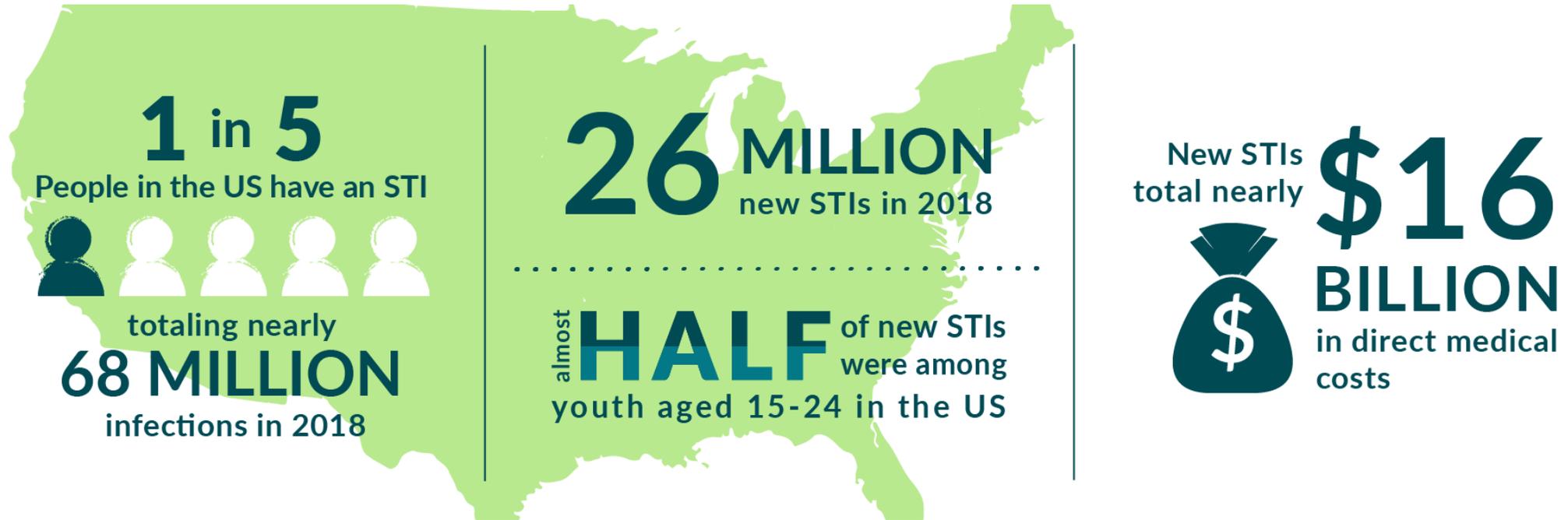


WELCOME to the

*Getting In Sync with Sexual Health ECHO:
STIs – Testing, Treatment and Prevention*

*Session 3, Gonorrhea, Chlamydia/LGV, Trichomonas, DoxyPEP,
October 1, 2024*

STI for Primary Care 2024



Bryan J. Marsh, MD

Associate Professor of Medicine

Infectious Disease Physician

Co-medical Director Ryan White HIV Clinic

Agenda

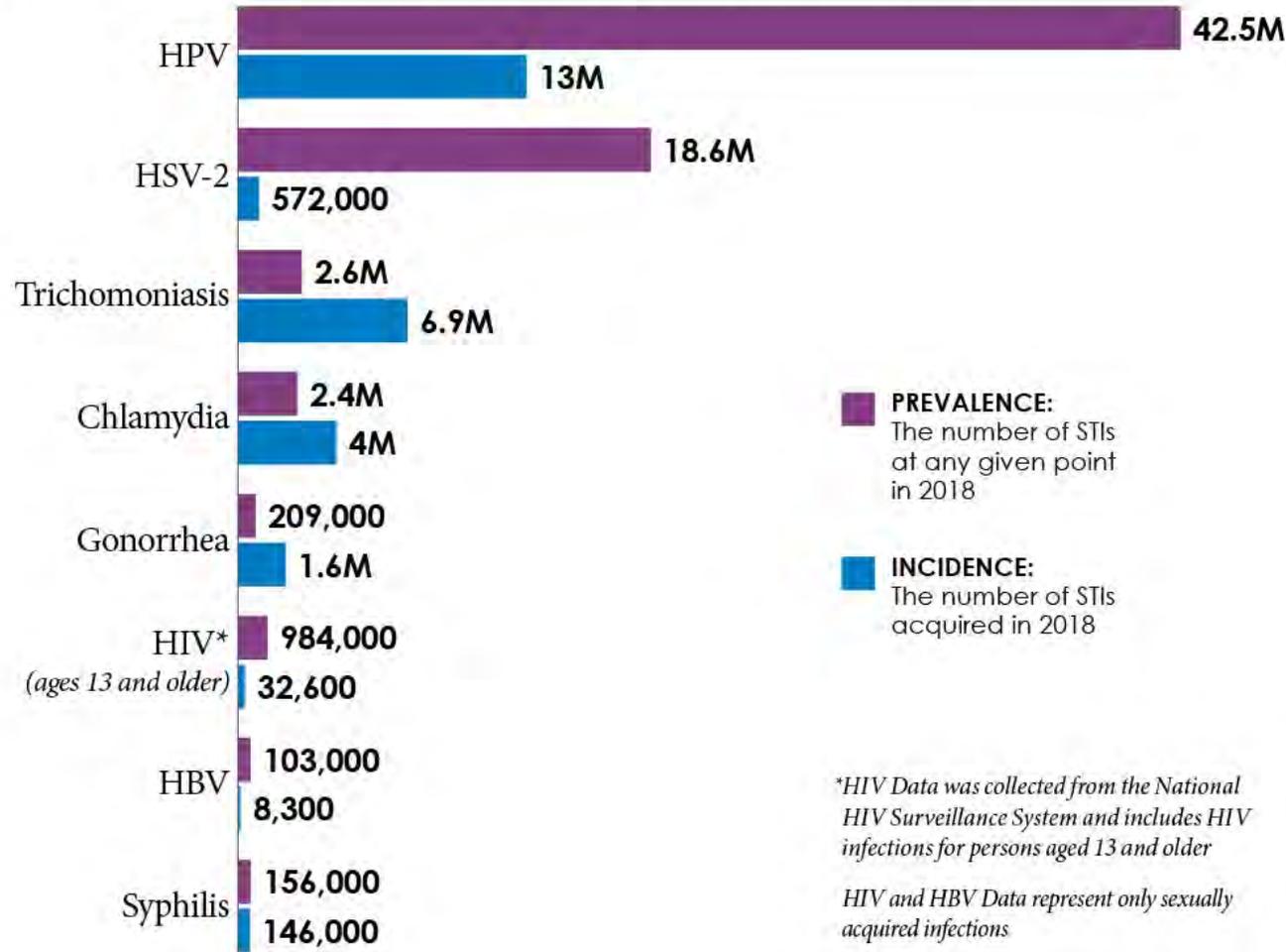
- Review presentation, screening and testing guidelines, treatment and follow up for:
 - *Neisseria gonorrhoea*
 - *Chlamydia trachomatis*
 - *Trichomonas vaginalis*
 - +/- *Mycoplasma genitalium*
- Review US guidelines for doxycycline post-exposure prophylaxis (doxy-PEP) for bacterial STIs
- Case discussion

STI Differential by Condition

Condition	Disease	Organisms
Genital ulcers	Genital herpes Syphilis Lymphogranuloma venereum Chancroid Granuloma inguinale (donovanosis)	HSV Treponema pallidum Chlamydia trachomatis (L1-3) Haemophilus ducreyi Klebsiella granulomatis
Urethritis/Cervicitis	Gonorrhea Chlamydia Trichomoniasis Nongonococcal urethritis	Neisseria gonorrhoeae Chlamydia trachomatis Trichomonas vaginalis Mycoplasma genitalium
Vaginitis	Trichomoniasis Candidiasis Bacterial vaginosis	Trichomonas vaginalis Candida species Gardnerella vaginalis Ureaplasma Mycoplasma Anaerobes
Anogenital warts	Condyloma acuminata	HPV

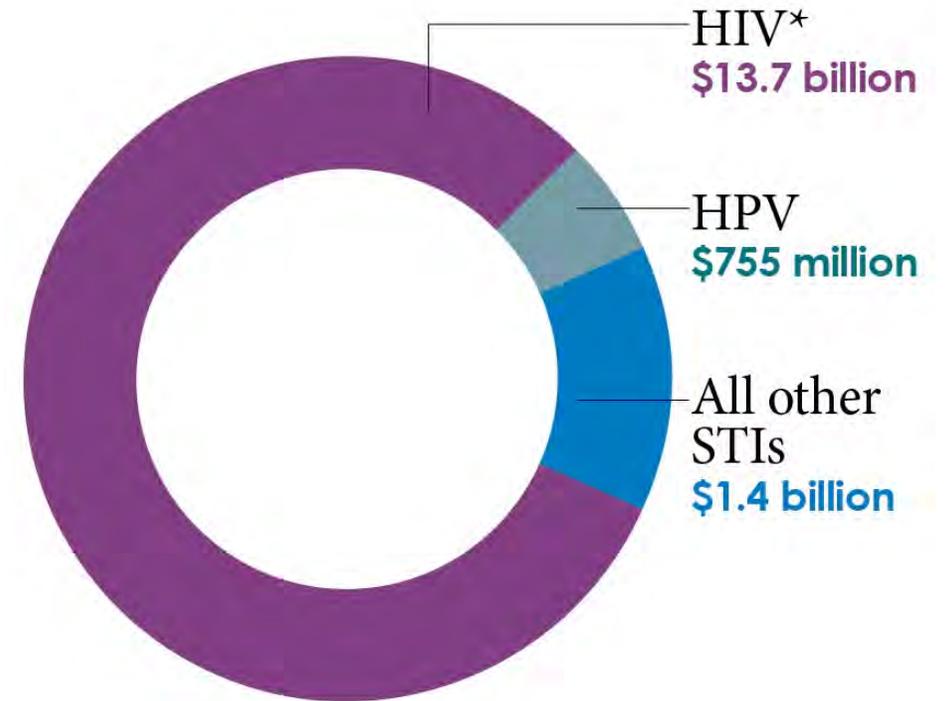
LATEST CDC ESTIMATES REVEAL NEARLY 68 MILLION STIs IN THE U.S., AND MORE THAN 26 MILLION NEW INFECTIONS

Estimated number of new and existing sexually transmitted infections



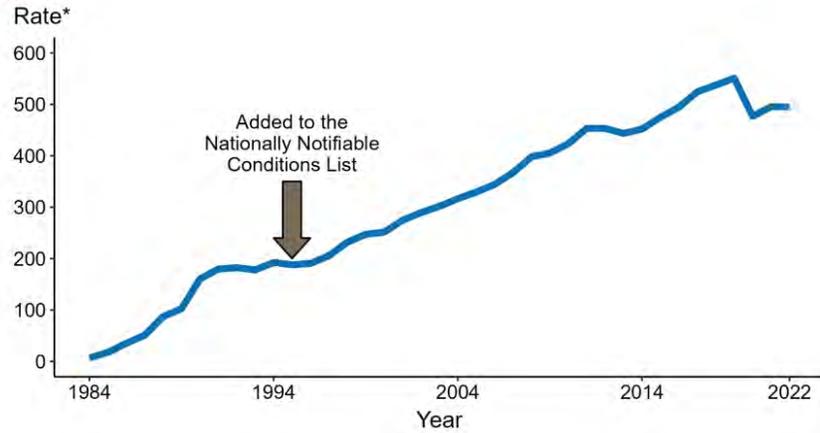
**HIV Data was collected from the National HIV Surveillance System and includes HIV infections for persons aged 13 and older*

HIV and HBV Data represent only sexually acquired infections



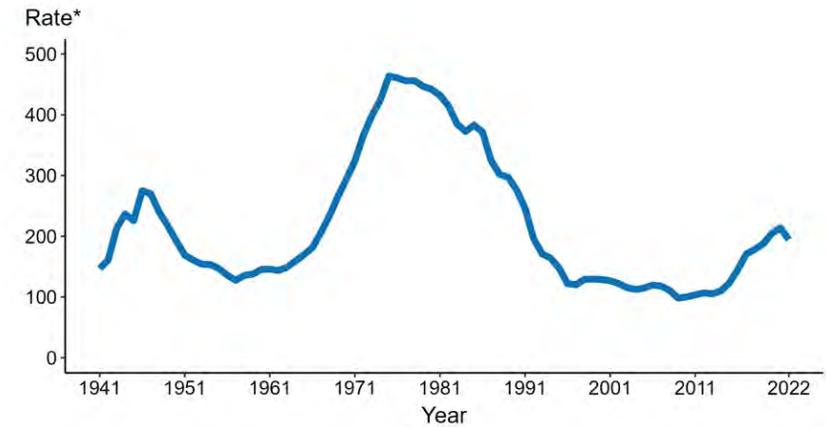
**HIV Data represent only sexually acquired infections*

Chlamydia — Rates of Reported Cases by Year, United States, 1984–2022



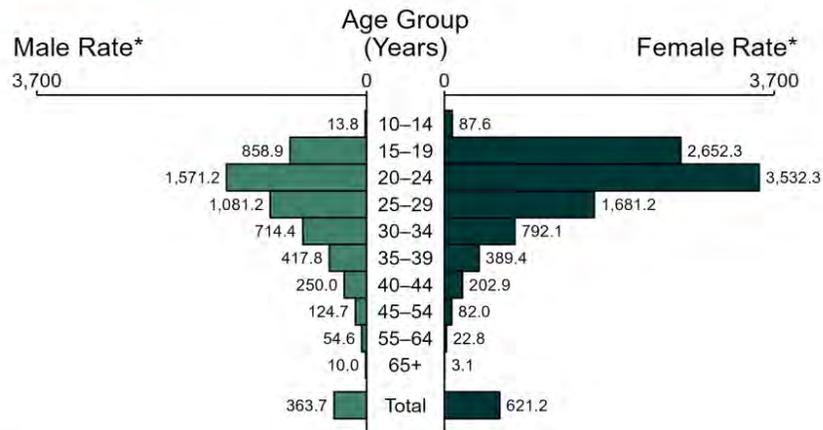
* Per 100,000

Gonorrhea — Rates of Reported Cases by Year, United States, 1941–2022



* Per 100,000

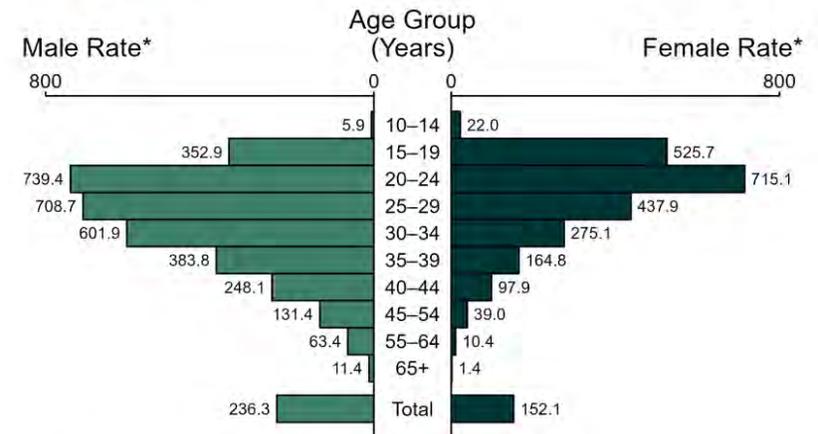
Chlamydia — Rates of Reported Cases by Age Group and Sex, United States, 2022



* Per 100,000

NOTE: Total includes cases of all ages, including those with unknown age.

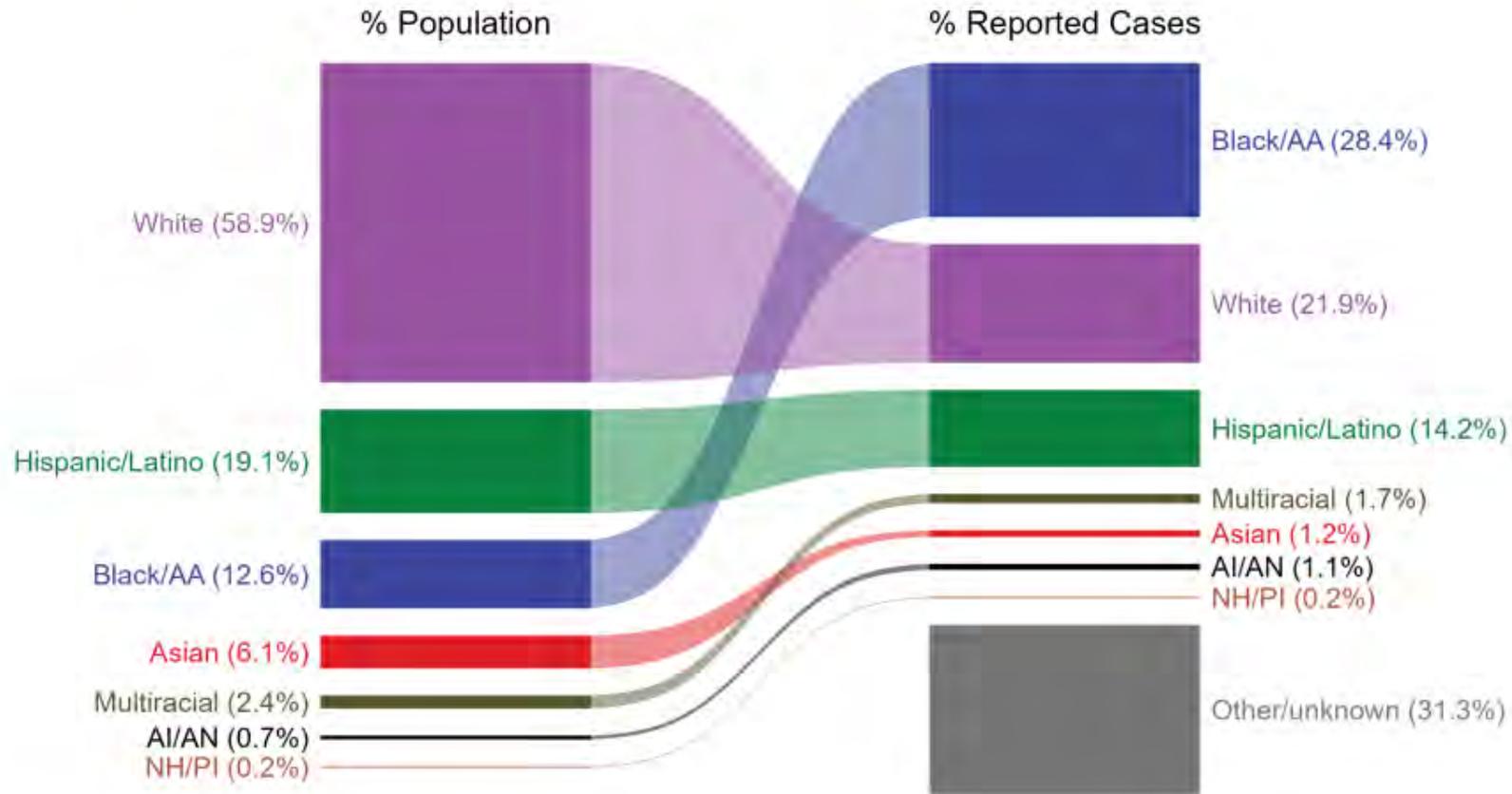
Gonorrhea — Rates of Reported Cases by Age Group and Sex, United States, 2022



* Per 100,000

NOTE: Total includes cases of all ages, including those with unknown age.

Chlamydia — Total Population and Reported Cases by Race/Hispanic Ethnicity, United States, 2022



* Per 100,000

NOTE: In 2022, a total of 515,552 chlamydia cases (31.3%) had missing, unknown, or other race and were not reported to be of Hispanic ethnicity. These cases are included in the "other/unknown" category.

ACRONYMS: AI/AN = American Indian or Alaska Native; Black/AA = Black or African American; NH/PI = Native Hawaiian or other Pacific Islander



USPSTF Screening Recommendations for Gonorrhea and Chlamydia (2021)

Recommendation Summary

Population	Recommendation	Grade
Sexually active women, including pregnant persons	The USPSTF recommends screening for chlamydia in all sexually active women 24 years or younger and in women 25 years or older who are at increased risk for infection.	B
Sexually active women, including pregnant persons	The USPSTF recommends screening for gonorrhea in all sexually active women 24 years or younger and in women 25 years or older who are at increased risk for infection.	B
Sexually active men	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydia and gonorrhea in men.	I

- A previous or coexisting STI
- A new or more than 1 sex partner
- A sex partner having sex with other partners at the same time
- A sex partner with an STI
- Inconsistent condom use when not in a mutually monogamous relationship
- A history of exchanging sex for money or drugs
- A history of incarceration



Detection of STIs in Special Populations

[Print](#)

Pages in this Section

[Pregnant Women](#)

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[Children](#)

[MSM](#)

[WSW and WSWM](#)

[Transgender and Gender Diverse Persons](#)

[Persons in Correctional Facilities](#)

MSM



Gonorrhea and Chlamydia

The following testing is recommended for MSM:

- A test for urethral infection* with *N. gonorrhoeae* and *C. trachomatis* among men who have had insertive intercourse during the preceding year (urine NAAT is preferred).
- A test for rectal infection* with *N. gonorrhoeae* and *C. trachomatis* among men who have had receptive anal intercourse during the preceding year (rectal NAAT is preferred).
- A test for pharyngeal infection* with *N. gonorrhoeae* among men who have had receptive oral intercourse during the preceding year (pharyngeal NAAT is preferred).
- Testing for *C. trachomatis* pharyngeal infection is not recommended.

* Regardless of condom use during exposure.

MSM 'Triple Dip'



← HIV/Syphilis/
HepC* Serologies

← Pharyngeal GC NAAT

← Urine GC/CT NAAT

← Rectal GC/CT NAAT



National Network of
STD Clinical Prevention
Training Centers

Missed Opportunities

- Extragenital gonorrhea and chlamydia were common among MSM attending STI clinic and more than **70% of extragenital GC infections and 85% of extragenital CT infections** were associated with **negative urethral tests** at the same visit and would not have been detected with urethral screening alone.
- Of those (with HIV) diagnosed with an STI who had multisite testing, **96% were positive only at an extragenital site.**

Improving Screening, Testing, and Treatment of Bacterial STIs



Based on the Rutgers School of Nursing Health Resources and Services Administration funded study, routine sexually transmitted infection (STI) screening and testing found:



94%
of study participants

reported that answering questions about their sexual behaviors on a computer or tablet was "easy" or "very easy."



In only

14%

of cases of detected **chlamydia, gonorrhea and/or syphilis** did study participants report symptoms on their sexual history survey.



That means that

86%

of those found to have a bacterial STI in the study **were asymptomatic**. Without routine screening and testing, these would have been missed.

Of 175 different cases of chlamydia or gonorrhea

67%

were extragenital (rectal or pharyngeal)

and

33%

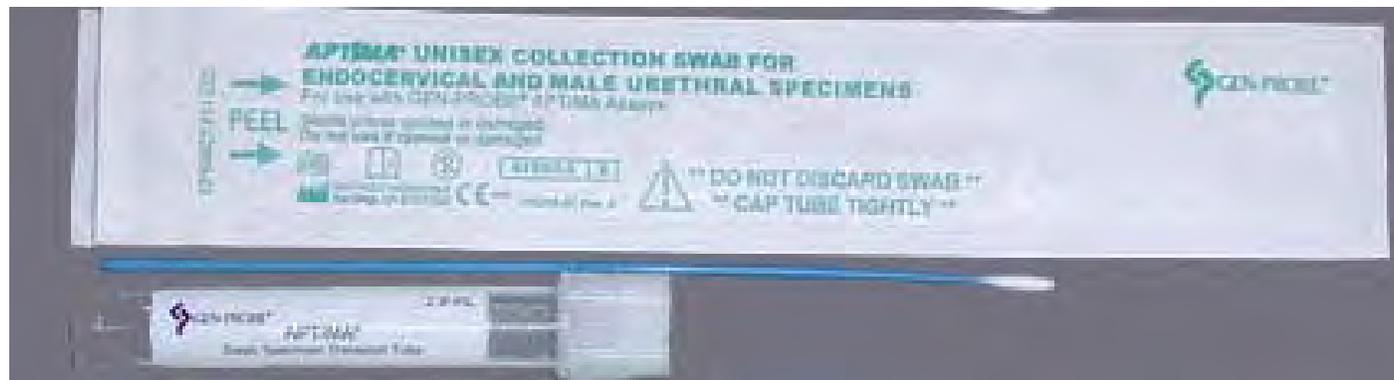
were urogenital infections. (urine or genital)



Chlamydia and Gonorrhea Diagnostics

- Nucleic acid amplification testing (NAAT) is the ‘gold standard’
- Vaginal or cervical swabs or first-void urine
 - Patient-collected vaginal swab specimens are equivalent in sensitivity and specificity to those collected by a clinician
 - Sensitivity and specificity from urine sample are comparable to cervical and urethral samples for detection of chlamydia in women
- Can also be used for vaginal, oropharyngeal, rectal, urethral, and conjunctival specimen.
- Test ALL sites of exposure!

Specimen Collection



Chlamydia manifestations

- **Men or women**
 - Oropharyngeal and rectal: usually asymptomatic
 - Conjunctivitis
 - Lymphogranuloma venereum (LGV)
 - Reactive arthritis
- **Men**
 - Urethritis and epididymitis
- **Women**
 - Cervicitis (80% of all) and urethritis
 - Pelvic Inflammatory Disease
 - 3% in 2 weeks, 10% in 1 year
 - 20% infertile, 30% chronic pain, 1% ectopic pregnancy when conceive
 - Perihepatitis (Fitz-Hugh-Curtis syndrome)
- **Children**
 - Conjunctivitis
 - Pneumonia

Chlamydia Treatment

Recommended Regimens for Chlamydial Infection

Doxycycline 100 mg orally 2 times/day for 7 days

Alternative Regimens

Azithromycin 1 g orally in a single dose

OR

Levofloxacin 500 mg orally once daily for 7 days

- Persons should abstain from sexual intercourse for 7 days after treatment.
- Partners (within 60 days of dx) should be tested and treated.
- Persons who receive a diagnosis of chlamydia should be tested for HIV, gonorrhea, and syphilis.

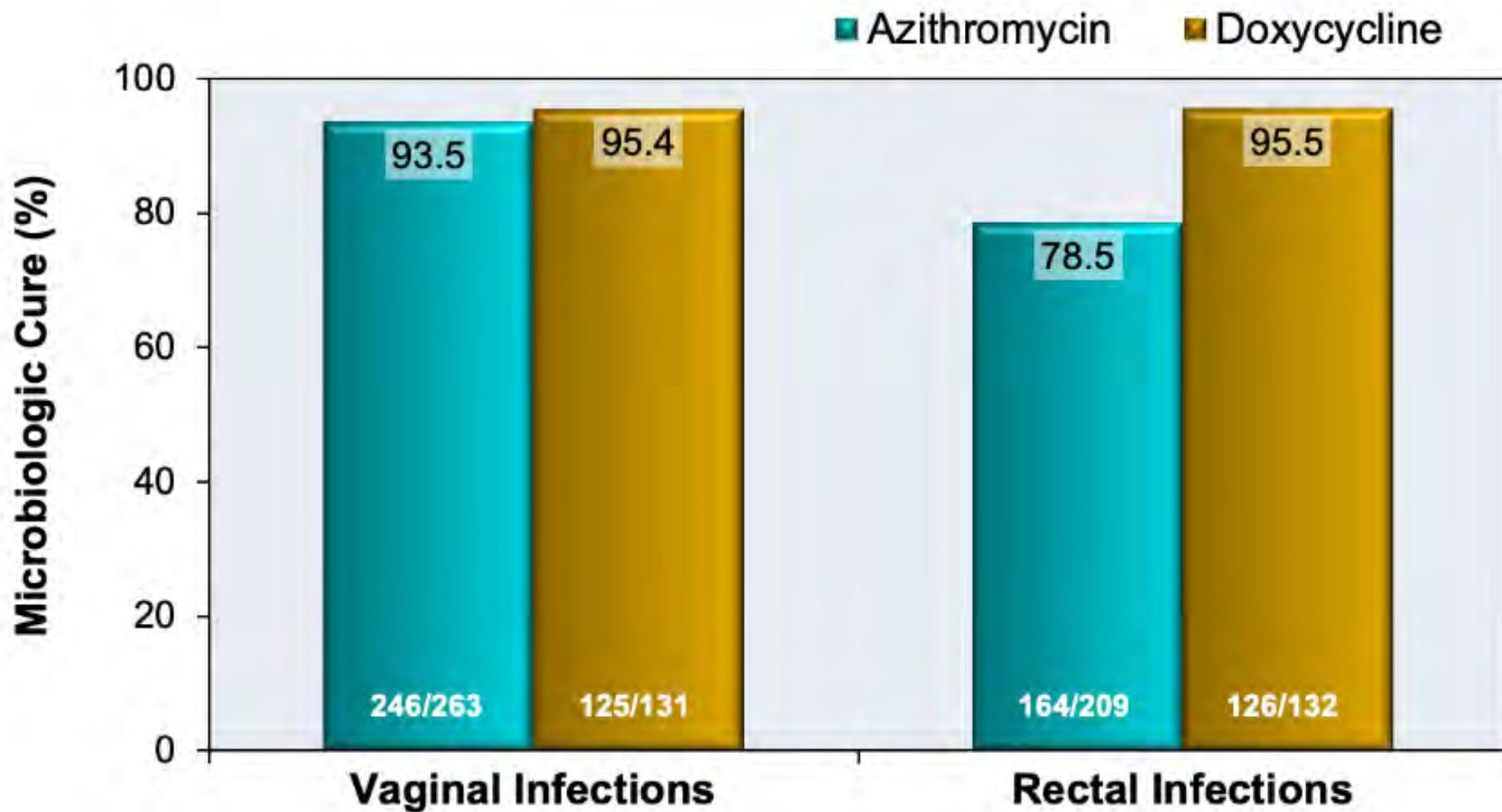


Figure 7 (Image Series) - Azithromycin versus Doxycycline in Uncomplicated Rectal and Vaginal Chlamydial Infections in Women (FEMCure)

B. Results: Microbiologic Cure at 4 Weeks

Abbreviations: CT+ = *Chlamydia trachomatis*-positive

Source: Dukers-Muijers NHTM, Wolfs PFG, De Vries H, et al. Treatment effectiveness of azithromycin and doxycycline in uncomplicated rectal and vaginal *Chlamydia trachomatis* infections in women: a multicenter observational study (FemCure). Clin Infect Dis. 2019;69:1946-54.

7A

7B



38 y/o MSM with well controlled HIV on ART presenting with constipation and severe anorectal pain with rectal urgency and some incontinence for several months.

- Engages in unprotected anal receptive, anal insertive and oral sex with multiple male partners.
- Evaluated by colorectal surgery for routine follow up for history of abnormal anal pap and found to have **proctitis with anal fistula.**
- Urine gonorrhea/chlamydia NAAT negative

Follow up with ID (weeks later – patient still symptomatic)

- **Rectal chlamydia NAAT positive**

LGV (Lymphogranuloma venereum)

- Caused by *C. trachomatis* serovars L1-3
- Most commonly causes tender unilateral inguinal lymphadenopathy, with or without genital ulcer
- Rectal infection can cause a syndrome mimicking IBD with proctocolitis leading to chronic colorectal fistulas and strictures
- Diagnosis is made based on compatible clinical syndrome PLUS positive *C. trachomatis* NAAT on rectal swab
- Treatment is **Doxycycline 100mg PO BID x 21 days**

Gonorrhoea manifestations

- **Men or women**
 - Pharyngeal: usually asymptomatic; pharyngitis
 - Anorectal: usually asymptomatic; proctitis
 - Conjunctivitis
 - Disseminated gonococcal infection: skin, joint, liver, heart, meninges
- **Men**
 - Urethritis and epididymitis
- **Women**
 - Cervicitis
 - Pelvic Inflammatory Disease
 - infertility, chronic pelvic pain, risk of ectopic pregnancy
 - Perihepatitis (Fitz-Hugh-Curtis syndrome)
- **Children**
 - Conjunctivitis
 - Any case beyond the newborn should be considered possible sexual abuse

Gonorrhea Treatment

Recommended Regimen for Uncomplicated Gonococcal Infection of the Cervix, Urethra, or Rectum Among Adults and Adolescents

Ceftriaxone 500 mg* IM in a single dose for persons weighing <150 kg

If chlamydial infection has not been excluded, treat for chlamydia with doxycycline 100 mg orally 2 times/day for 7 days.

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

- Test of cure is recommended 7-14 days after treatment for pharyngeal infection
- Symptoms that persist after treatment should be evaluated by culture for *N. gonorrhoeae* (with or without simultaneous NAAT) and antimicrobial susceptibility.

Gonorrhea Treatment

Alternative Regimens

If cephalosporin allergy:

Gentamicin 240 mg IM in a single dose

PLUS

Azithromycin 2 g orally in a single dose

If ceftriaxone administration is not available or not feasible:

Cefixime 800 mg* orally in a single dose

* If chlamydial infection has not been excluded, providers should treat for chlamydia with doxycycline 100 mg orally 2 times/day for 7 days.

25M with 2 days of left knee pain. Visited Philippines 1 month ago, where he had unprotected sex with multiple partners. On exam T 38.9, left knee is swollen, red and painful. He also has several painful papules on his extremities.



Disseminated Gonococcal Infection

- Petechial or pustular skin lesions, asymmetric polyarthralgia, tenosynovitis, oligoarticular septic arthritis.
- Rarely endocarditis and meningitis.

Recommended Regimen for Gonococcal-Related Arthritis and Arthritis-Dermatitis Syndrome

Ceftriaxone 1 g IM or by IV every 24 hours

**Switch to PO 24-48hr after clinical improvement,
total treatment course of at least 7 days**

If chlamydial infection has not been excluded, providers should treat for chlamydia with doxycycline 100 mg orally 2 times/day for 7 days.

Recommended Regimen for Gonococcal Meningitis and Endocarditis

Ceftriaxone 1-2 g IV every 12-24 hours

Duration for meningitis 10-14 days, endocarditis > 4 weeks

If chlamydial infection has not been excluded, providers should treat for chlamydia with doxycycline 100 mg orally 2 times/day for 7 days. [Gonococcal Infections Among Adolescents and Adults - STI Treatment Guidelines \(cdc.gov\)](https://www.cdc.gov/std/treatment-guidelines)

Follow up for Chlamydia and Gonorrhoea

- Test of cure is not advised for non-pregnant persons (exception is throat).
- Repeat testing should be done 3 months after treatment given risk for re-infection.

*Pregnant women with chlamydial infection should have a test of cure 3-4 wk after treatment.

Trichomoniasis (*Trichomonas vaginalis*)

- The most common curable STI globally
- Recommendations almost entirely focused on cisgender women and those born with a vagina
- In the US: prevalence 3.7 million, incidence 1.1 million
- In women:
 - The large majority of infections are asymptomatic
 - One of the three causes of chronic vaginitis
 - Minimal vaginal discharge, mild pruritis and/or dyspareunia
 - If symptomatic: premature rupture of membranes and preterm labor, with a 30% increased risk of preterm birth
 - Women with HIV: prevalence 50% (!), increased risk of PID, and increased risk of HIV transmission
- In men:
 - Largely asymptomatic, but up to 13% of nongonococcal urethritis

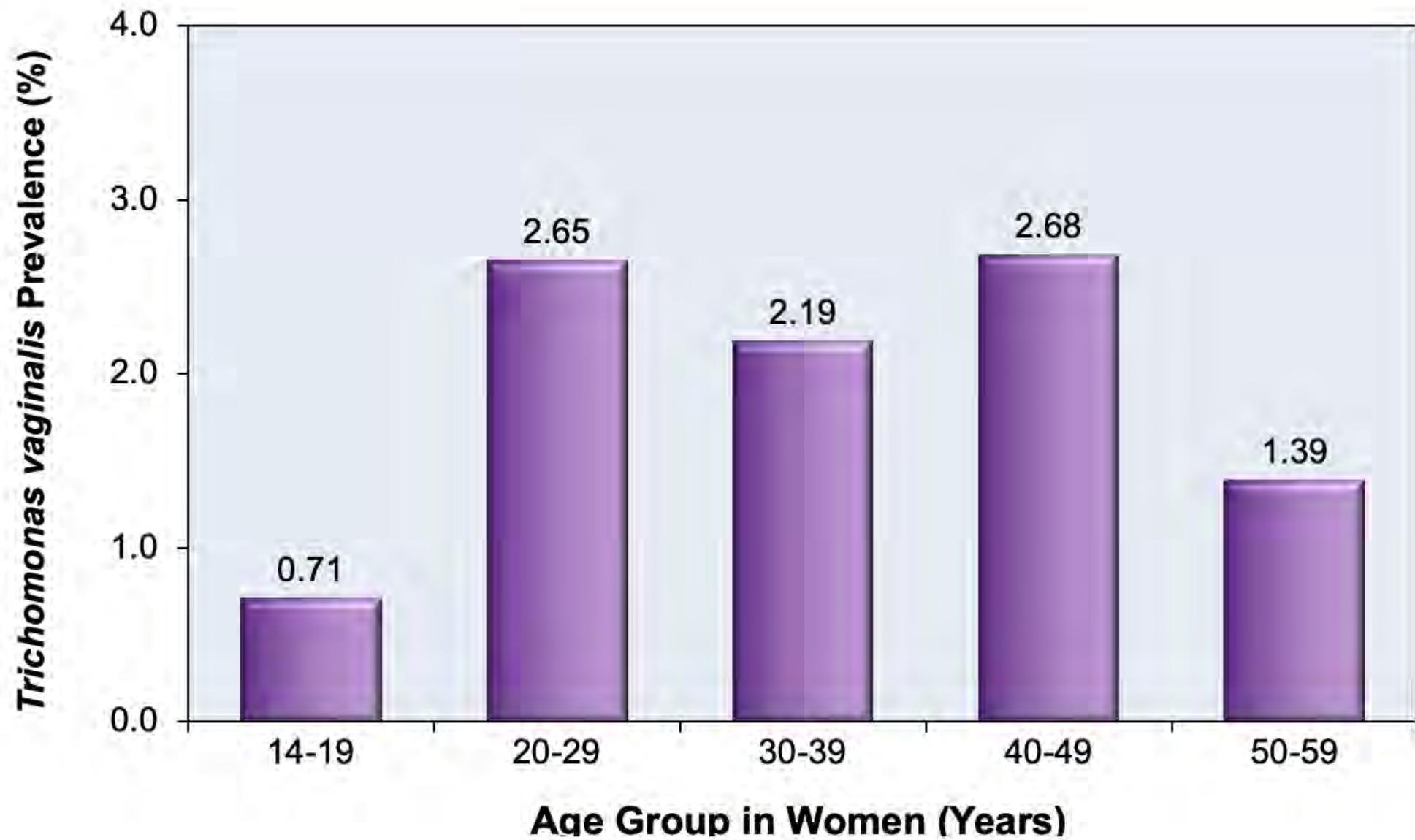


Figure 8 - Prevalence of *Trichomonas vaginalis* Among Civilian, Noninstitutionalized Females Aged 14 to 59 Years: United States, 2013 to 2016

Source: Flagg EW, Meites E, Phillips C, Papp J, Torrone EA. Prevalence of *Trichomonas vaginalis* among civilian, noninstitutionalized male and female population aged 14 to 59 years: United States, 2013 to 2016. Sex Transm Dis. 2019;46:e93-e96.

Trichomonas Diagnostics

- Wet mount: sensitivity +/- 50%
- Culture: cumbersome, but necessary to test for antibiotic resistance
- Nucleic acid amplification testing (NAAT) is the 'gold standard'
 - Vaginal or cervical swabs, urine and liquid Pap smear specimens
 - Sensitivity >95%
 - Most not approved for use in men
 - Not recommended for anorectal testing (no evidence of disease)
- Point-of-Care Testing: assorted

Trichomonas Screening

- Screening “may be considered”
 - Women in high prevalence settings (STI clinics or correctional facilities)
 - Asymptomatic women at high risk of acquiring infection (women with multiple sex partners, who exchange sex for money or drugs, or history of STIs)
 - Sensitivity and specificity from urine sample are comparable to cervical and urethral samples for detection of chlamydia in women
 - All sexually active women with HIV at diagnosis and annually
- Not recommended for pharynx or rectum
- Not recommended for men
- Retest women at three months after treatment

Treatment of Trichomoniasis

Recommended Regimen for Women

Metronidazole

500 mg orally twice a day for 7 days

Recommended Regimen for Men

Metronidazole

2 g orally in a single dose

Alternative Regimen for Women and Men

Tinidazole

2 g orally in a single dose

Trichomonas Treatment

- Persistent/recurrent infection
 - With reexposure: repeat first-line therapy
 - Without reexposure:
 - Women: 7 days metronidazole or tinidazole 2 gm daily
 - Men: 7 days metronidazole 500 mg orally twice daily
- Treatment failure after second-line treatment
 - Request a special kit from the CDC for resistance testing
 - [Test Order | Submitting Specimens to CDC | Infectious Diseases Laboratories | CDC](#)
- Pregnancy?
 - No benefit to treatment if asymptomatic

Mycoplasma genitalium

- Causes non-chlamydial, non-gonococcal urethritis.
- Can also cause cervicitis and PID.
- People with persistent or recurrent urethritis and cervicitis should be screened.
- Asymptomatic screening not recommended at this time.
- Diagnosis via NAAT (FDA cleared for use with urine and urethral, penile meatal, endocervical, and vaginal swab samples)
- Treatment 2-stage approach due to high rates of macrolide resistance

Mycoplasma genitalium

Recommended Regimens if *M. genitalium* Resistance Testing is Available

If macrolide sensitive: Doxycycline 100 mg orally 2 times/day for 7 days, followed by azithromycin 1 g orally initial dose, followed by 500 mg orally once daily for 3 additional days (2.5 g total)

If macrolide resistant: Doxycycline 100 mg orally 2 times/day for 7 days followed by moxifloxacin 400 mg orally once daily for 7 days

Recommended Regimens if *M. genitalium* Resistance Testing is Not Available

If *M. genitalium* is detected by an FDA-cleared NAAT: Doxycycline 100 mg orally 2 times/day for 7 days, followed by moxifloxacin 400 mg orally once daily for 7 days

Doxy PEP

U.S. Centers for Disease Control and Prevention

MMWR

Recommendations and Reports / Vol. 73 / No. 2

Morbidity and Mortality Weekly Report

June 6, 2024

**CDC Clinical Guidelines on the Use of Doxycycline
Postexposure Prophylaxis for Bacterial Sexually
Transmitted Infection Prevention,
United States, 2024**

BOX 1. CDC recommendations for use of doxycycline as postexposure prophylaxis for bacterial sexually transmitted infections prevention



Recommendation*	Strength of recommendation and quality of evidence†
<ul style="list-style-type: none"> Providers should counsel all gay, bisexual, and other men who have sex with men (MSM) and transgender women (TGW) with a history of at least one bacterial sexually transmitted infection (STI) (specifically, syphilis, chlamydia or gonorrhea) during the past 12 months about the benefits and harms of using doxycycline (any formulation) 200 mg once within 72 hours (not to exceed 200 mg per 24 hours) of oral, vaginal, or anal sex and should offer doxycycline postexposure prophylaxis (doxy PEP) through shared decision-making. Ongoing need for doxy PEP should be assessed every 3–6 months. 	<p style="text-align: center;">AI</p> <p style="text-align: center;">High-quality evidence supports this strong recommendation to counsel MSM and TGW and offer doxy PEP.</p>
<ul style="list-style-type: none"> No recommendation can be given at this time on the use of doxy PEP for cisgender women, cisgender heterosexual men, transgender men, and other queer and nonbinary persons. 	<p style="text-align: center;">Evidence is insufficient to assess the balance of benefits and harms of the use of doxy PEP</p>

*Although not directly assessed in the trials included in these guidelines, doxy PEP could be discussed with MSM and TGW who have not had a bacterial STI diagnosed during the previous year but will be participating in sexual activities that are known to increase likelihood of exposure to STIs.

† See Table.

The evidence

- 4 studies on efficacy of Doxy PEP
 1. IPERGAY – MSM and TGW taking Truvada for HIV PrEP, risk reduction (RR) 70% for chlamydia and 73% for syphilis, no significant reduction for gonorrhea
 2. DoxyPEP – MSM and TGW with HIV or on HIV PrEP, RR 56% for gonorrhea, 81% for chlamydia, 82% for syphilis, NNT to prevent a quarterly incident of STI was 4.7 in the PrEP cohort and 5.3 in PLWH
 3. DOXYVAC – MSM on HIV PrEP, RR 51% for gonorrhea, 89% for chlamydia, 79% for syphilis
 4. RCT – Kenyan cisgender women, no significant reduction in all bacterial STIs largely due to non-adherence

Potential harms

- 3 studies reported adverse events
 1. IPERGAY – GI side effects more commonly reported in PEP groups (53%)
 2. DoxyPEP – 1 lab abnormality, 3 adverse events, non serious
 3. DOXYVAC – GI side effects causing 3 individuals to discontinue PEP
- Larger systematic literature review on use of doxy for acne treatment, malaria prophylaxis, and rosacea treatment showed increase risk of GI and dermatologic adverse events compared to placebo.

Potential harms

- Resistance in commensals and co-occurring pathogens
 - DoxyPEP – 12mo follow up
 - Staph aureus nares colonization decreased 14% in doxy group with 8% increase in doxy resistance
 - 24% of gonococcal isolates were doxy resistant at baseline, 11% of incident isolates in SOC and 30% in doxy group
 - DOXYVAC
 - 100% of gonococcal isolates were doxy resistant at baseline, 67% of incident infections in doxy group vs 81% in the no PEP group

Recommendations

- Initial PEP visit
 - Screen and treat as indicated for STIs every 3-6 months.
 - Counsel on risk reduction strategies including condom use, consideration of reducing the number of partners, and accessing HIV PEP, PrEP or HIV treatment as indicated.
 - Discuss risks and benefits of doxycycline PEP including potential side effects such as photosensitivity, esophagitis and esophageal discomfort, gastrointestinal intolerance (nausea, vomiting, diarrhea) and the potential for the development of antimicrobial resistance in other pathogens and commensal organisms.
 - Discuss the need to take doxycycline exactly as prescribed and only for its intended purpose.
 - Counsel on potential drug interactions including the importance of separating the doxycycline dose by at least 2 hours from antacids and supplements that contain calcium, iron, magnesium or sodium bicarbonate. No clinically relevant interactions between doxycycline and gender-affirming hormonal therapy is likely, however, other forms of birth control should be used by people of reproductive potential who are on hormonal contraceptives.
 - Provide enough doses of doxycycline to last until the next follow-up visit, based on individual assessment through shared decision making.

Recommendations

- Follow up PEP visit
 - STI screening every 3-6 months.
 - Assess for side effects from doxycycline.
 - Provide risk reduction counseling and condoms.
 - Re-assess need for doxycycline PEP.
 - Provide enough doses of doxycycline until next follow-up visit, based on individual assessment through shared decision making.

Additional Considerations

- Screen for hepatitis B and C infection; vaccinate against hepatitis B if susceptible.
- Administer other vaccines as indicated (MPOX, hepatitis A, human papillomavirus).
- Refer for comprehensive primary care, mental health services, substance use treatment and other services, as appropriate.



WELCOME to the

*Getting In Sync with Sexual Health ECHO:
STIs – Testing, Treatment and Prevention*

Session 4, Syphilis, October 15, 2024



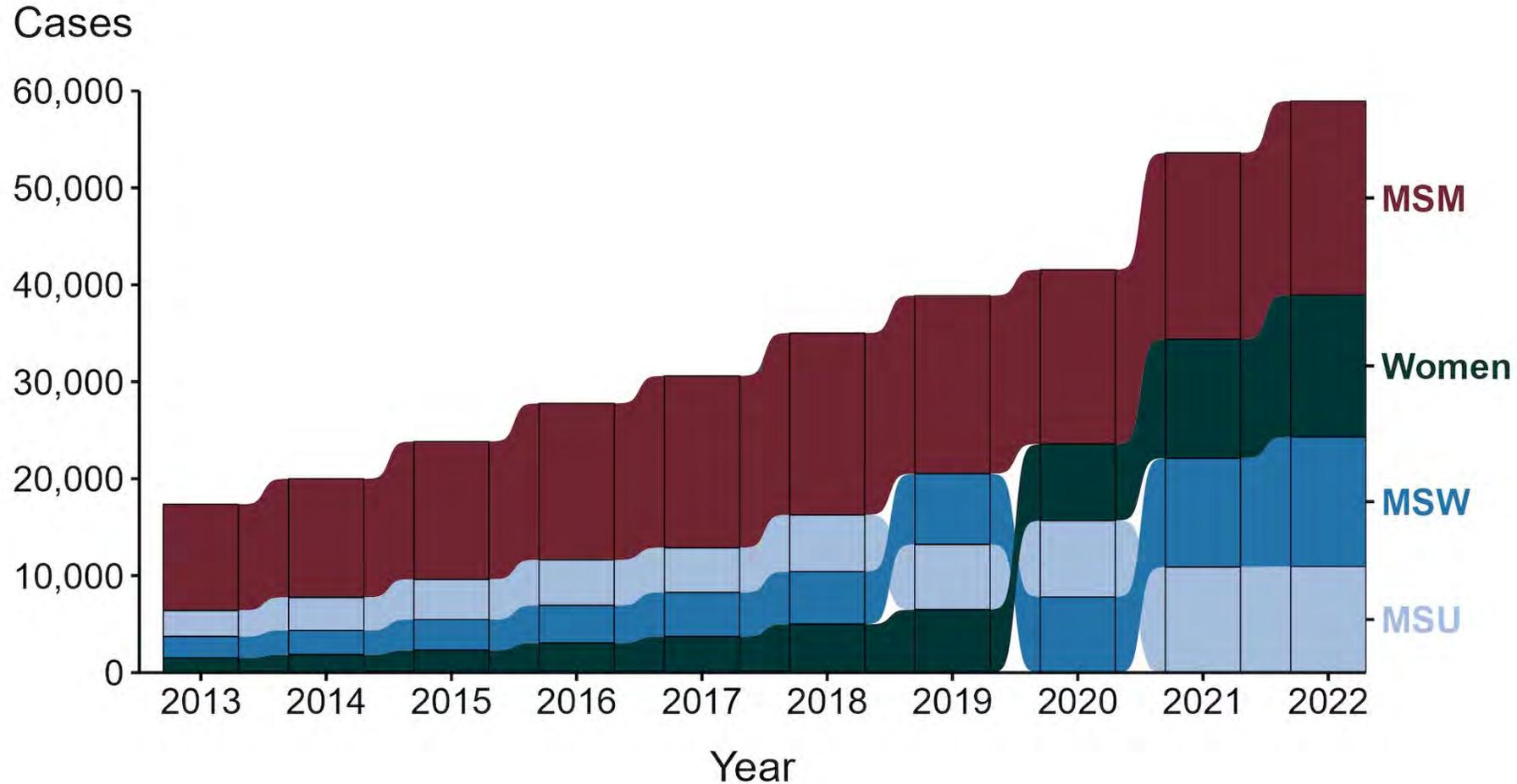
Getting In Sync with Sexual Health ECHO: Syphilis

Antonia Altomare, DO, MPH

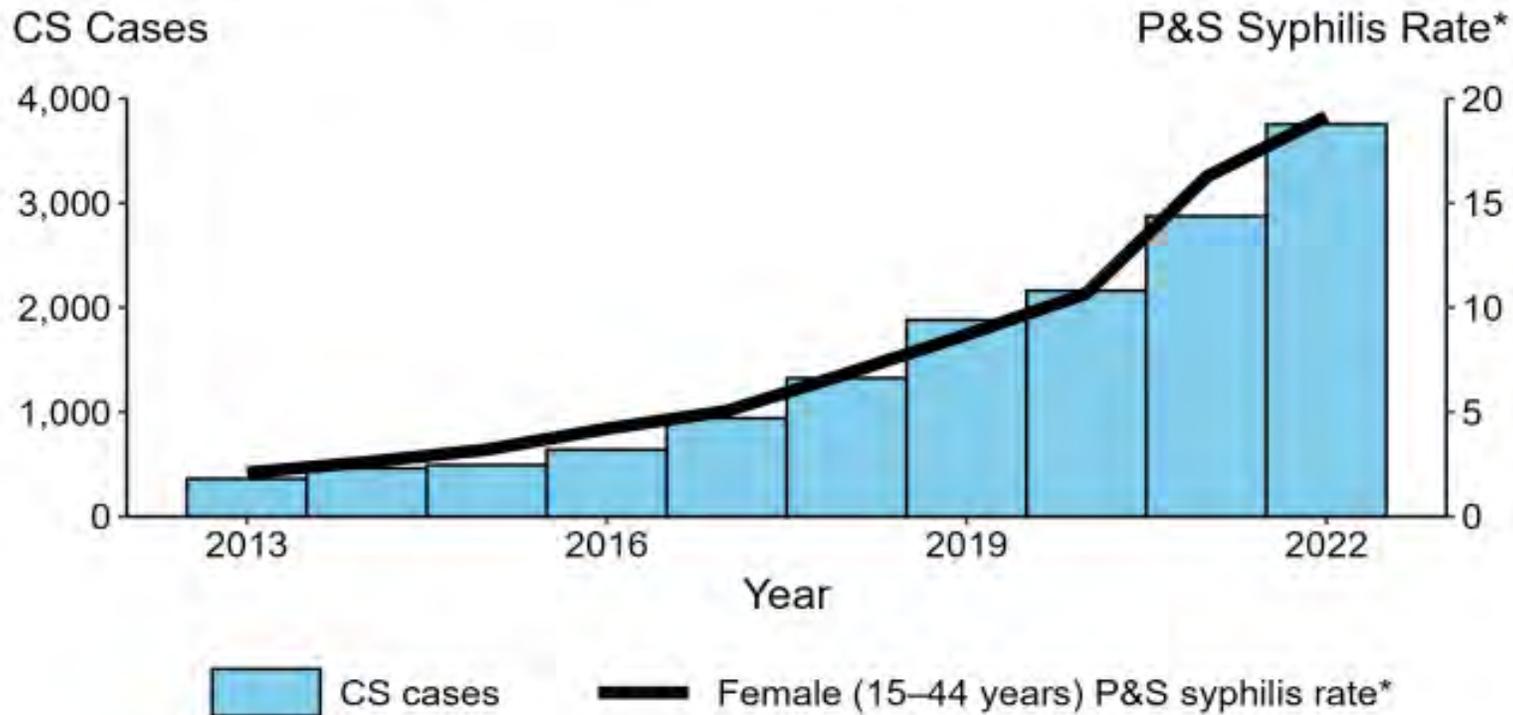
Infectious Diseases and International Health

Dartmouth Health

Primary and Secondary Syphilis — Reported Cases by Sex and Sex of Sex Partners, United States, 2013–2022



Congenital Syphilis — Reported Cases by Year of Birth and Rates of Reported Cases of Primary and Secondary Syphilis Among Women Aged 15–44 Years, United States, 2013–2022



[PNG - 128 KB]

** Per 100,000 _ACRONYMS: CS = Congenital syphilis; P&S Syphilis = Primary and secondary syphilis "

Vital Signs: Missed Opportunities for Preventing Congenital Syphilis — United States, 2022

10x

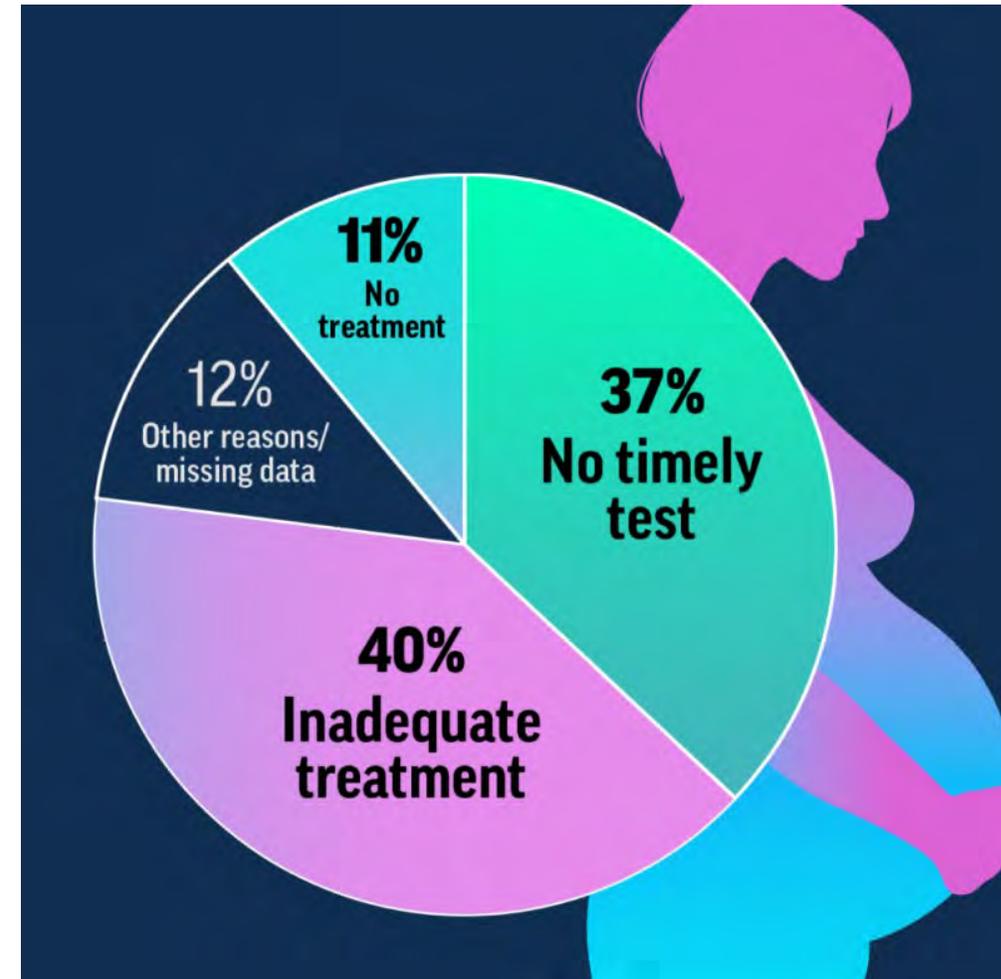
Over 10 times as many babies were born with syphilis in 2022 than in 2012.

9 in 10

Timely testing and treatment during pregnancy might have prevented almost 9 in 10 (88%) cases in 2022.

2 in 5

Two in 5 (40%) people who had a baby with syphilis did not get prenatal care.



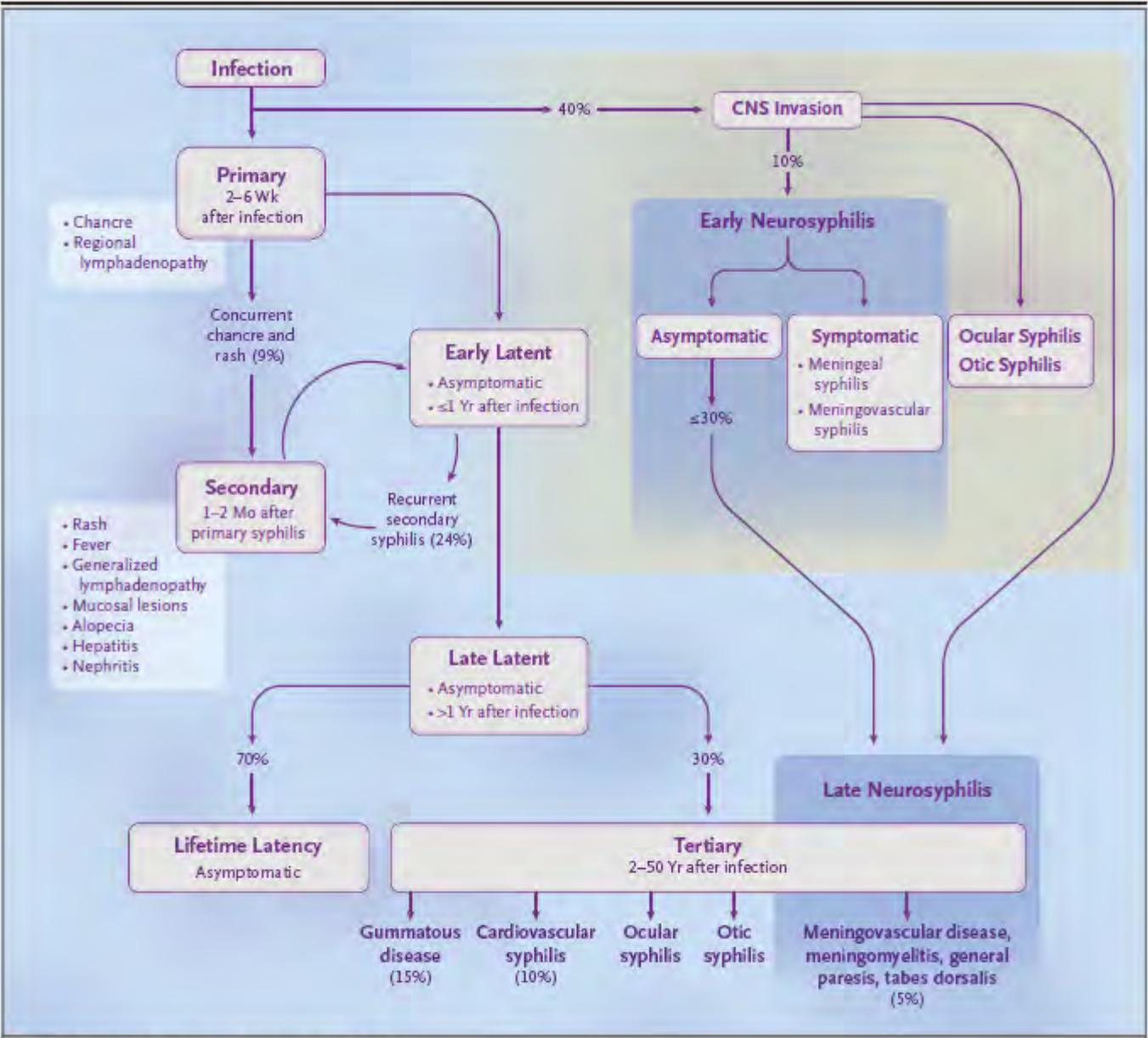


Figure 2. Natural History of Untreated Syphilis. The time intervals between stages of syphilis are shown, along with the approximate percentages of persons progressing to the indicated stages. Invasion of the central nervous system (CNS) by treponemes may not be a necessary prerequisite for the development of certain forms of ocular syphilis. Adapted from Ho and Lukehart.¹⁰



Images: CDC, Ocular Syphilis (ophthalmologybreakingnews.com), National STD Curriculum

USPSTF Screening Recommendations for Syphilis

2022

Population	Recommendation	Grade
Asymptomatic, nonpregnant adolescents and adults who are at increased risk for syphilis infection	The USPSTF recommends screening for syphilis infection in persons who are at increased risk for infection.	A

- Risk of syphilis is higher in men who have sex with men; persons with HIV infection or other sexually transmitted infections; persons who use illicit drugs; and persons with a history of incarceration, sex work, or military service.
- However, clinicians should be aware of how common syphilis infection is in their community and assess patient’s individual risk.

2018

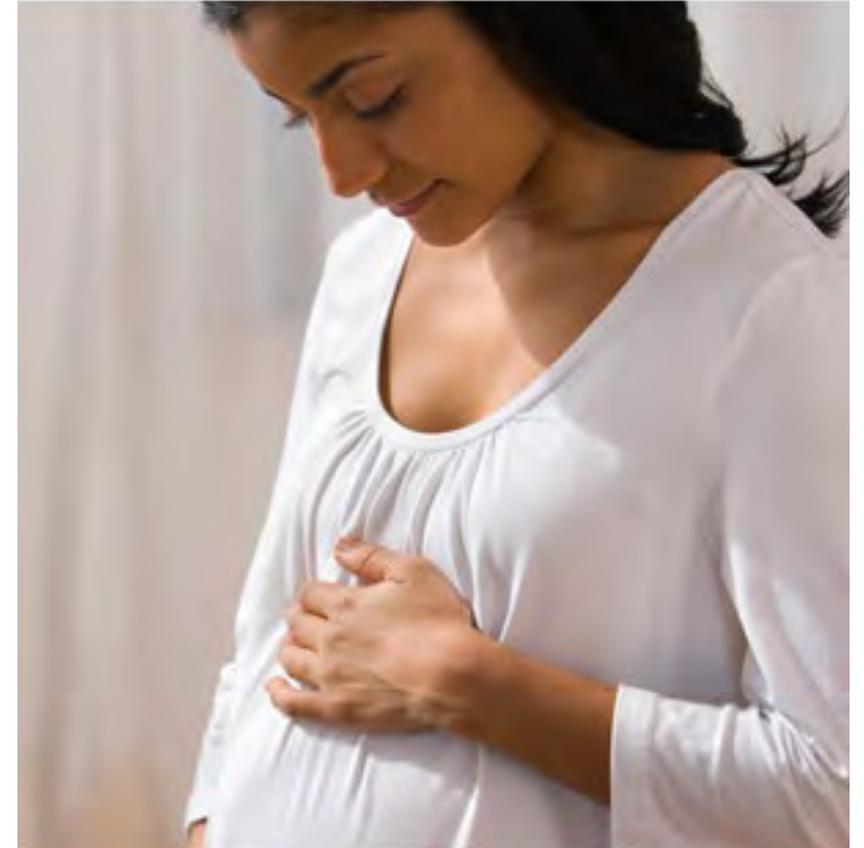
Population	Recommendation	Grade
Pregnant women	The USPSTF recommends early screening for syphilis infection in all pregnant women.	A

Syphilis Screening in Pregnancy – 2021 CDC STI Treatment Guidelines

- All pregnant women should be tested for syphilis at their first prenatal visit.
- For women at high risk for infection*, serologic testing should be performed twice during the third trimester: once at 28–32 wk gestation and again at delivery.
- Any woman who has a fetal death after 20 wk gestation should be tested for syphilis.
- No mother or neonate should leave the hospital without maternal serologic status having been documented at least once during pregnancy, and if the mother is considered high risk, documented at delivery.
- Concurrent HIV screening recommended for all pregnant woman.

*Women at high risk

- Diagnosed with a STI during pregnancy
- Exchanging sex for drugs or money
- Multiple sex partners
- Late entry into care (second trimester or later)
- No prenatal care
- Residence in an area of high syphilis prevalence
- Methamphetamine or heroin use
- Incarceration of woman or her partner
- Unstable housing or homelessness



Syphilis in Pregnancy

- Transplacental transmission of *T. pallidum* can occur at any time during gestation but occurs with increasing frequency as gestation advances.
- Women with untreated primary or secondary syphilis are more likely to transmit syphilis to their fetuses than women with latent disease.
- If acquired within 4 years of delivery, can lead to infection in fetus in 80% of cases and may result in stillbirth or infant death in up to 40%.
 - The risk of transmission is only 2% after four years.
- *T. pallidum* is not transferred in breast milk, but transmission may occur if the mother has a chancre on her breast.

Complications of syphilis in pregnancy

- Miscarriage
- Preterm birth
- Stillbirth
- Impaired fetal growth
- Congenital infection
- Neonatal mortality



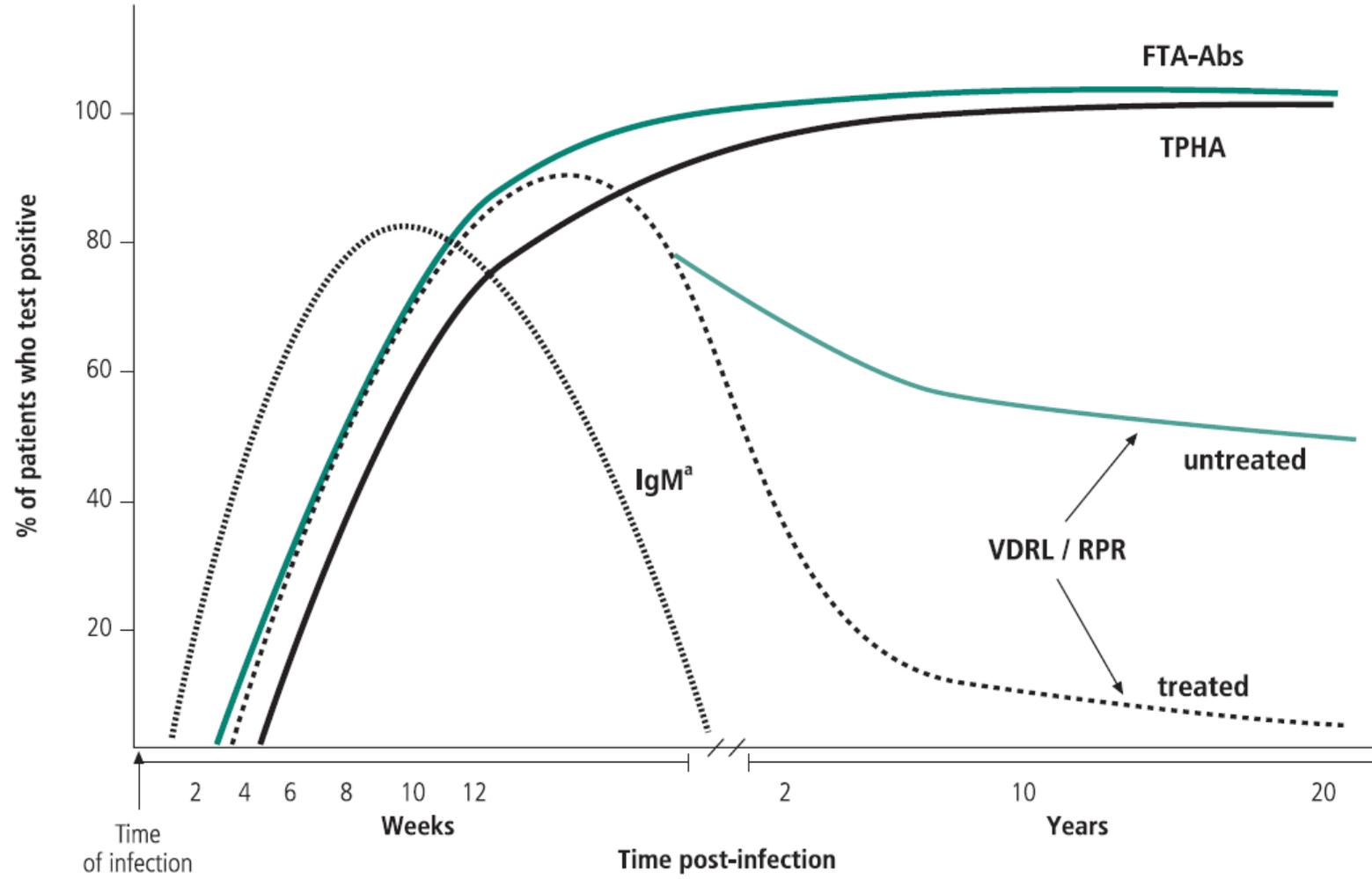
Congenital Syphilis

- Wide spectrum of clinical manifestations
- Only severe cases are clinically apparent at birth
 - 60-90% of live-born neonates with congenital syphilis are asymptomatic at birth
- Bones, liver, pancreas, intestine, kidney, and spleen are the most frequently and severely involved



Serologic Tests

- Nontreponemal – nonspecific, low cost, able to quantify response to treatment
 - Rapid plasma reagin (RPR)
 - Venereal Disease Research Laboratory (VDRL)
 - Tolidine Red Unheated Serum Test (TRUST)
- Treponemal – more complex, expensive, specific, qualitative
 - Fluorescent treponemal antibody absorption (FTA-ABS)
 - *T. pallidum* particle agglutination assay (TPPA)
 - *T. pallidum* enzyme immunoassay (TP-EIA)
 - Microhemagglutination test for antibodies to *Treponema pallidum* (MHA-TP)
 - Chemiluminescence immunoassay (CIA)

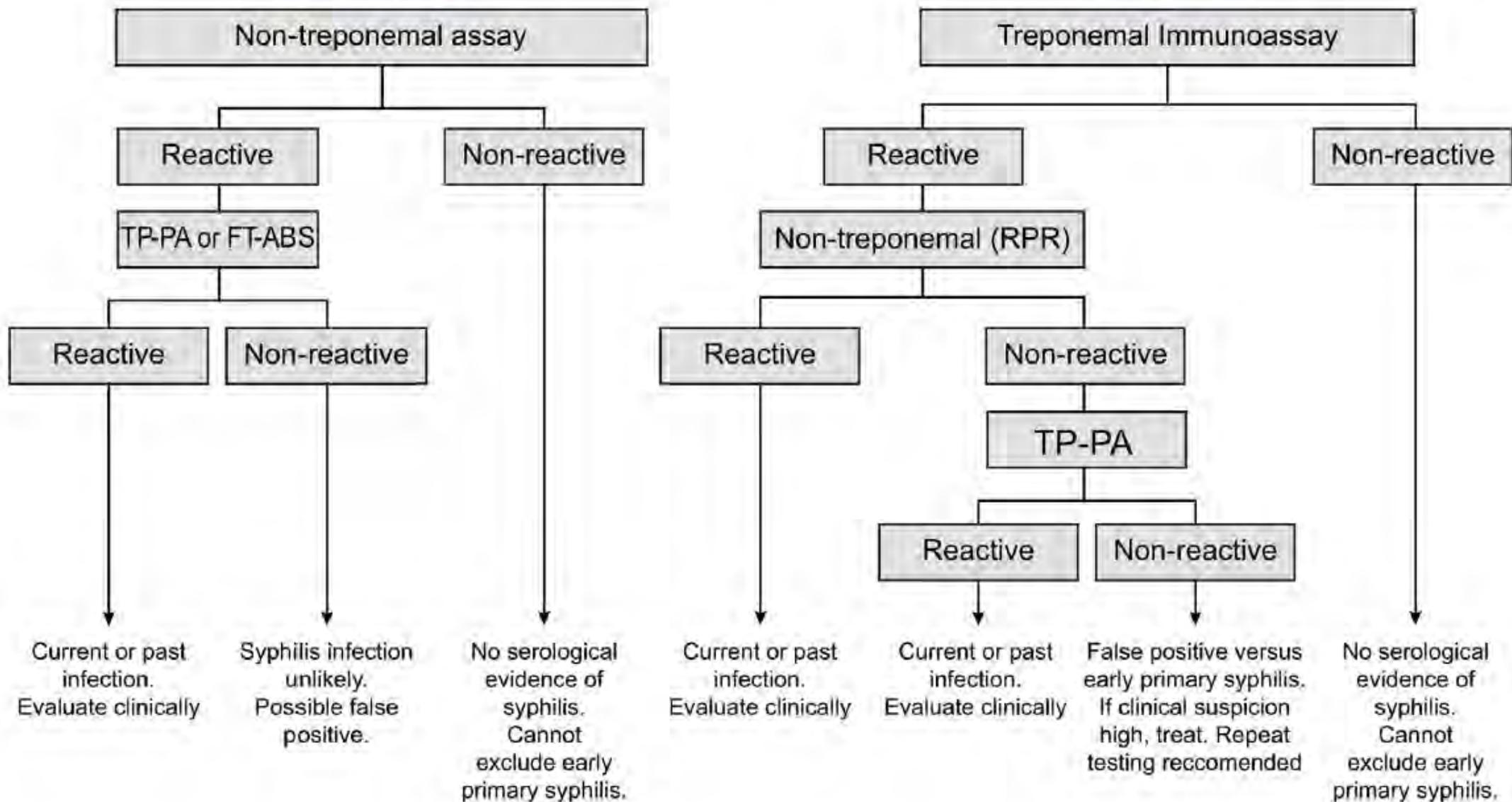


B

Screening Algorithms

Traditional

Reverse



False-positive tests

Nontreponemal tests

- Biologically due to pregnancy
 - 31% FP VDRL
- Acute febrile illness
- Recent immunization
- Autoimmune disorders
- IVDU
- Chronic liver disease
- HIV

Treponemal tests

- Biologically due to pregnancy
 - 47-88% FP TP-EIA or CIA
- Advanced age
- Tumor
- Dialysis
- Autoimmune disease
- Other spirochetal infections, malaria, leprosy

Hence all positive tests need confirmatory testing!

False-negative Nontreponemal test

- Very early infection (primary or secondary)
 - 20-30% of patients presenting with chancre will have negative nontreponemal test
- Prozone reaction
 - Antibody titers are high (as often seen in secondary syphilis), an overabundance of antibodies interferes with clumping of antigen-antibody complexes
 - Occurs in pregnancy, HIV and neurosyphilis
- Early treatment preventing antibody formation
- Late infection (nontreponemal tests become nonreactive over time)

Treatment of Syphilis

- Primary, secondary, or early latent (<1yr) syphilis
 - **Benzathine penicillin G 2.4 million units IM x 1**
 - Alternative: Doxycycline 100mg PO BID x 14 days
- Late latent (>1yr)
 - **Benzathine penicillin G 2.4 million units IM weekly x 3 weeks**
 - Alternative: Doxycycline 100mg PO BID x 28 days
- Neurosyphilis, ocular or otic syphilis
 - **IV Penicillin G x 14 days**
 - Alternative: Procaine penicillin G 2.4 million units IM once daily PLUS Probenecid 500 mg orally 4 times/day, both for 10–14 day

Treatment of Syphilis in Pregnancy

- **Penicillin is the gold standard for treatment.**
 - It is the only known effective antimicrobial for treating fetal infection and preventing congenital syphilis.
- Non-penicillin antibiotic regimens used for syphilis treatment in non-pregnant women are either contraindicated (eg, tetracycline, doxycycline), lack sufficient data regarding efficacy (eg, ceftriaxone), or do not cross the placental barrier completely so the fetus is not treated (eg, erythromycin, azithromycin).
- Missed doses >9 days between doses are not acceptable for pregnant women receiving therapy for late latent syphilis.

Jarisch-Herxheimer Reaction

- Acute systemic reaction that results from the rapid killing of spirochetes
 - Skin rash, fever/chills, tachycardia, arthralgias, pharyngitis, headache, leukocytosis
 - Onset 2-8 hours after treatment and resolves by 24 hours
 - Treatment is supportive
- Not an allergic reaction to penicillin
- More common in early stages of syphilis, higher bacterial load
- Has been reported in up to 45% of pregnant women and can lead to preterm labor, fetal heart rate abnormalities and stillbirth (depending on severity of fetal infection)
 - Consider giving first dose of Penicillin under 24hr continuous fetal monitoring

Follow up

- Extremely important to document response to therapy and to reevaluate for reinfection.
- Monitor signs, symptoms, or serologic changes in nontreponemal titers.
- The goal is to achieve a 4-fold or greater decline in nontreponemal titer.
- For primary and secondary syphilis
 - Check titers at 6 and 12 months after treatment (it may take up to 12 mo to see 4-fold decline)
 - For people with HIV check at 3, 6, 9, 12, 24 months (it may take up to 24 mo to see 4-fold decline)
- For latent syphilis
 - Check titers at 6, 12, 24 months after treatment
 - For people with HIV check at 6, 12, 18, 24 months

Sexually Transmitted Infections Treatment Guidelines, 2021

[Syphilis - STI Treatment Guidelines \(cdc.gov\)](https://www.cdc.gov)



<https://www.stdccn.org/>



National **STD** Curriculum

[Core Concepts - Syphilis - Self-Study Lessons 2nd Edition - National STD Curriculum \(uw.edu\)](https://www.uw.edu)

WELCOME to the Getting In Sync with Sexual Health ECHO: STIs – Testing, Treatment, and Prevention

Session 5, HSV, October 29, 2024

Today's Program:

- Brief housekeeping
- Didactic: HSV – Kim Allen
- Case Presentation: Kim Allen
- Discussion
- Summary
- Up Next

Notes:

- Raise virtual hand or enter comments in chat at any time. We will call on you when it works. Please mute otherwise.
- To protect individual privacy, please use non-identifying information when discussing cases.
- We will be recording the didactic part of these sessions. *Participating in these session is understood as consent to be recorded. Thank you!*
- Closed Captioning will be enabled during sessions
- Questions to ECHO Tech Support thru personal CHAT



Genital Herpes Simplex Virus

Kimberly Allen, APRN, CPNP-AC, FNP-BC (she/her)

Assistant Director of Clinical Medical Services

Dartmouth Student Health Service | Primary Care

Objectives

- Discuss epidemiology of herpes simplex virus (HSV) infections
- Understand how HSV is transmitted
- Recognize clinical features of HSV
- Discuss tests available for HSV diagnosis and screening recommendations
- Address management options for HSV infections
- Highlight importance of patient counseling

Epidemiology

- Chronic, lifelong viral infection
- Genital HSV infections can be caused by type 1 and/or type 2
- Most cases of recurrent infection are caused by HSV-2
- HSV-1 is increasingly the cause of genital infections, especially among young women and MSM populations
- According to the WHO, an estimated 3.8 billion people under the age of 50 (64.2%) have HSV-1 and 519.5 million people aged 15-49 (13.3%) have HSV-2
- Prevalence is highest in low- and middle-income countries, with seroprevalence up to 90% in populations in sub-Saharan Africa and Latin America

Seroprevalence in the United States

Figure 2. Trends in age-adjusted prevalence of herpes simplex virus type 1 among persons aged 14–49, for the total population and by race and Hispanic origin: United States, 1999–2000 through 2015–2016

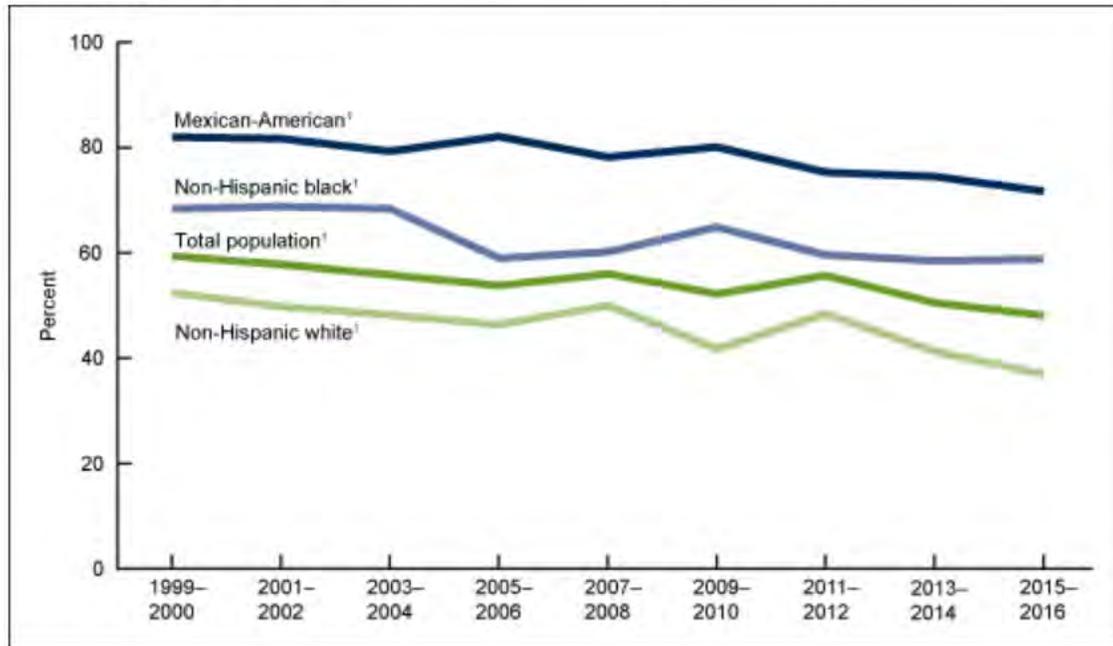
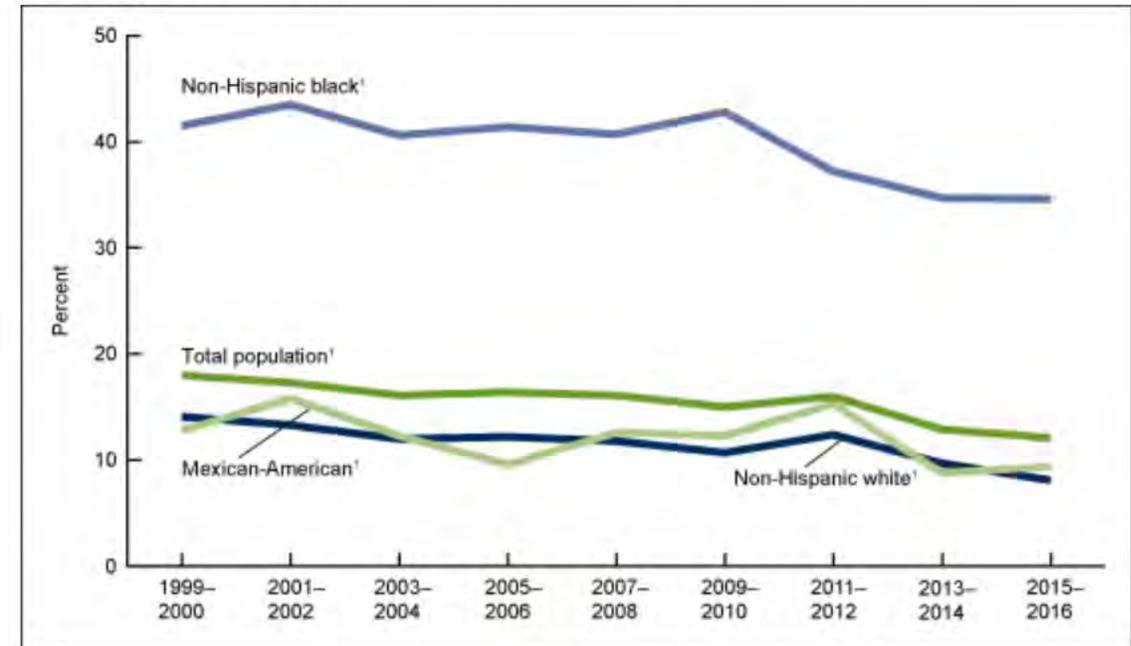


Figure 4. Trends in age-adjusted prevalence of herpes simplex virus type 2 among persons aged 14–49, for the total population and by race and Hispanic origin: United States, 1999–2000 through 2015–2016



Demographic Seroprevalence

Figure 1. Age-adjusted prevalence of herpes simplex virus type 1 among persons aged 14–49, by age group, sex, and race and Hispanic origin: United States, 2015–2016

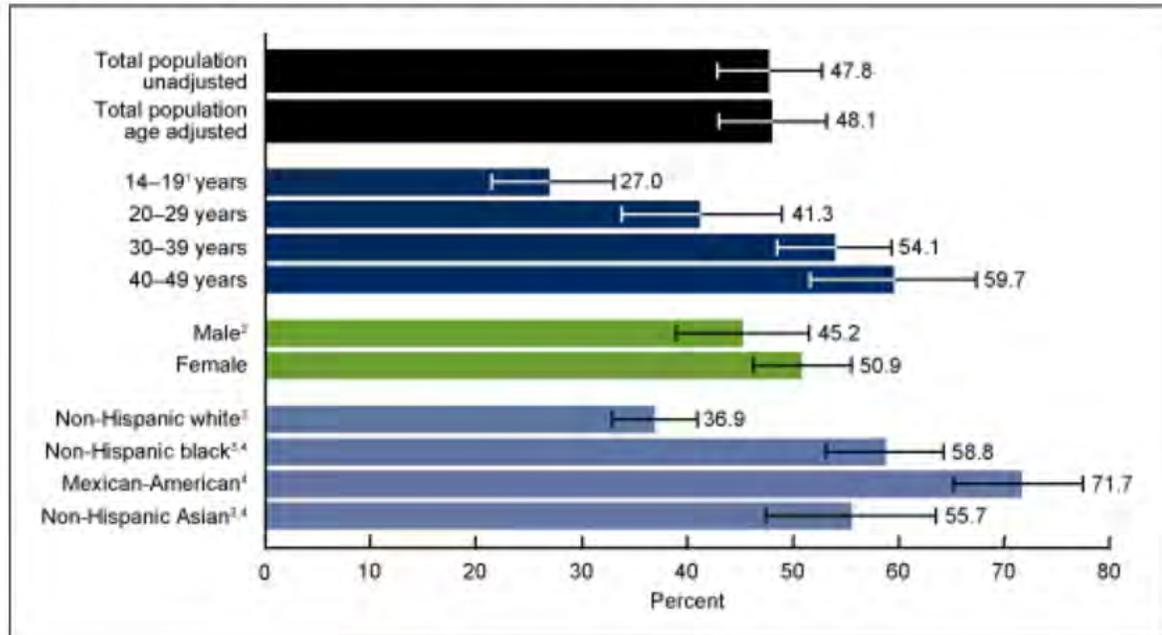
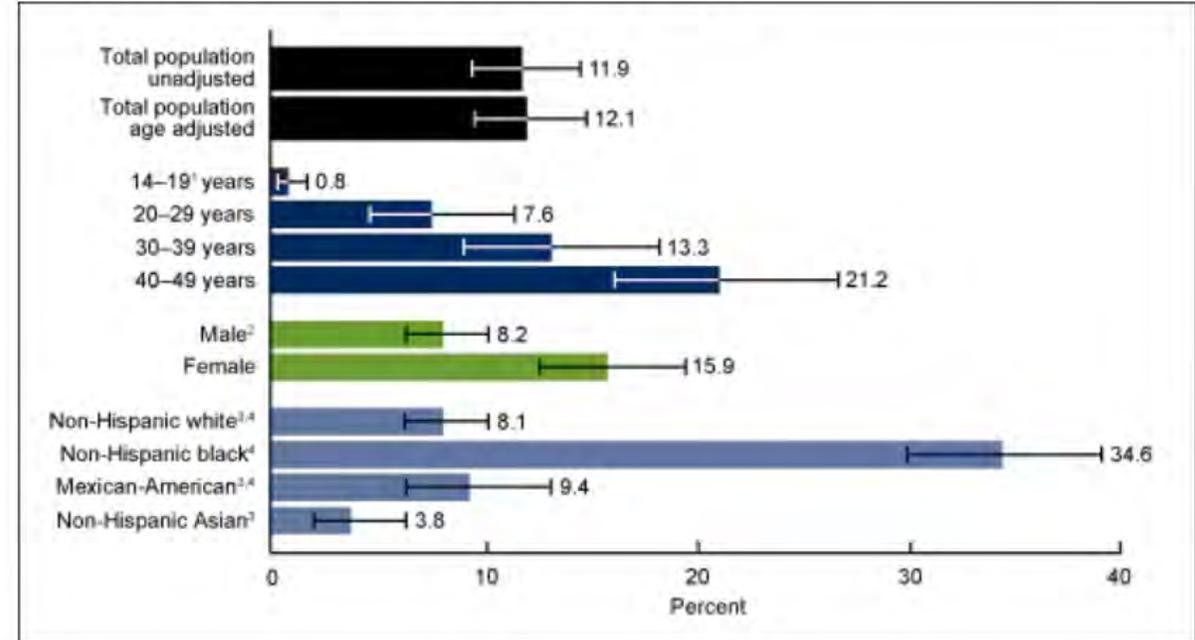


Figure 3. Age-adjusted prevalence of herpes simplex virus type 2 among persons aged 14–49, by age group, sex, and race and Hispanic origin: United States, 2015–2016



Transmission

- Occurs via contact with virus
- Asymptomatic intermittent viral shedding occurs after primary infection, even in the absence of genital lesions
- Most genital herpes infections are transmitted by people unaware that they have the infection or who are asymptomatic

Primary Infection

- Average incubation period for genital herpes is four days (range two to 12 days)
- Clinical manifestations are highly variable
- Initial presentation can be severe with painful genital ulcers, dysuria, fever, tender local inguinal lymphadenopathy, and headache
- However, the infection can also be mild, subclinical, or entirely asymptomatic
- Symptoms seem to be more severe in women than in men
- There are no clear differences in clinical presentation for HSV-1 vs HSV-2



Recurrent Infection

- More common with HSV-2 vs HSV-1 (60% vs 14%) and in immunocompromised patients
- Typically less severe than primary infection
- Mean duration of lesions is generally shorter (10 versus 19 days) and the duration of viral shedding is usually two to five days
- Systemic symptoms are infrequent - approximately 25% of recurrent episodes are completely asymptomatic
- As many as 50% have prodromal symptoms before eruption such as local mild tingling or shooting pains in the buttocks, legs, and hips

Diagnosis

- Virologic Tests
 - Testing of choice when lesions are present
 - HSV PCR assays - more sensitive than viral cultures
- Serologic Tests
 - Type-specific antibodies develop during the first several weeks after infection and persist indefinitely
 - USPSTF recommends against routine serologic screening for genital HSV in asymptomatic adolescents and adults, including pregnant persons.
 - Consider screening for select populations
 - Pregnant persons with history of genital ulcers without confirmatory HSV testing
 - Individuals who have a partner with HSV

Management – First Episode of Genital HSV

Recommended Regimens*

Acyclovir† 400 mg orally 3 times/day for 7–10 days

OR

Famciclovir 250 mg orally 3 times/day for 7–10 days

OR

Valacyclovir 1 gm orally 2 times/day for 7–10 days

* Treatment can be extended if healing is incomplete after 10 days of therapy.

†Acyclovir 200 mg orally five times/day is also effective but is not recommended because of the frequency of dosing.

Episodic Therapy

Recommended Regimens for Episodic Therapy for Recurrent HSV-2 Genital Herpes*

Acyclovir 800 mg orally 2 times/day for 5 days
OR

Acyclovir 800 mg orally 3 times/day for 2 days
OR

Famciclovir 1 gm orally 2 times/day for 1 day
OR

Famciclovir 500 mg once, followed by 250 mg 2 times/day for 2 days
OR

Famciclovir 125 mg 2 times/day for 5 days
OR

Valacyclovir 500 mg orally 2 times/day for 3 days
OR

Valacyclovir 1 gm orally once daily for 5 days

Suppressive Therapy for Genital HSV-2

- Reduces frequency of recurrences by 70%–80%
- Decreases the rate of HSV-2 transmission for discordant heterosexual couples
- Adverse events and development of resistance related to long-term antiviral use are uncommon

Recommended Regimens

Acyclovir 400 mg orally 2 times/day

OR

Valacyclovir 500 mg orally once a day*

OR

Valacyclovir 1 gm orally once a day

OR

Famciclovir 250 mg orally 2 times/day

Pain Management

- Tylenol/Ibuprofen
- Topical lidocaine
- Sitz Baths
- Cool compresses
- Pour warm water over genitals while urinating

Special Considerations - HIV

- Lesions might be severe, painful, and atypical and may worsen during first six months of ART due to an immune reconstitution inflammatory syndrome (IRIS)
- Viral shedding is increased
- Recommended therapy for first-episode is the same as for persons without HIV infection, although treatment courses might need to be extended for lesion resolution.
- Suppressive or episodic therapy decreases the symptom severity, but does not reduce the risk for either HIV or HSV transmission

CDC Sexually Transmitted Infections Guidelines, 2021

Recommended Regimens for Daily Suppressive Therapy Among Persons with HIV

Acyclovir 400–800 mg orally 2-3 times/day

OR

Famciclovir 500 mg orally 2 times/day

OR

Valacyclovir 500 mg orally 2 times/day

Recommended Regimens for Episodic Infection Among Persons with HIV

Acyclovir 400 mg orally 3 times/day for 5–10 days

OR

Famciclovir 500 mg orally 2 times/day for 5–10 days

OR

Valacyclovir 1 gm orally 2 times/day for 5–10 days

Special Considerations - Pregnancy

- Neonates can acquire HSV infection by intrauterine, perinatal, or postnatal transmission; most cases are acquired perinatally. Neonatal HSV infection causes serious morbidity and mortality and leaves many survivors with permanent sequelae.
- Prevention of neonatal herpes depends both on preventing acquisition of genital herpes during late pregnancy and avoiding exposure of the neonate to herpetic lesions and viral shedding during delivery.
- The risk for transmission to the neonate from an infected mother is high (30%–50%) among people who acquire genital herpes near the time of delivery and low (<1%) among people with prenatal histories of recurrent herpes or who acquire genital herpes during the first half of pregnancy.
- Those with recurrent genital herpetic lesions at the onset of labor should have a cesarean delivery to reduce the risk for neonatal HSV infection. Suppressive treatment starting at 36 weeks' gestation reduces the frequency of cesarean delivery.

Prevention of Transmission

- Condoms should be always used by patients with history of genital lesions or who only have serologic evidence of HSV-2
- Consistent condom use can decrease the risk of HSV-2 transmission to an uninfected partner by up to 96%.
- Transmission still remains a possibility even with consistent condom use due to shedding of virus from mucosa not shielded by condoms. Also commonly related to unprotected oral-genital contact.
- Persons with genital HSV-1 infection remain susceptible to HSV-2 infection.
- Serologic testing should be considered for partners without a clear diagnosis of genital HSV. Couples who are serologically discordant should be advised to abstain from intercourse when active lesions or prodromal symptoms are present.

Counseling

- It is important to recognize the psychological effects of a genital HSV diagnosis.
- Diagnosis may evoke anger, disbelief, low self-esteem, and fear of rejection by present and future sexual partners.
- Patients often benefit from learning about the chronic aspects of the disease after the acute illness subsides.
- Resources
 - CDC - <https://www.cdc.gov/std/herpes/>
 - National Sexually Transmitted Diseases (STD)/HIV Hotline – (800) 232 4636
 - American Sexual Health Association - <https://www.ashasexualhealth.org/herpes/>
 - National Herpes Hotline - (919) 361-8488

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