



SRAETTA

Sexual Risk Avoidance Education
Training and Technical Assistance

The Impact of the STI Epidemic on Adolescent Thriving

MICHAEL MITAKIDIS, M.D.

Medical Institute for Sexual Health

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ADMINISTRATION FOR
CHILDREN & FAMILIES

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Michael Mitakidis, M.D.

Medical Institute for Sexual Health

Michael serves as the Medical Institute's Chief Scientific Officer. He has held national and international healthcare leadership roles in Africa, Asia, and the U.S., serving in HIV/AIDS, community, and public health. He is passionate about strengthening communities.



Overview of Presentation

This session will give a basic overview of the current STD/STI trends among youth and the implications of this epidemic on the physical and emotional well-being of teens.



Outline

1. **Basics:** Recap of STD/STI principles
2. **Trends:** STD/STI prevalence among youth
3. **Impact:** Implications of epidemic on the physical and emotional well-being of teens
4. **What's ahead:** Challenges and opportunities
5. **Q&A**



1.1. Basics: Recap of STD/STI principles

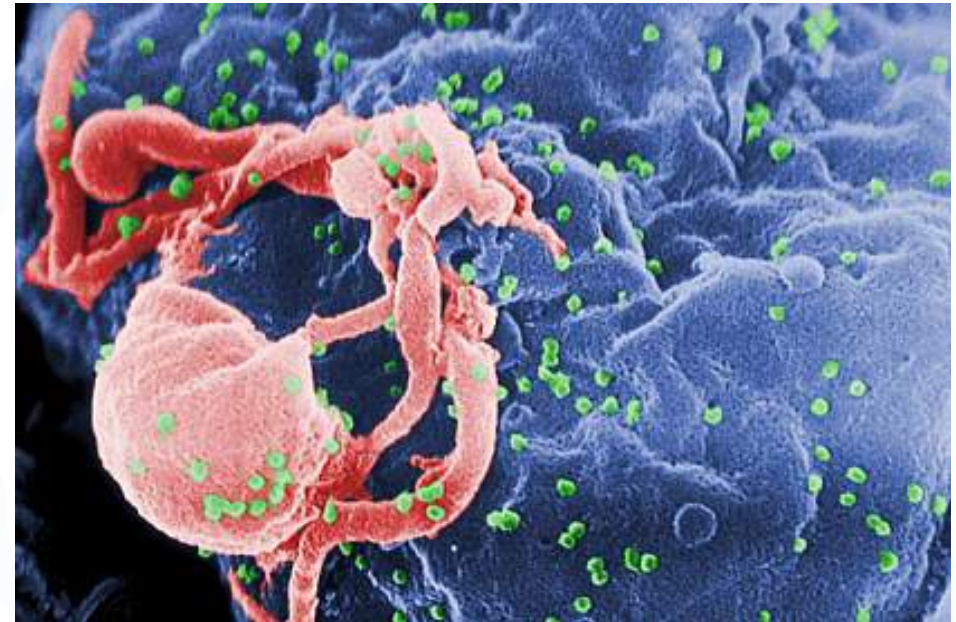
- Organisms: Bacteria, virus, or parasite
- Transmission: skin-skin and via bodily fluids (mainly through sexual activity — vaginal, oral, and anal sex)
- Skin-skin transmission: condom coverage area \neq site of STD lesion
- Other routes: mother-to-child, breastfeeding, needle sharing, blood products



1.2. Basics: Recap of STD/STI principles

Risk factors:

- Sexual activity transmission risk: anal receptive > anal insertive > vaginal > oral
- Needle sharing
- Multiple partners
- Concomitant STD: Genital herpes (HSV-2) is associated with a 2- to 3-fold increased risk for HIV infection
- Immune status (e.g., AIDS)
- Organism virulence
- Vaccination status (HPV, HBV, HAV)



Electron micrograph of HIV-1 (green) budding from an immune cell C.
Goldsmith, P. Feorino, E. L. Palmer and W. R. McManus, CDC.

1.3. Basics: Recap of STD/STI principles

- Treatable: bacterial (mostly); viral (manageable); parasites/ yeast (mostly)
- Complications may not be reversible
- Preventable: primary prevention > other types of prevention
- Asymptomatic STI = no treatment, rapid spread, underlying damage (subclinical PID), malignancy



TRENDS



2.1. Trends: STD/STI prevalence among youth

- The STD/STI epidemic in the U.S. has had unprecedented increases.
- On any given day in 2018, 1 in 5 people had an STI — totaling nearly 68 million infections.
- Of the 26 million new infections in 2018, almost half were among youth aged 15-24.
- Chlamydia, trichomoniasis, genital herpes, and HPV comprised 97.6% of all prevalent and 93.1% of all incident STIs.
- We are seeing the highest number of congenital syphilis cases ever reported.



2.2. Trends: STD/STI prevalence among youth

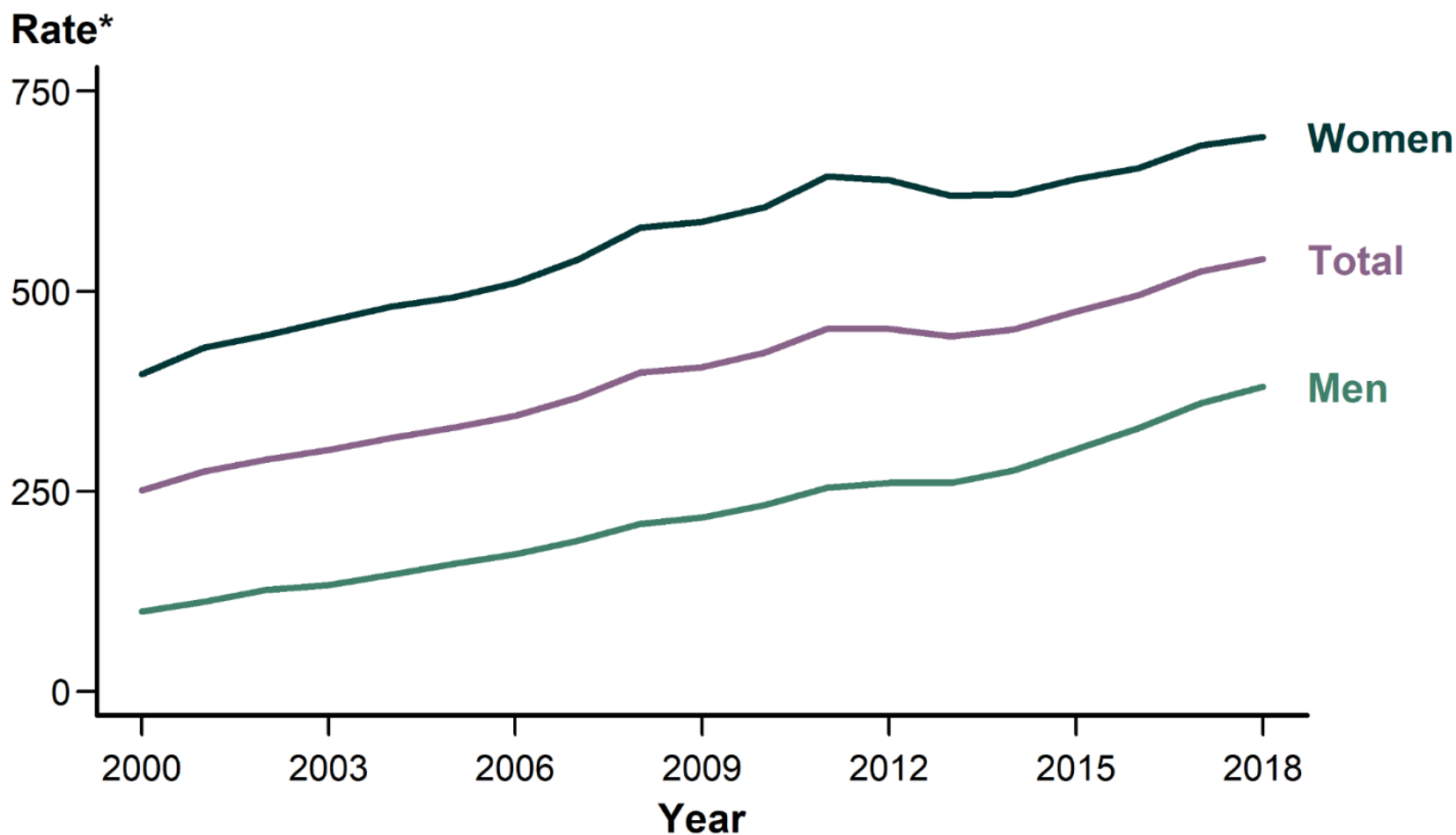
Why are adolescents uniquely at risk for STD/STIs?

- Prefrontal cortex (executive function) still developing
- More likely to engage in high-risk sexual behavior (e.g., concurrent partners, sex without a condom)
- Less likely than adults to utilize sexual healthcare services
- Adolescent females susceptible to STDs (HPV) due to lower production of cervical mucous and increased cervical ectopy

Therefore: Adolescents have a higher chance of STD exposure and lower chance of screening/diagnosis and treatment.



Chlamydia — Rates of Reported Cases by Sex, United States, 2000–2018

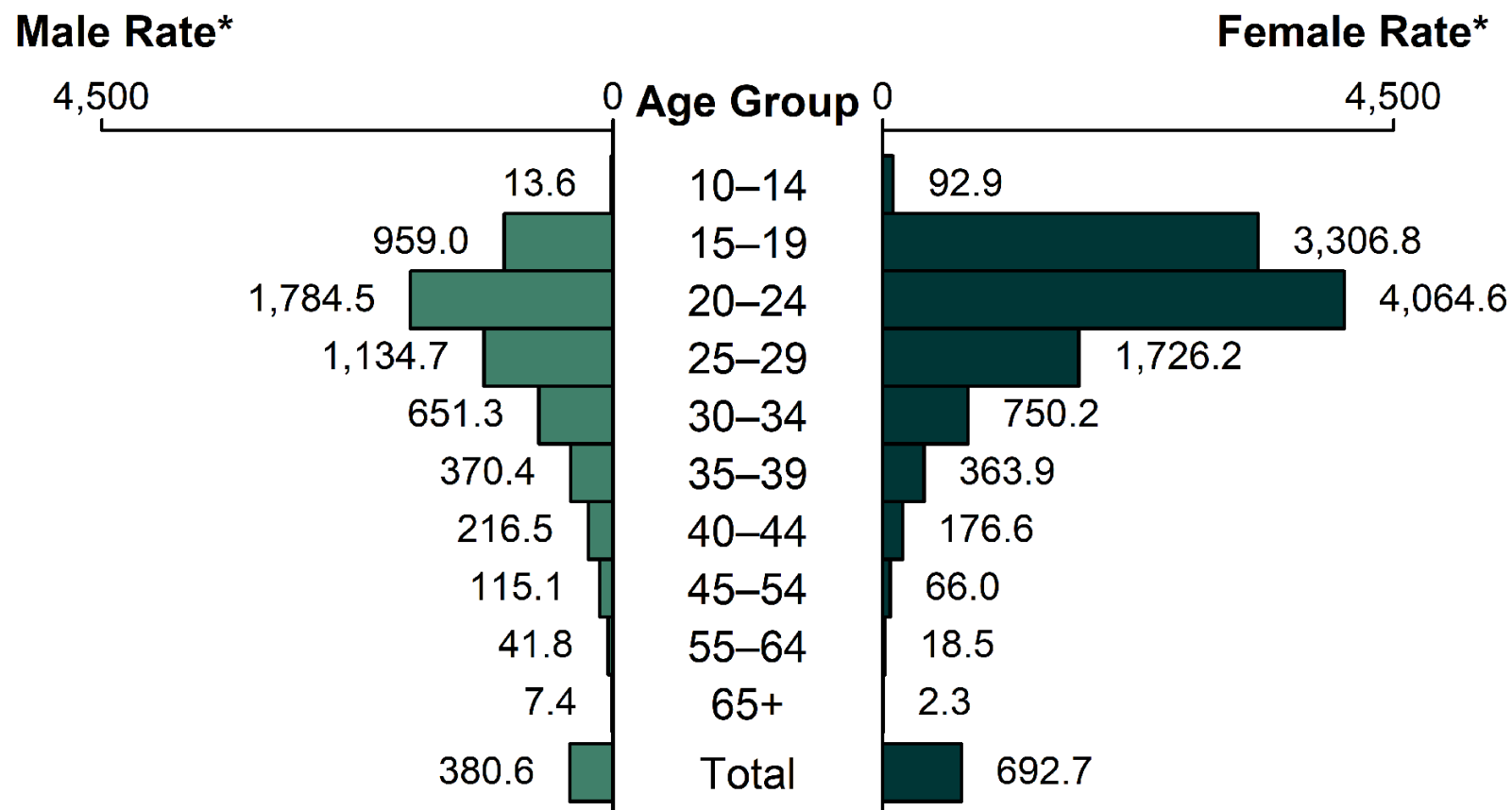


* Per 100,000.

NOTE: See sections A1.3 and A1.8 in the Appendix for more information on chlamydia case reporting and interpreting trends in chlamydia case reports.

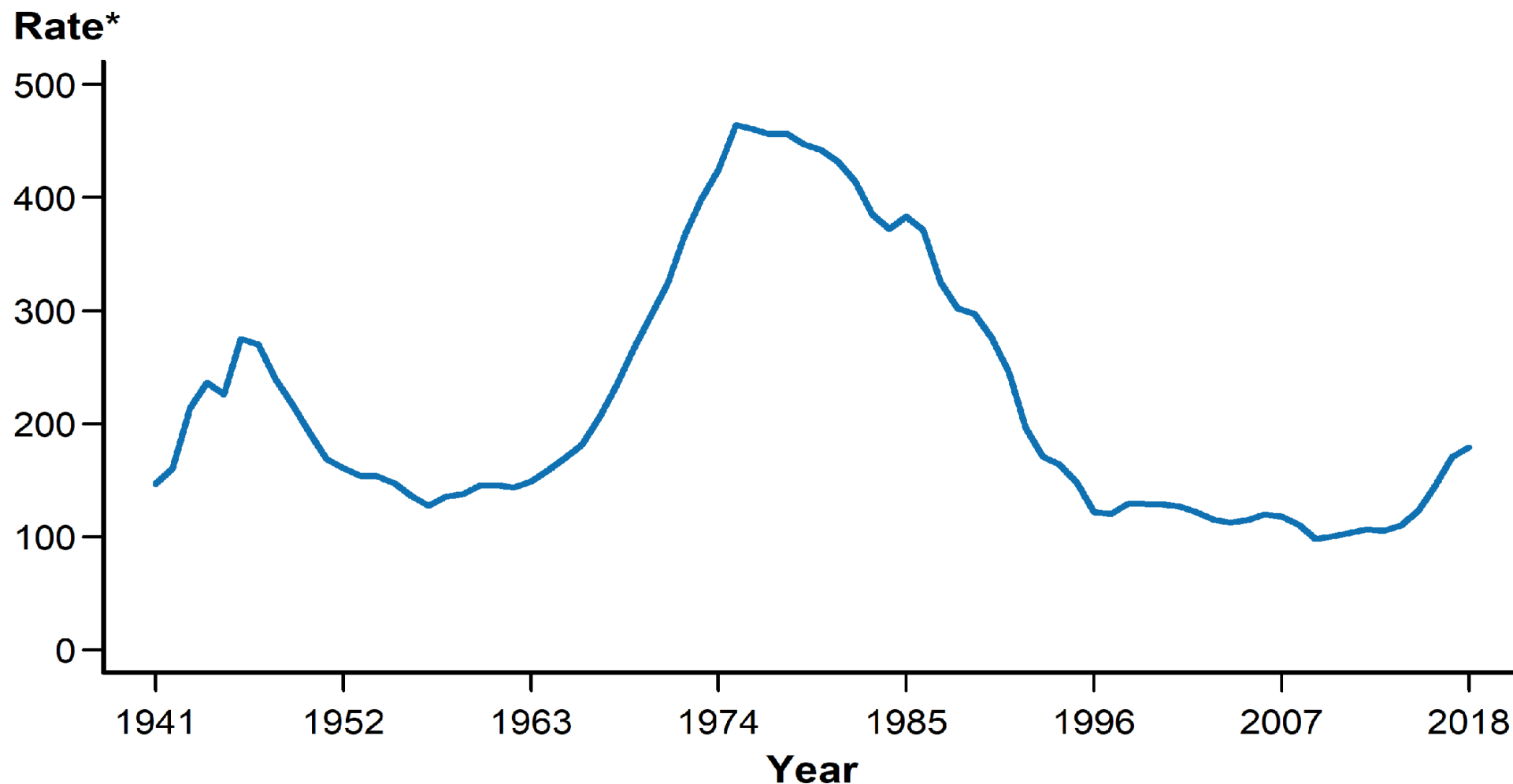


Chlamydia — Rates of Reported Cases by Age Group and Sex, United States, 2018



* Per 100,000

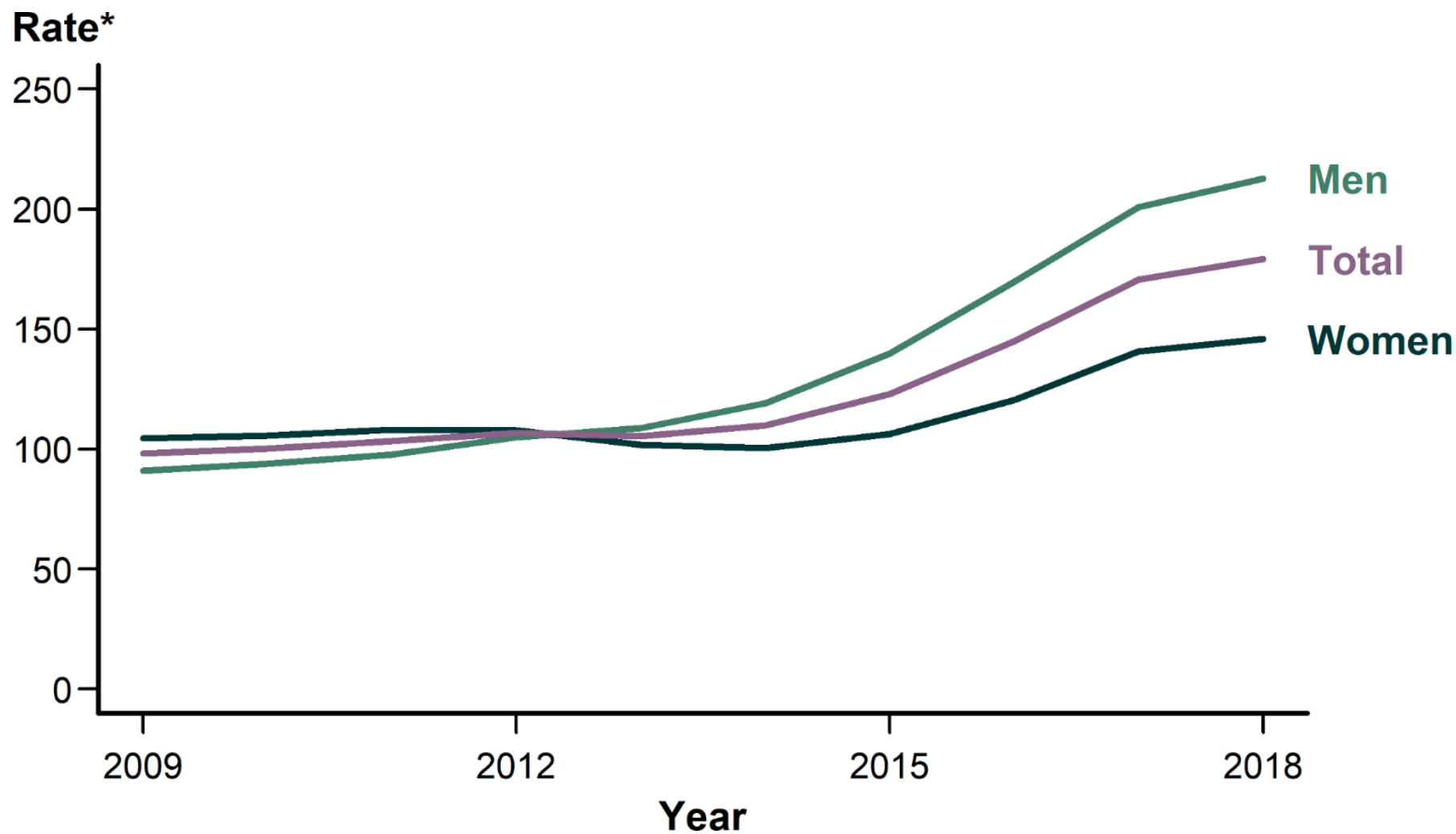
Gonorrhea — Rates of Reported Cases by Year, United States, 1941–2018



* Per 100,000

NOTE: See section A1.3 in the Appendix for more information on gonorrhea case reporting.

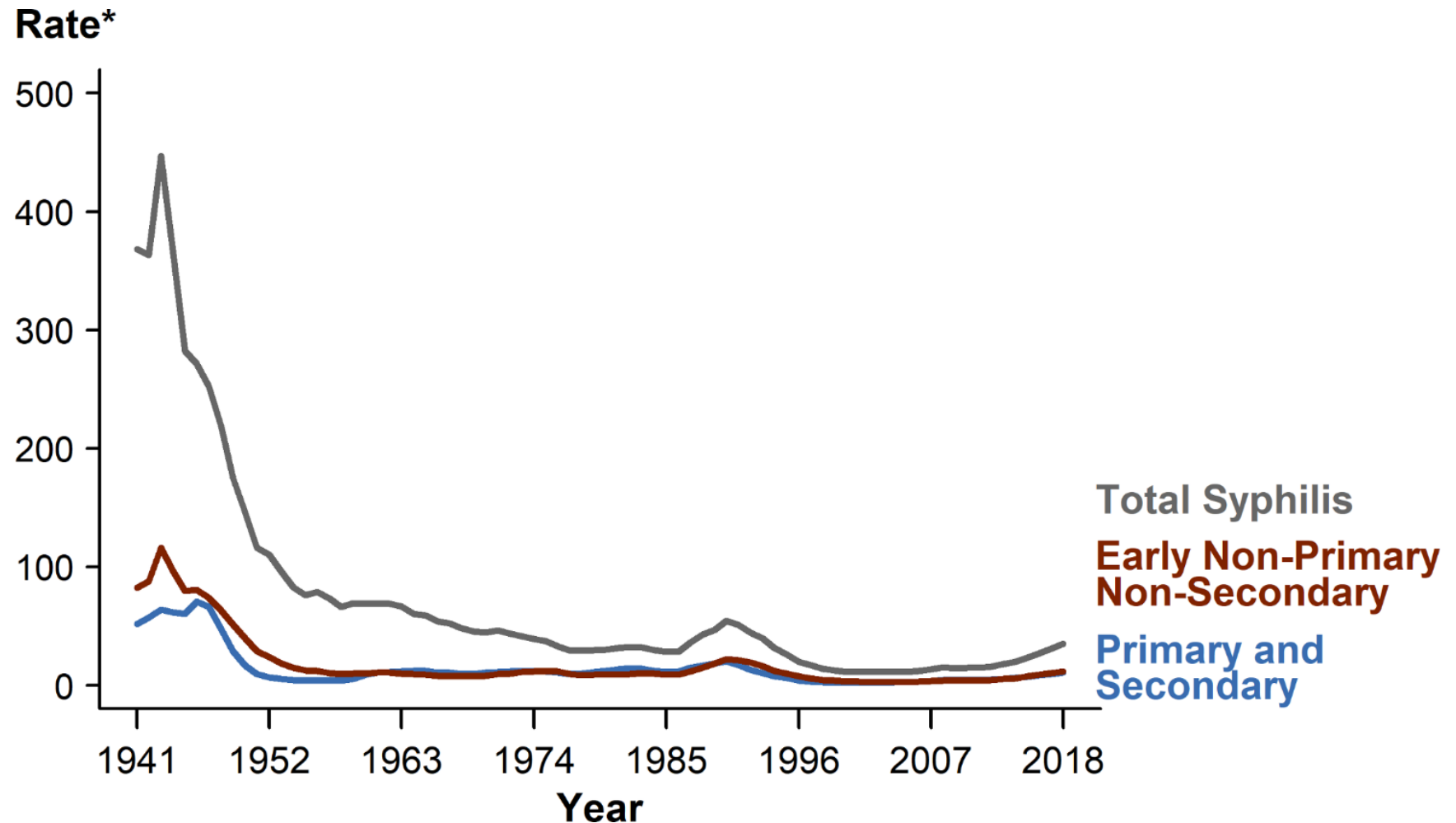
Gonorrhea — Rates of Reported Cases by Sex, United States, 2009–2018



* Per 100,000



Syphilis — Rates of Reported Cases by Stage of Infection, United States, 1941–2018

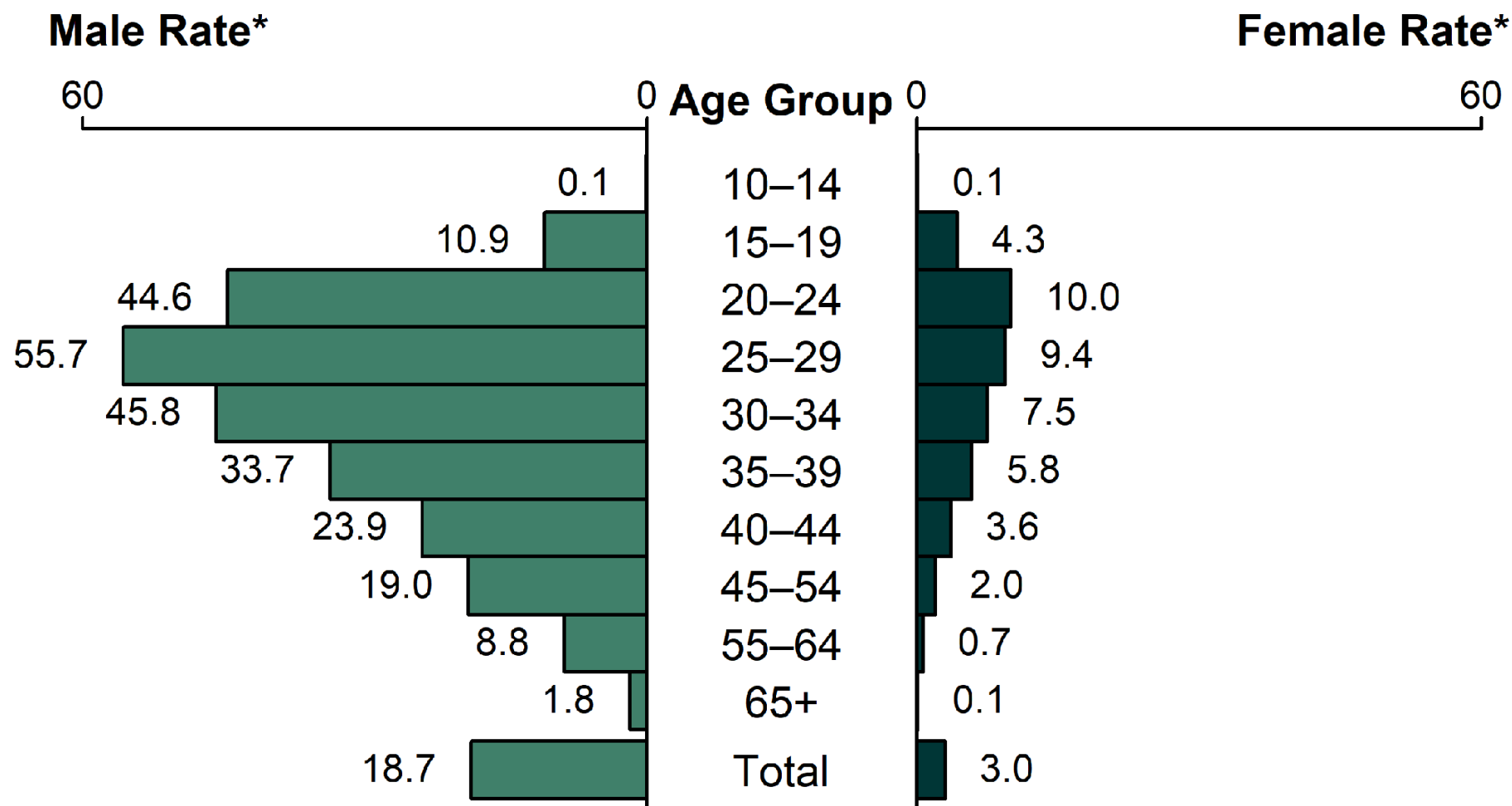


* Per 100,000

NOTE: See section A1.3 in the Appendix for more information on syphilis case reporting.

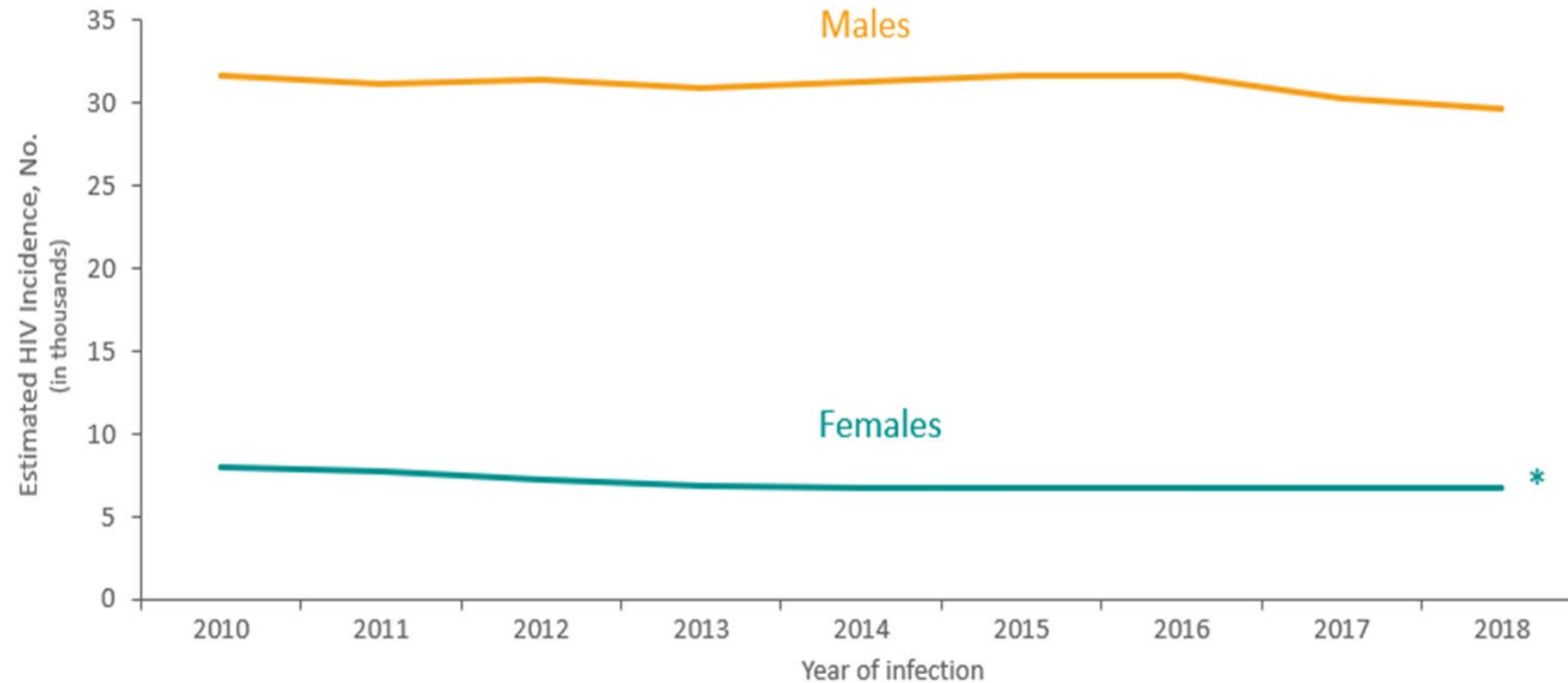


Primary and Secondary Syphilis — Rates of Reported Cases by Age Group and Sex, United States, 2018



* Per 100,000

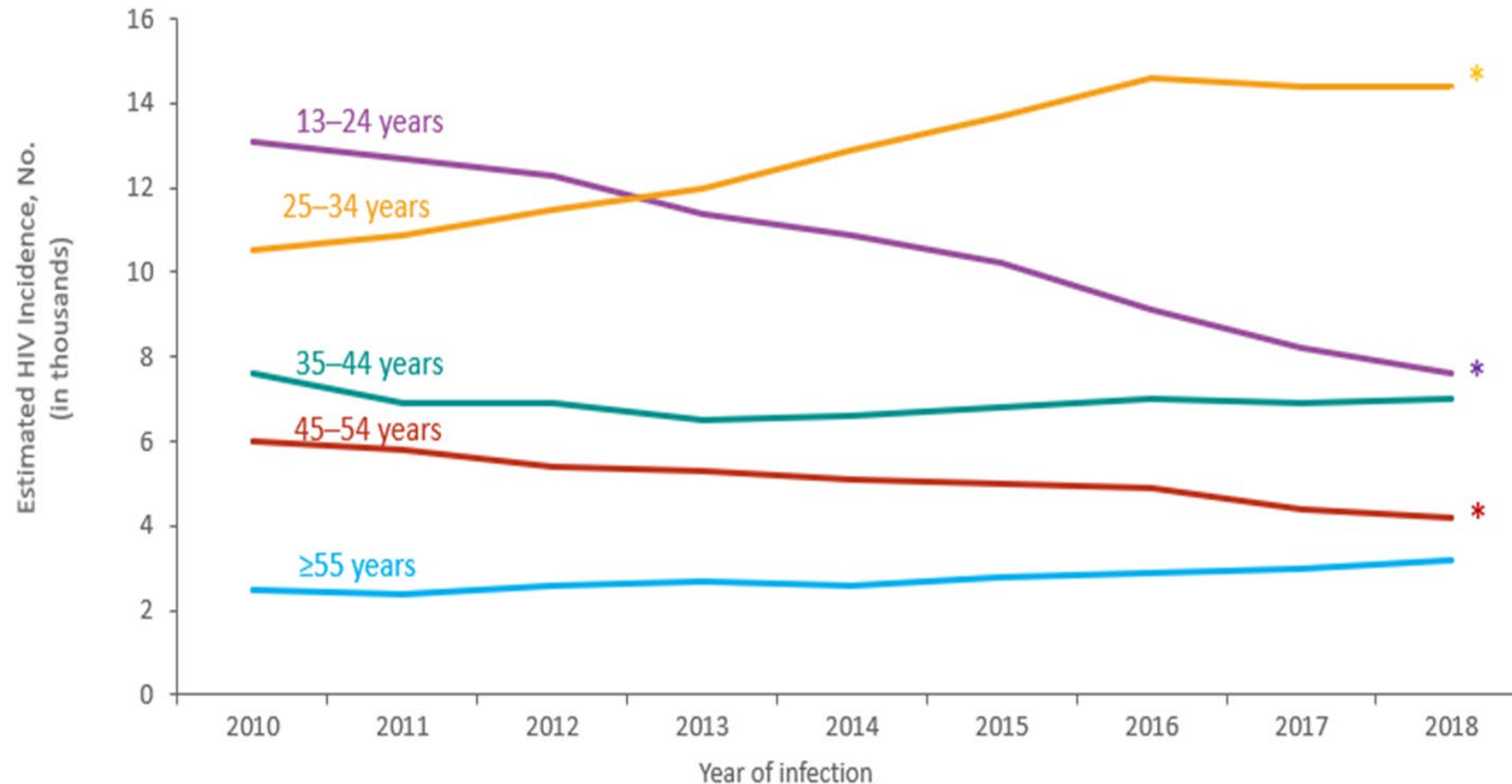
Estimated HIV Incidence among Persons Aged ≥13 Years, by Sex at Birth, United States, 2010–2018



Note: Estimates were derived from a CD4 depletion model using HIV surveillance data.

*Difference from the 2010 estimate was deemed statistically significant ($P < .05$).

Estimated HIV Incidence among Persons Aged ≥13 Years, by Age, United States, 2010–2018



Note: Estimates were derived from a CD4 depletion model using HIV surveillance data.

*Difference from the 2010 estimate was deemed statistically significant ($P < .05$).

2.3. Trends: STD/STI prevalence among youth

Among U.S. **high school students** surveyed in 2019:

- 38% had ever had sexual intercourse
- 9% had four or more sexual partners
- 7% had been physically forced to have sexual intercourse when they did not want to
- 27% had had sexual intercourse during the previous 3 months, and, of these:
 - 46% did not use a condom the last time they had sex
 - 12% did not use any method to prevent pregnancy
 - 21% had drunk alcohol or used drugs before last sexual intercourse

Less than 10% of all students have ever been tested for HIV.

Less than 10% of all students have been tested for sexually transmitted diseases during the past year.

Source: *National Youth Risk Behavior Survey, 2019*



IMPACTS



3.1. Impact: Implications of epidemic on teen thriving

Present impact:

- Array of physical/ pathological manifestations (infestations, skin lesions, urethritis, cervicitis, endometritis, pelvic inflammatory disease, etc.)
- Emotional and mental health impact
- Impact on pregnancy/ baby's transmission
- Sexual partner



3.2. Impact: Implications of epidemic on teen thriving

Potential long-term consequences:

- PID, ectopic pregnancy, infertility
- Various cancers (anogenital, oral, liver cancers)
- Chronic illness (adhesions, chronic pain)
- Work incapacitation
- Relationships and scholastic achievement

Economic drain: individual and healthcare system

Other: STD drug resistance



OPPORTUNITIES



4.1. What's ahead: Challenges

1. Role of COVID-19 on STD/STIs
2. Role of sexual violence, sex trafficking, and “stealthing”
3. Prevention to also focus on hard-hit populations



4.2. What's ahead: Opportunities

1. Primary prevention in SRAE: “The surest way to avoid STDs is to abstain from vaginal, anal, and oral sex, or to be in a long-term mutually monogamous relationship with a partner who has been tested and is known to be uninfected.”-CDC
2. Benefits of delayed sexual activity
3. Strengthening SRAE curricula
4. Behavioral counseling interventions (U.S. Preventive Services Task Force)



4.3. What's ahead: Opportunities

OPRE report: Benefits of **delayed sexual activity**:

- Reduces chances of a pregnancy early in adolescence
- Reduces chances of STI transmission
- Reduces chances of living with an unmarried partner
- Improves reported relationship satisfaction among couples
- Increases the chances of high school graduation among girls
- Reduces reported symptoms of depression in the short term



4.4. What's ahead: Opportunities

Key STD/STI topics to consider including in **SRAE**:

1. Basics of STD/STIs (types, transmission, risk factors, management, etc.)
2. Risk/ prevalence/ incidence
3. Importance of the “asymptomatic” concept
4. Contraception effectiveness and ineffectiveness
5. Risk reduction vs. risk avoidance and path to optimal sexual health
6. Impact of STD/STIs (e.g., emotional, relational)
7. Importance of testing and treatment of self and partners



Closing:

There is an urgency to address this epidemic and reevaluate our approach and program efforts.

“The burden of STIs is staggering. At a time when STIs are at an all-time high, they have fallen out of the national conversation...”

—Jonathan Mermin, M.D., M.P.H.,
Director of CDC’s National Center for
HIV/AIDS, Viral Hepatitis,
STD, and TB Prevention



THANK YOU!
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QUESTIONS?



CLOSING REMARKS



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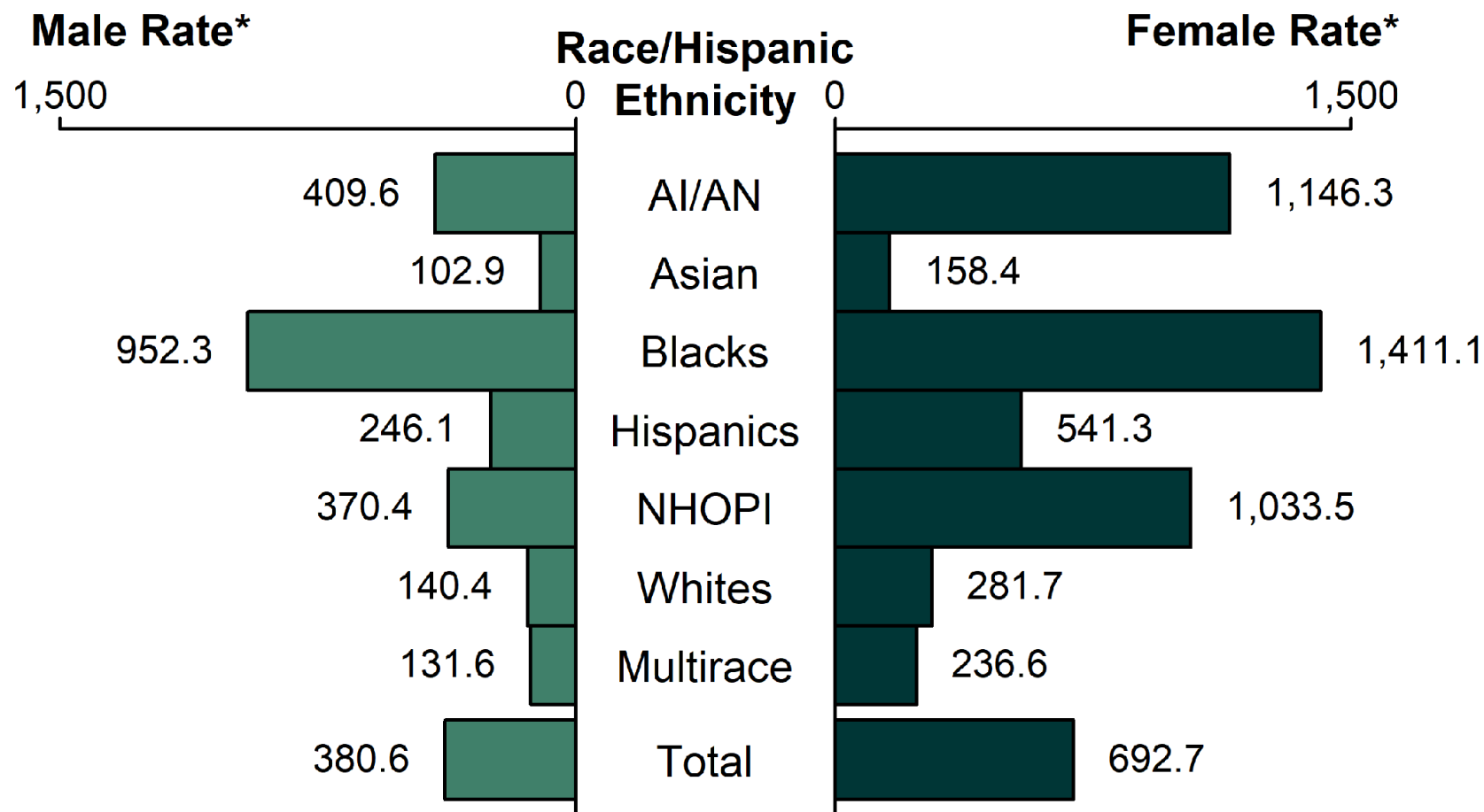


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Supplemental Slides

- Chlamydia — Rates of Reported Cases by Race/Hispanic Ethnicity and Sex, United States, 2018
- Gonorrhea — Rates of Reported Cases by Race/Hispanic Ethnicity and Sex, United States, 2018
- Primary and Secondary Syphilis — Rates of Reported Cases by Race/Hispanic Ethnicity and Sex, United States, 2018
- Congenital Syphilis — Rates of Reported Cases by Year of Birth and Race/Hispanic Ethnicity of Mother, United States, 2009–2018
- Primary and Secondary Syphilis — Reported Cases* by Sex and Sex of Sex Partners and Race/Hispanic Ethnicity, United States, 2018
- Estimated HIV Incidence among Persons Aged ≥ 13 Years, by Race/Ethnicity 2010–2018—United States

Chlamydia — Rates of Reported Cases by Race/Hispanic Ethnicity and Sex, United States, 2018



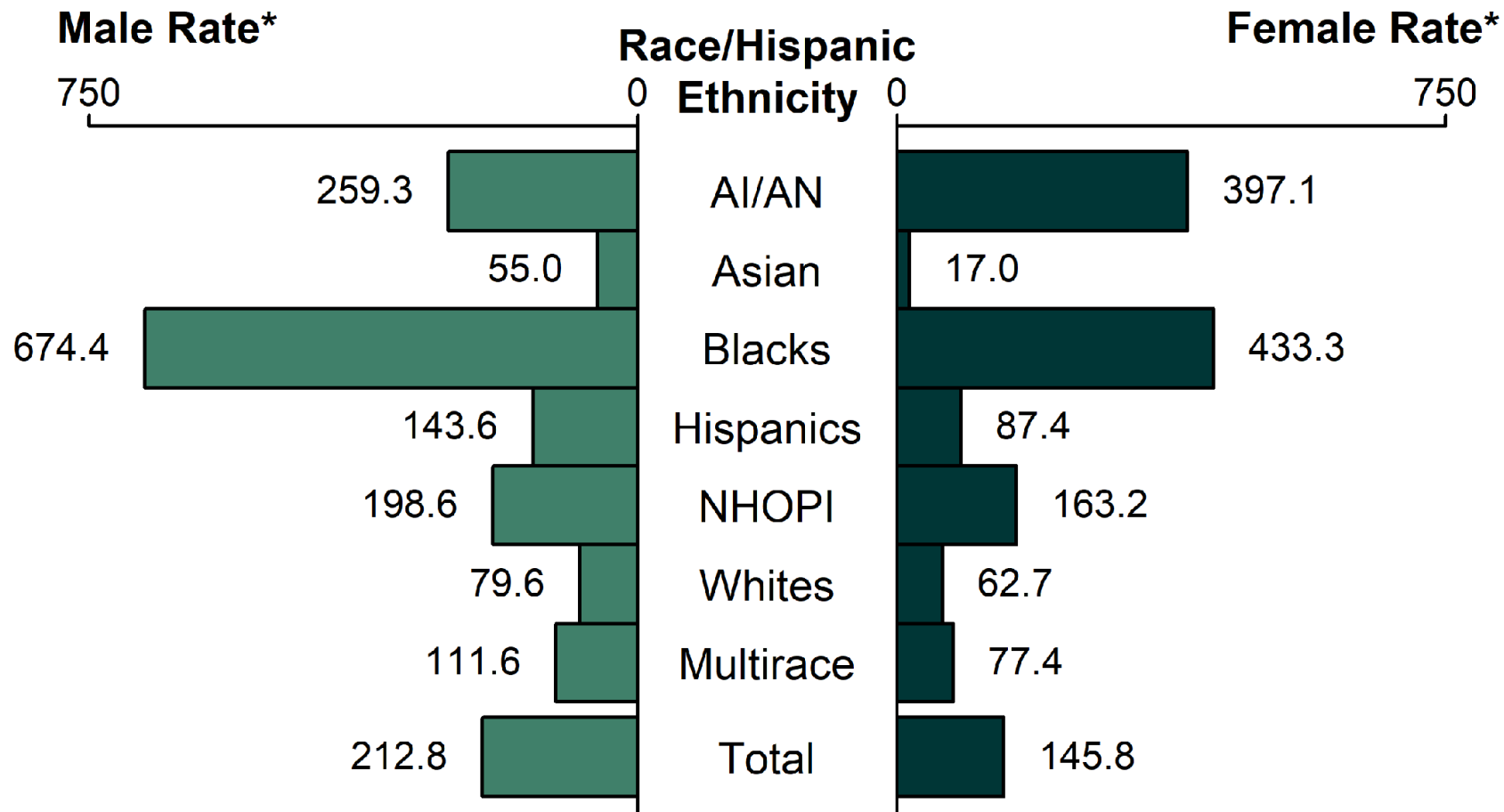
* Per 100,000

NOTE: See Section A1.5 in the Appendix for information on race/Hispanic ethnicity in STD case reporting.

ACRONYMS: AI/AN = American Indians/Alaska Natives; NHOPI = Native Hawaiians/Other Pacific Islanders



Gonorrhea — Rates of Reported Cases by Race/Hispanic Ethnicity and Sex, United States, 2018

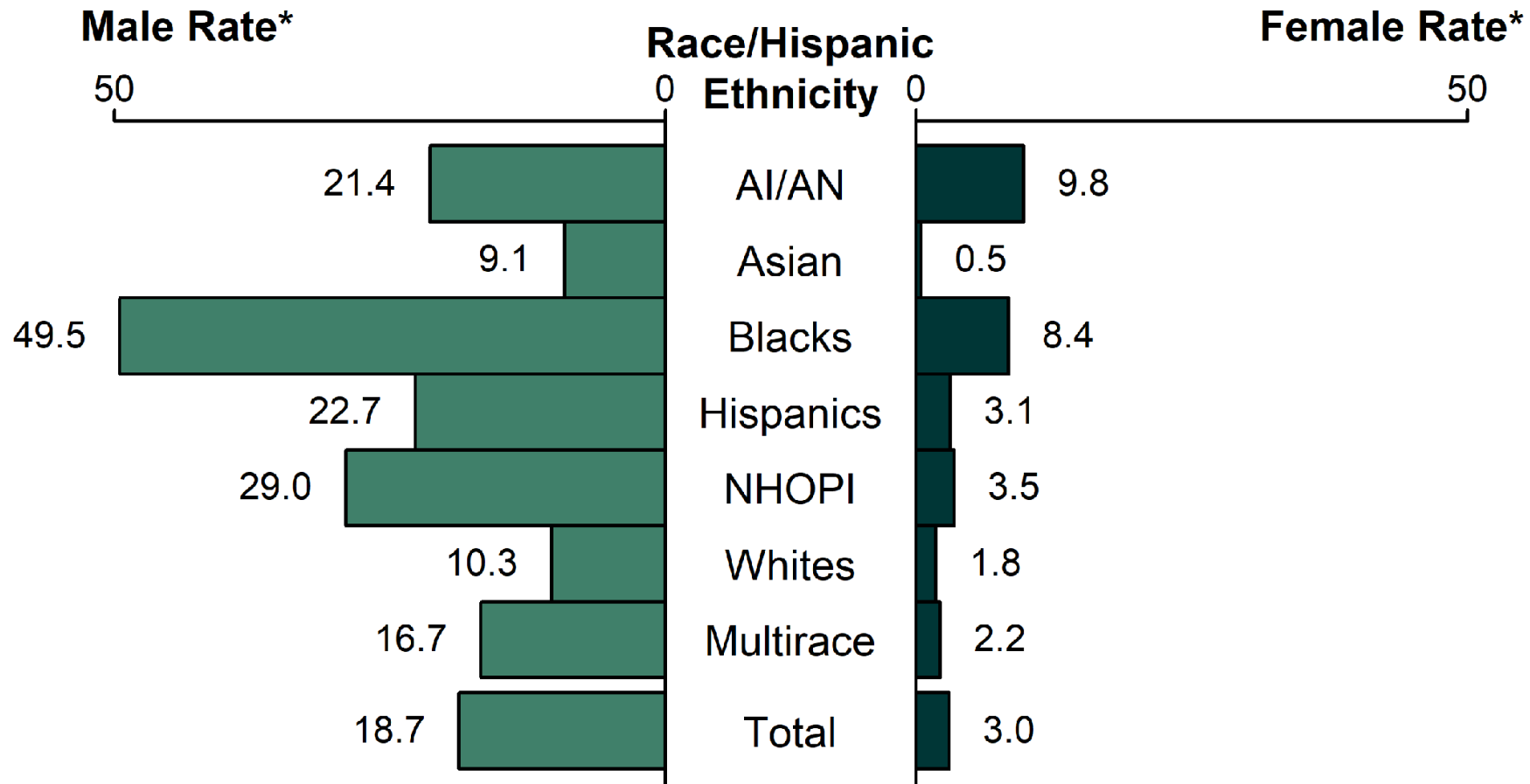


* Per 100,000

NOTE: See Section A1.5 in the Appendix for information on race/Hispanic ethnicity in STD case reporting.

ACRONYMS: AI/AN = American Indians/Alaska Natives; NHOPI = Native Hawaiians/Other Pacific Islanders

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

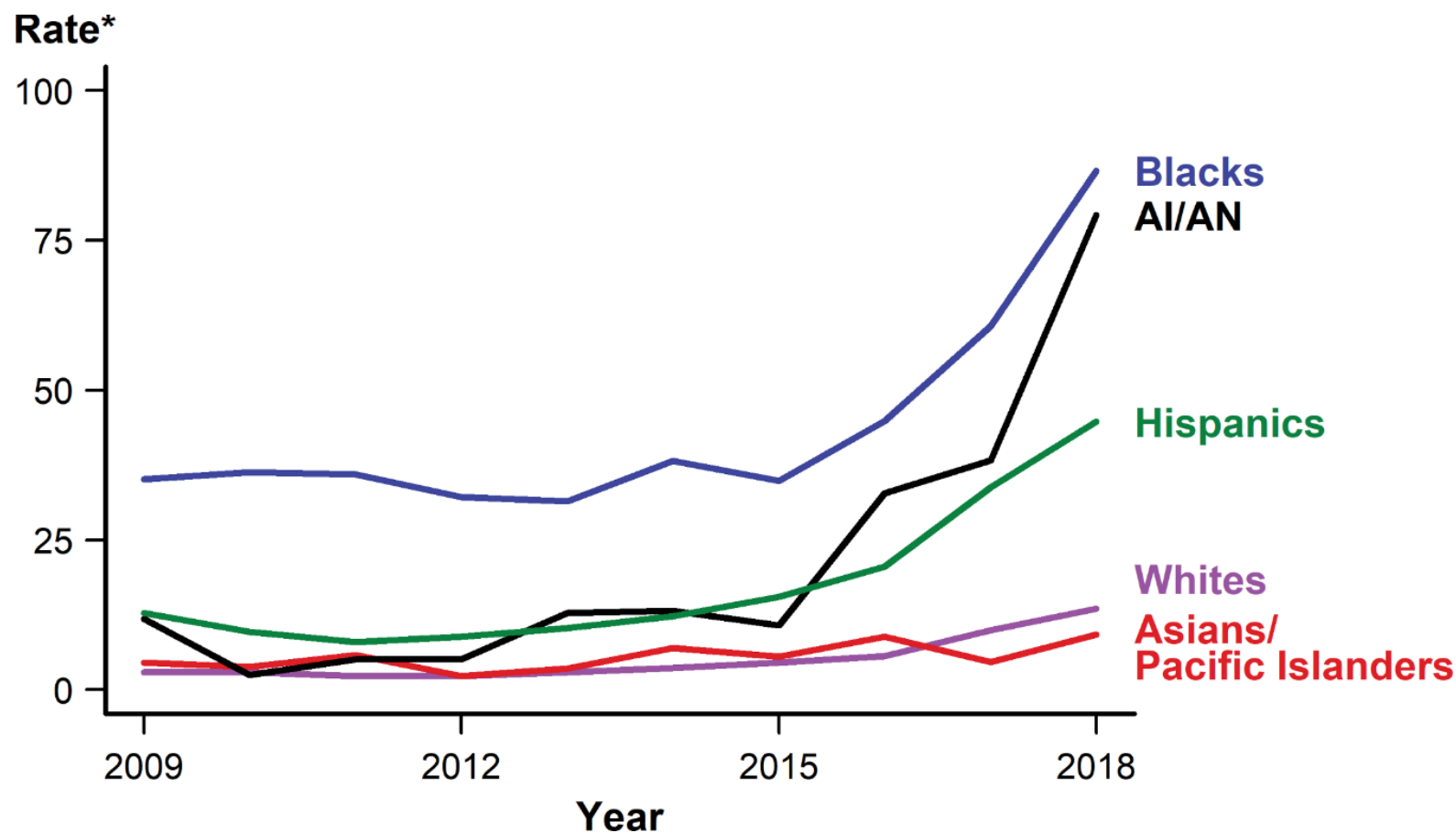


* Per 100,000

NOTE: See Section A1.5 in the Appendix for information on reporting STD case data for race/Hispanic ethnicity.

ACRONYMS: AI/AN = American Indians/Alaska Natives; NHOPI = Native Hawaiians/Other Pacific Islanders

Congenital Syphilis — Rates of Reported Cases by Year of Birth and Race/Hispanic Ethnicity of Mother, United States, 2009–2018



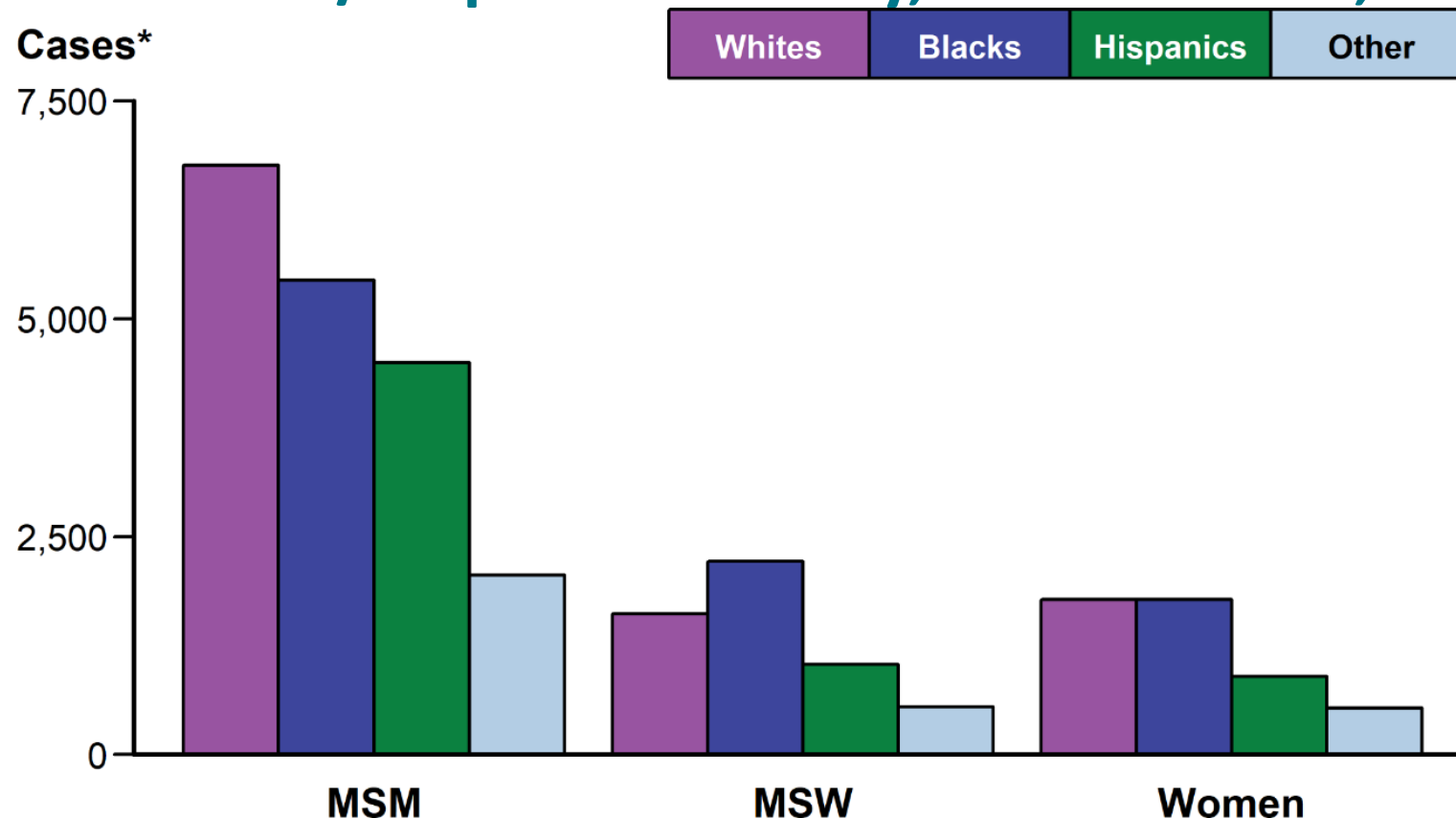
* Per 100,000 live births

NOTE: National Center for Health Statistics bridged race categories are presented to allow the display of data across several years. See Section A1.5 in the Appendix for information on reporting STD case data for race/Hispanic ethnicity.

ACRONYMS: AI/AN = American Indians/Alaska Natives



Primary and Secondary Syphilis — Reported Cases* by Sex and Sex of Sex Partners and Race/Hispanic Ethnicity, United States, 2018

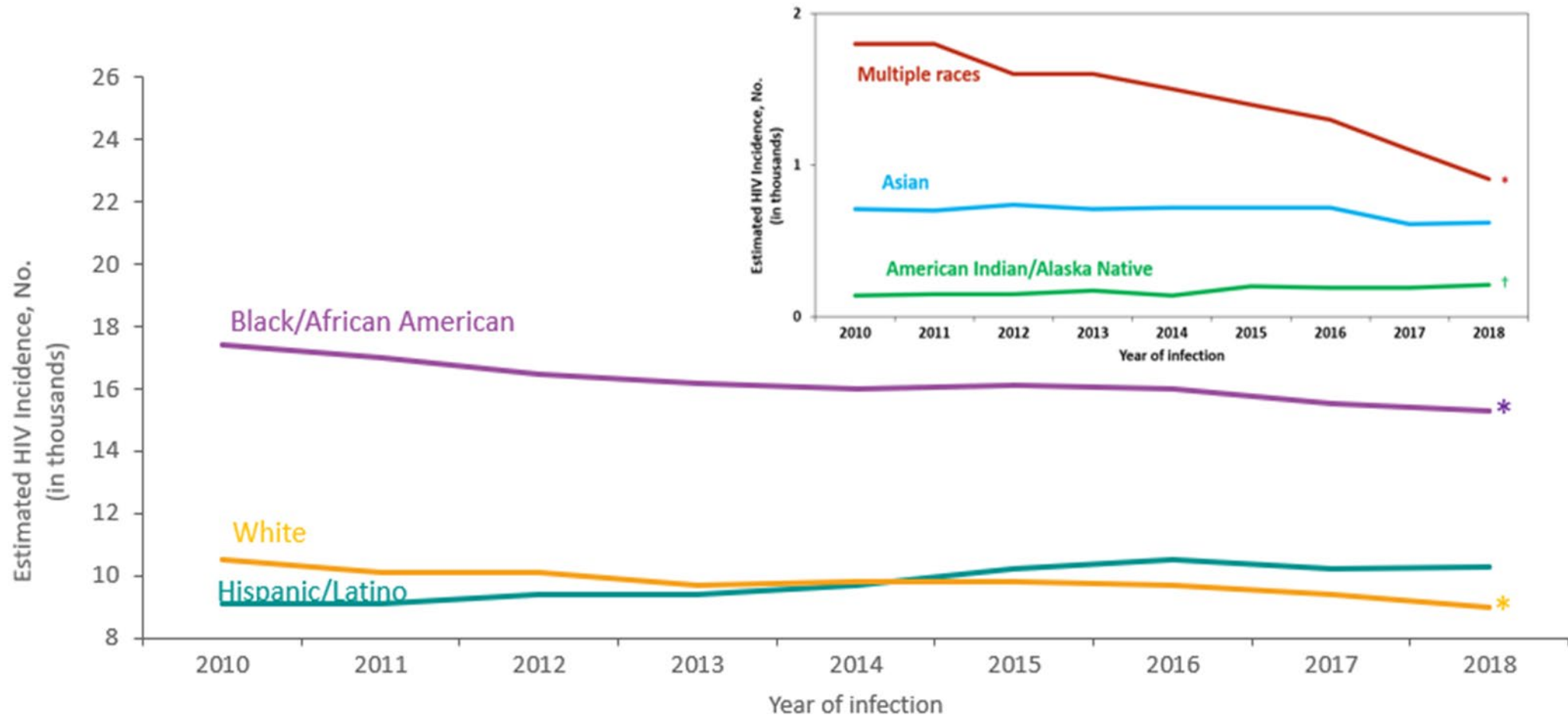


*Of all reported cases of primary and secondary syphilis, 16.7% were among men without data on sex of sex partners, and <0.1% were cases with unknown sex; 6.1% of all cases had missing or unknown race/Hispanic ethnicity. Cases with missing or unknown race/Hispanic ethnicity are included in the “Other” category.

NOTE: See Section A1.5 in the Appendix for information on reporting STD case data for race/Hispanic ethnicity.

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

Estimated HIV Incidence among Persons Aged ≥13 Years, by Race/Ethnicity United States, 2010–2018



Note: Estimates were derived from a CD4 depletion model using HIV surveillance data. Hispanics/Latinos can be of any race.

* Difference from the 2010 estimate was deemed statistically significant ($P < .05$).

† Estimates should be used with caution; relative standard errors are 30%–50%.

Further Reading

1. Center for Disease Control and Prevention. *Youth Risk Behavior Surveillance System (YRBSS)*. 2020; Available from: <https://www.cdc.gov/healthyyouth/data/yrbs/index.htm>.
2. Shannon, C.L. and J.D. Klausner, *The growing epidemic of sexually transmitted infections in adolescents: a neglected population*. *Curr Opin Pediatr*, 2018. **30**(1): p. 137-143.
3. Korenromp, E.L., et al., *Global burden of maternal and congenital syphilis and associated adverse birth outcomes-Estimates for 2016 and progress since 2012*. *PLoS One*, 2019. **14**(2): p. e0211720.
4. Henderson, J.T., et al., *Behavioral Counseling Interventions to Prevent Sexually Transmitted Infections: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force*. *JAMA*, 2020. **324**(7): p. 682-699.
5. Bray, F., et al., *Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries*. *CA: A Cancer Journal for Clinicians*, 2018. **68**(6): p. 394-424.
6. Brady, S.S. and B.L. Halpern-Felsher, *Social and emotional consequences of refraining from sexual activity among sexually experienced and inexperienced youths in California*. *American journal of public health*, 2008. **98**(1): p. 162-168.
7. Steinberg, L., *Cognitive and affective development in adolescence*. *Trends Cogn Sci*, 2005. **9**(2): p. 69-74.
8. Krist, A.H., et al., *Behavioral Counseling Interventions to Prevent Sexually Transmitted Infections: US Preventive Services Task Force Recommendation Statement*. *Jama*, 2020. **324**(7): p. 674-681.
9. Vasilenko, S.A., E.S. Lefkowitz, and J.L. Maggs, *Short-term positive and negative consequences of sex based on daily reports among college students*. *Journal of sex research*, 2012. **49**(6): p. 558-569.
10. Rotz, D., Brian Goesling, Nicholas Redel, Menbere Shiferaw, and Claire Smither-Wulsin *Assessing the Benefits of Delayed Sexual Activity: A Synthesis of the Literature*. 2020: U.S. Department of Health and Human Services.
11. Ascend, *Sexual Risk Avoidance Works: Sexual Risk Avoidance (SRA) Education Demonstrates Improved Outcomes for Youth*. 2016.
12. Centers for Disease Control and Prevention, N.C.f.I., *Sexually Transmitted Disease Surveillance 2018*. 2019.
13. Kreisel, K.M., et al., *Sexually Transmitted Infections Among US Women and Men: Prevalence and Incidence Estimates, 2018*. *Sexually Transmitted Diseases*, 9000. **Publish Ahead of Print**.
14. Weinstock, H., et al., *STI prevalence, incidence and costs in the United States: New estimates, new approach*. *Sex Transm Dis*, 2021.
15. Center for Disease Control and Prevention. [cited 2021; Available from: www.cdc.gov].
16. HIV.gov. [cited 2021; Available from: www.hiv.gov].
17. *My Health Finder*. 2021 [cited 2021; Available from: <https://uspreventiveservicestaskforce.org/uspstf/>].
18. *What is HIV?* ; Available from: <https://hivrisk.cdc.gov/what-is-hiv/>.
19. Center for Disease Control and Prevention. *CDC Fact Sheets*. 2016; Available from: https://www.cdc.gov/std/healthcomm/fact_sheets.htm.
20. Center for Disease Control and Prevention. *Treatment and Screening*. Available from: <https://www.cdc.gov/STD/treatment/>.
21. Center for Disease Control and Prevention. *Practical Use of Program Evaluation among Sexually Transmitted Disease (STD) Programs*. 2020; Available from: <https://www.cdc.gov/std/program/pupestd.htm>.
22. Center for Disease Control and Prevention. *Program Operations Guidelines for STD Prevention*. 2015; Available from: <https://www.cdc.gov/std/program/GL-2001.htm>.
23. Center for Disease Control and Prevention. *Sexual Violence*. 2020; Available from: <https://www.cdc.gov/violenceprevention/sexualviolence/index.html>.

