STD/HIV UPDATE: WE HAVE GOOD NEWS AND…NOT SO GOOD NEWS

AMY PETERSON
STD INTERVENTIONS UNIT MANAGER
PETERSONA7@MICHIGAN.GOV
313-456-4425

TODAYS PRESENTATION

- Review of Key Epidemiologic Terms
- Reportable STDs: Signs and symptoms, transmission, treatment, disease trends
- Roles and Responsibilities: Private physicians, local health departments, state health department
- Expedited Partner Therapy (EPT) for STDs
- Focus on Neisseria Gonorrhea
  - Antibiotic Resistance
  - Disseminated Gonococcal Infection (DGI)

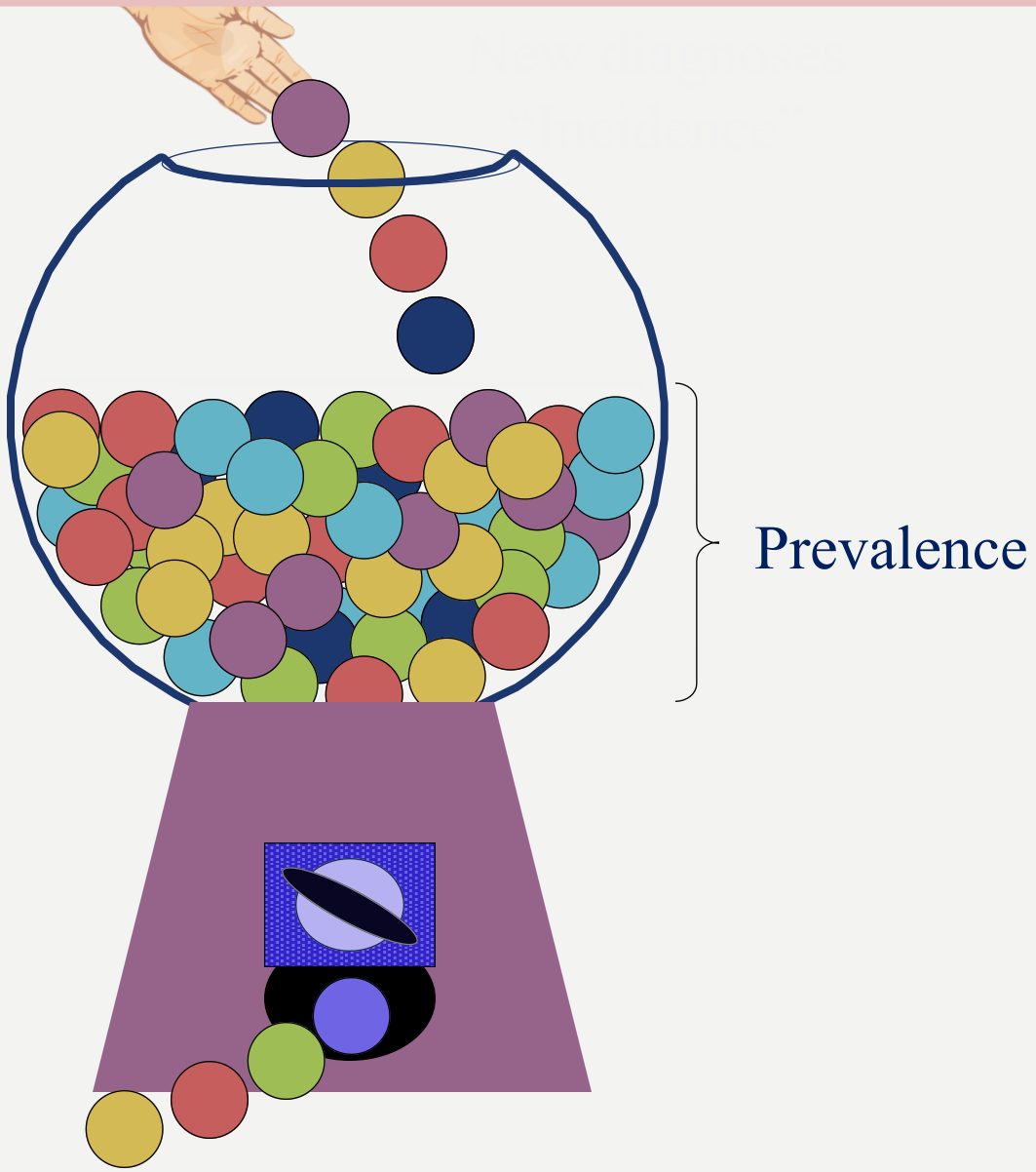
CURRENT STATE OF STDS IN MICHIGAN

FOUR REPORTABLE STDS – 2018 DIAGNOSIS

• Chlamydia	51,256 (stable)
• Gonorrhea	16,922 (+10%)
• Infectious (P & S) Syphilis	654 (+36%)
• HIV	711 (-8.5%)

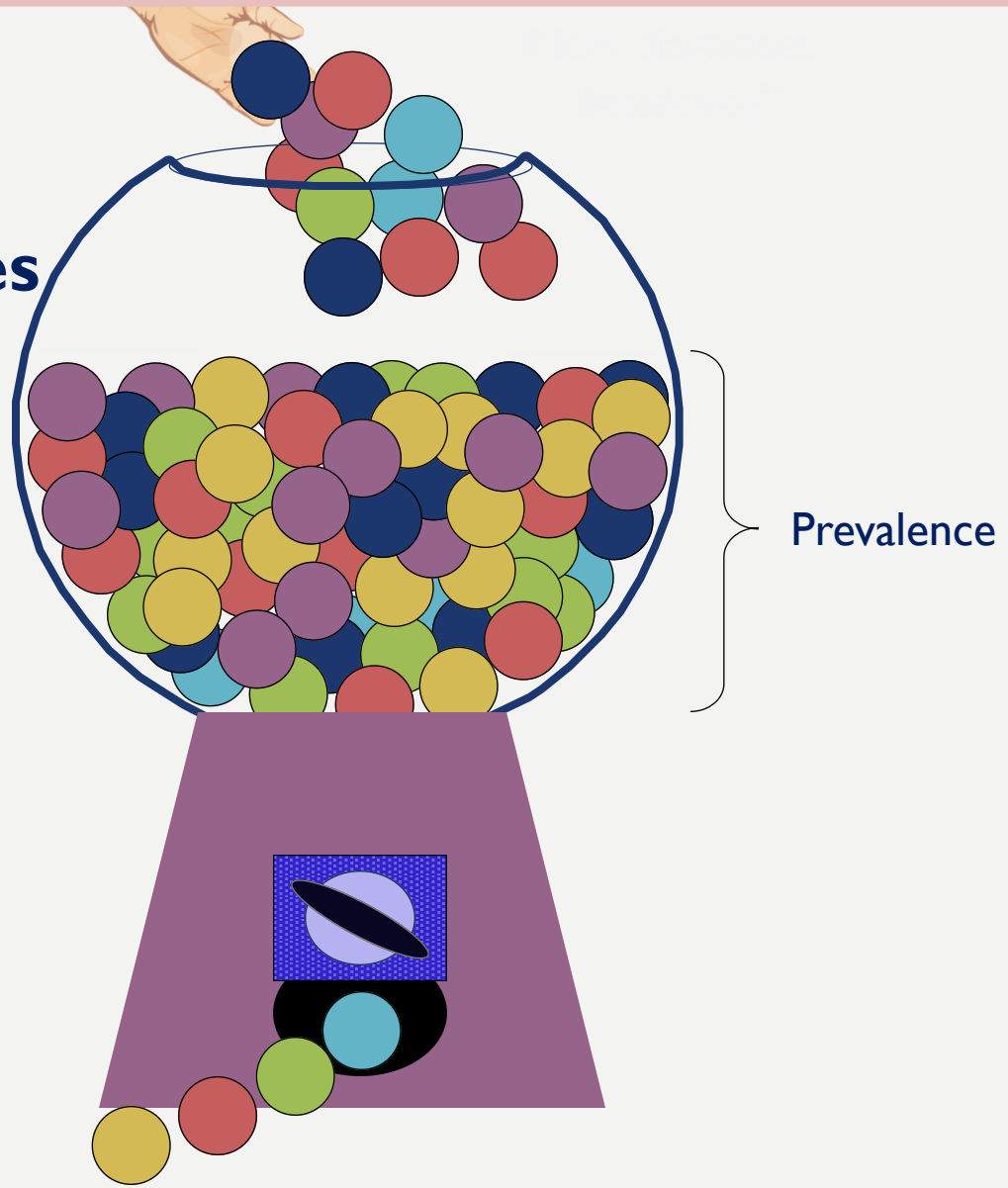
EPIDEMIOLOGY 101

Prevalence is steady
Incidence = Cure/Death



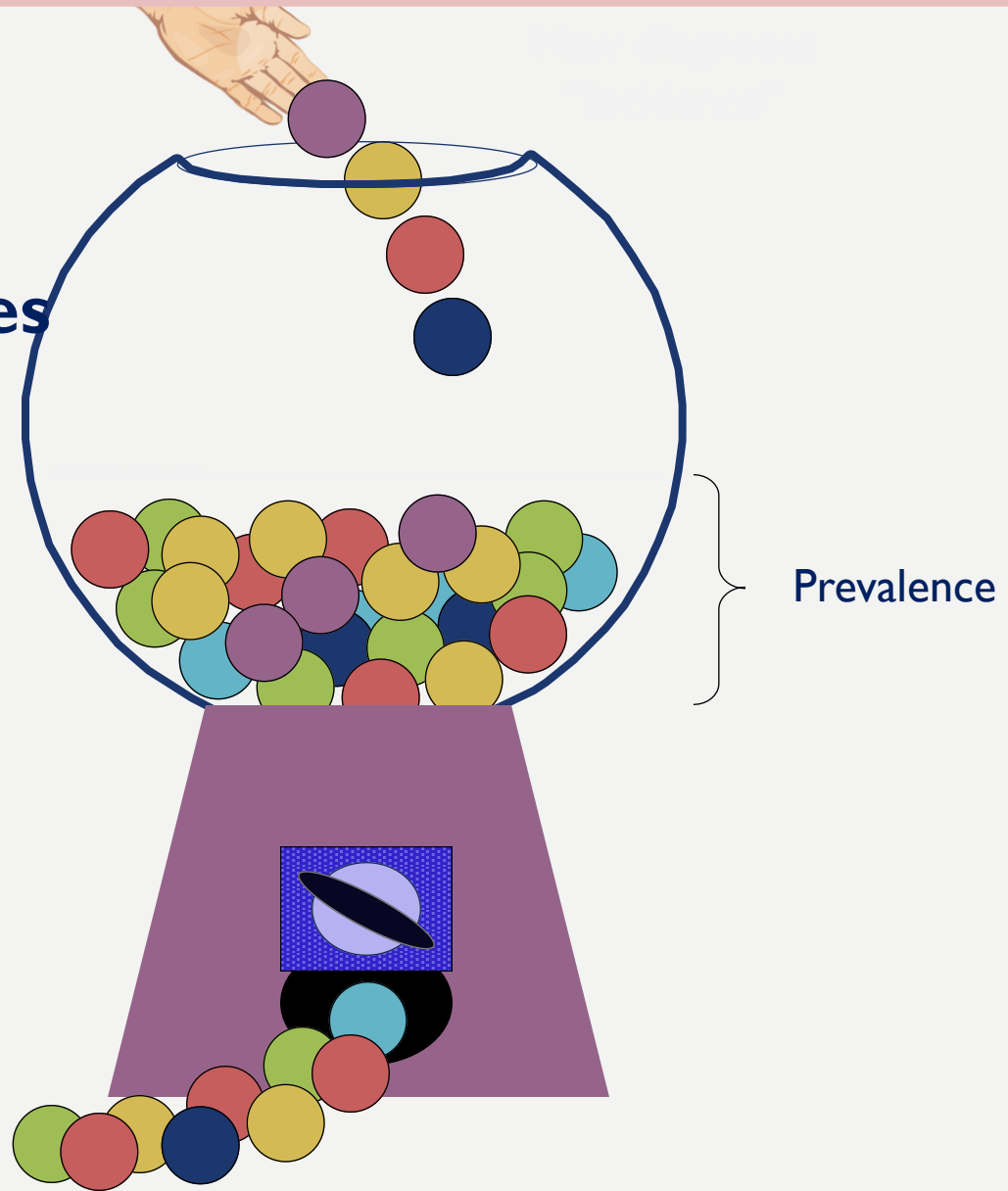
EPIDEMIOLOGY 101

Prevalence ⬆
if Incidence > Cures



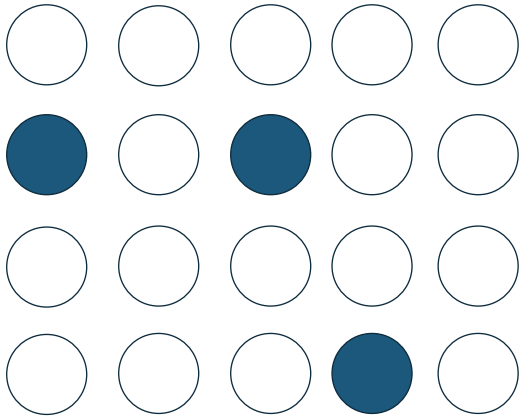
EPIDEMIOLOGY 101

Prevalence
if Incidence < Cures



Case Rates

Group 1



Count=3

Rate = 3/20

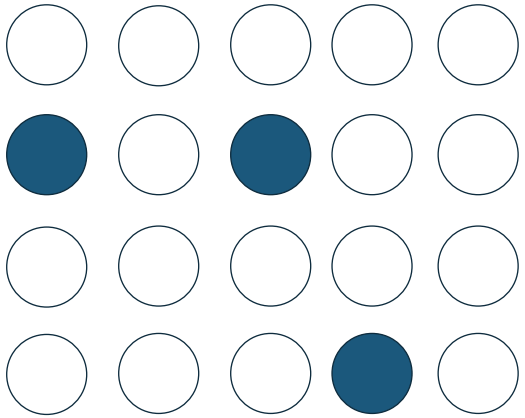
Group 2

Count=3

Rate = 3/5

Case Rates

Group 1

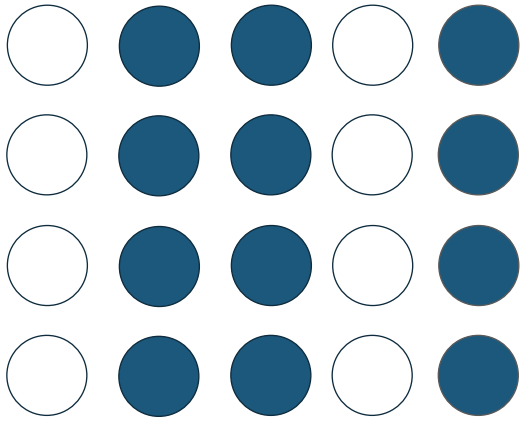


Count=3

Rate = 3/20

Rate = 3/20

Group 2



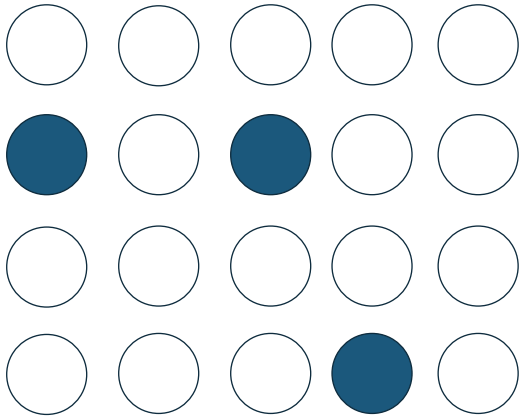
Count=3

Rate = 3/5

Rate = 12/20

Case Rates

Group 1



Count=3

Rate = 3/20

Rate = 3/20

Group 2

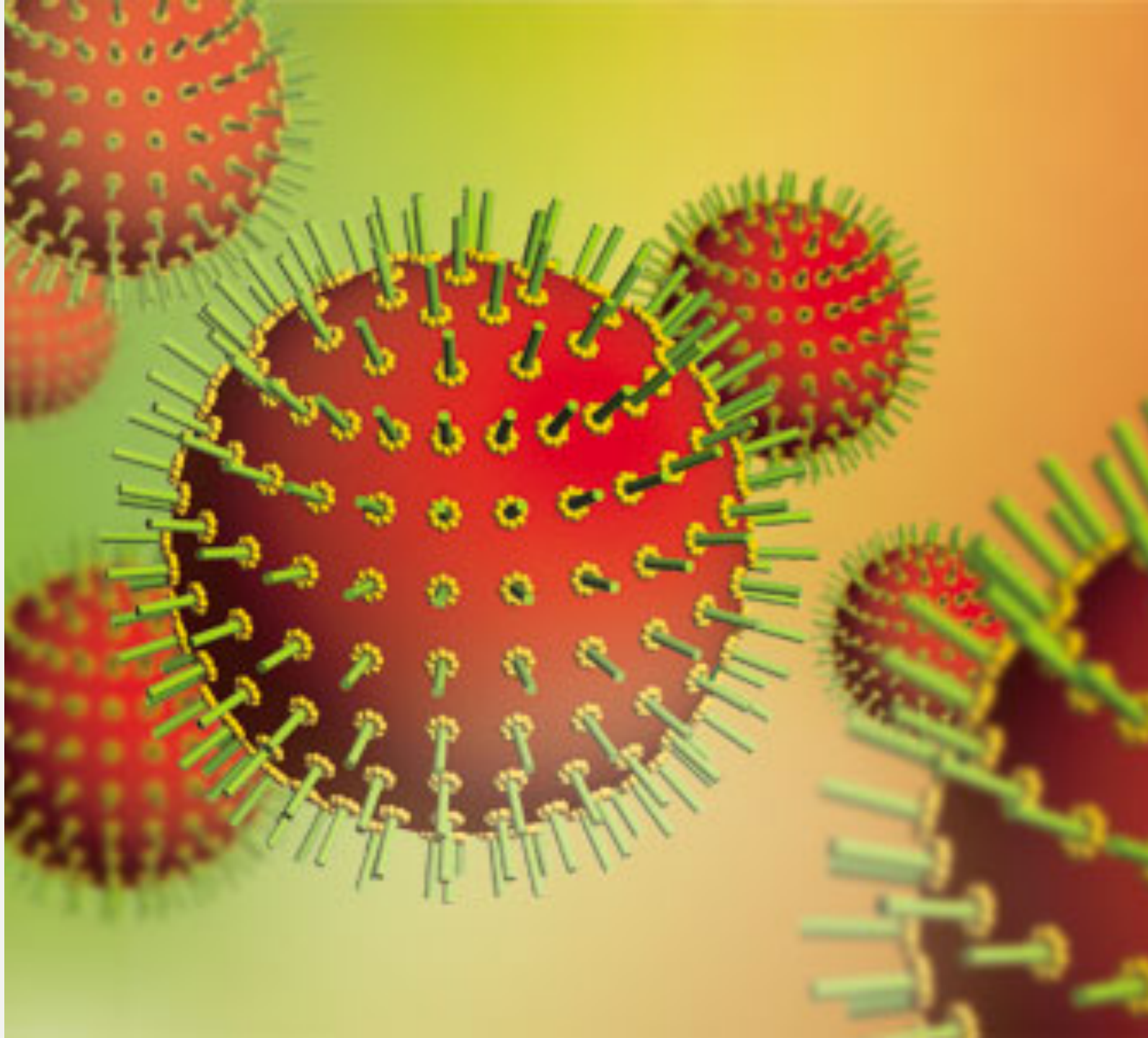
Count=3

Rate = 3/5

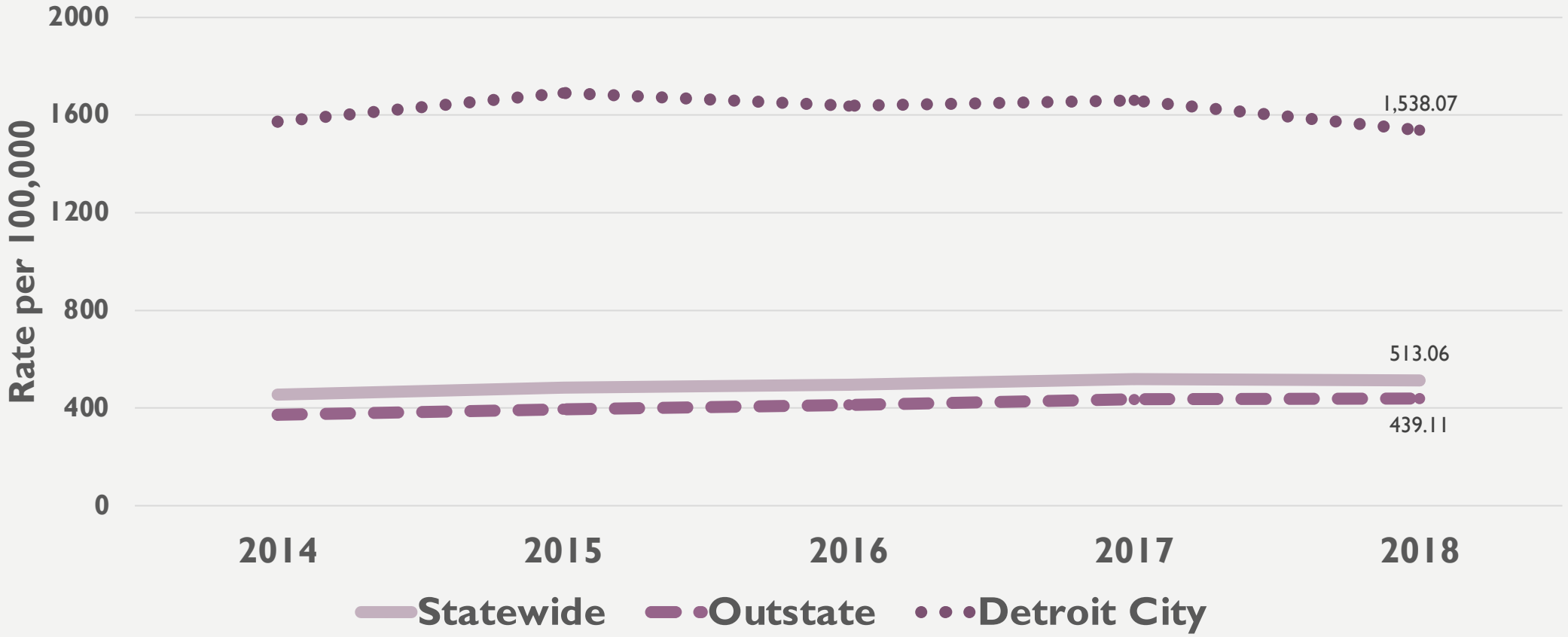
Rate = 12/20

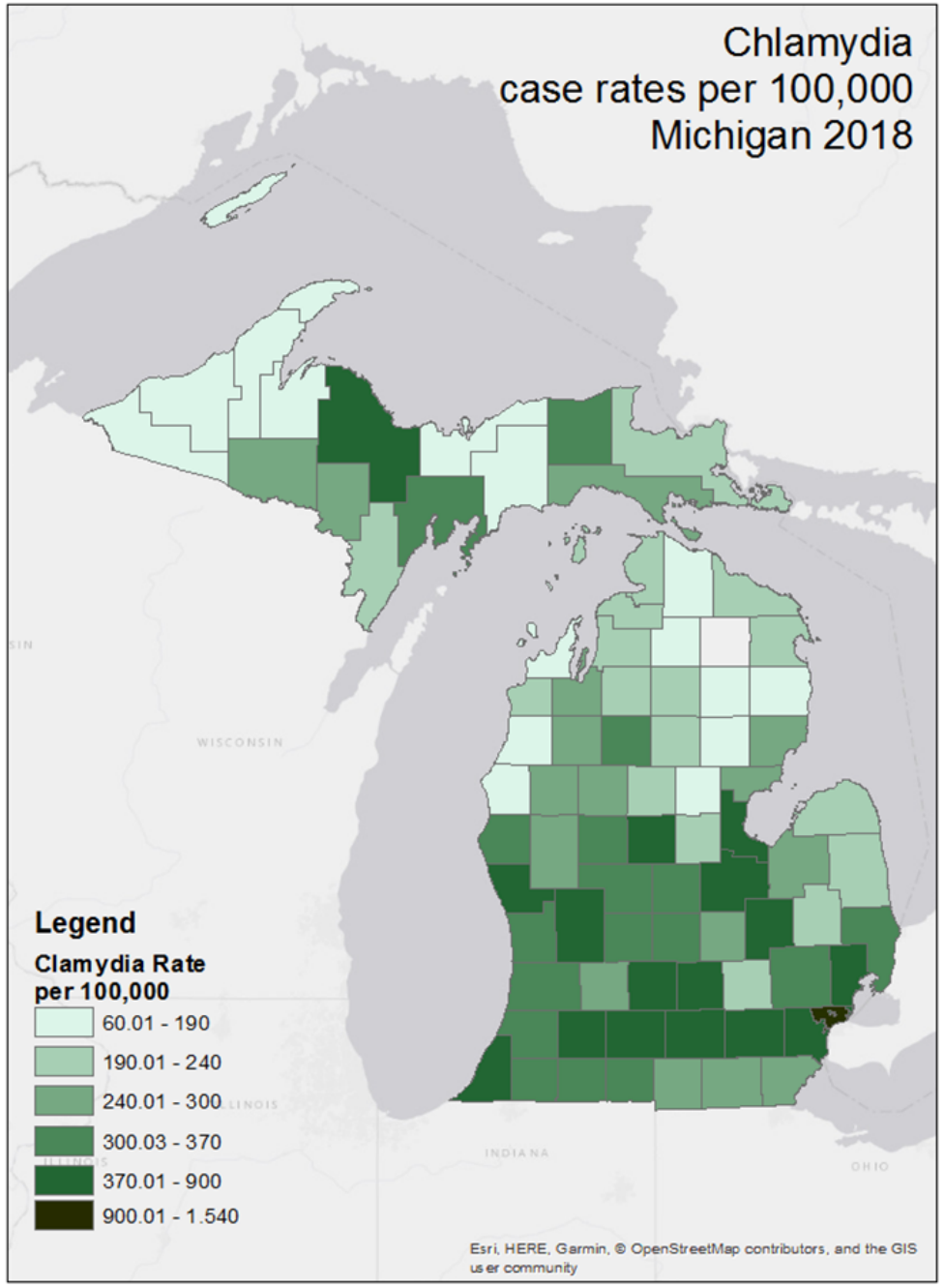
Even though both populations (groups) have 3 affected people, group 2 is much more affected as a population. Group 2 carries a heavier burden.

Chlamydia trachomatis?



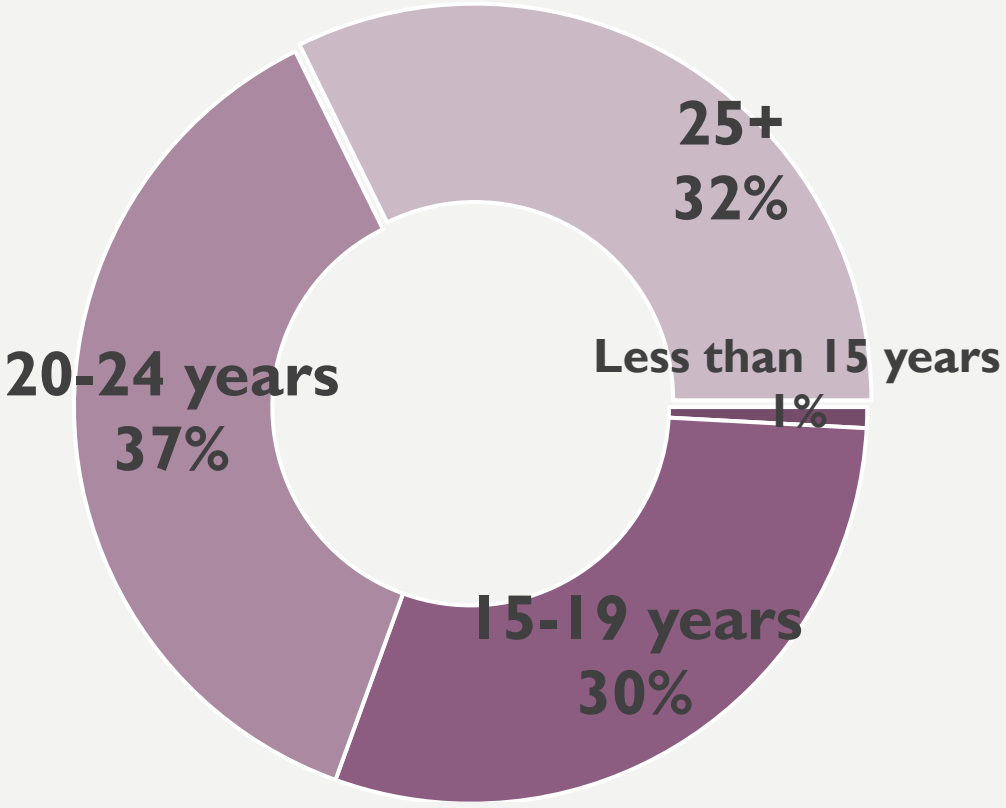
CHLAMYDIA TREND 2014-2018





2018 Chlamydia Cases (n= 51,256)

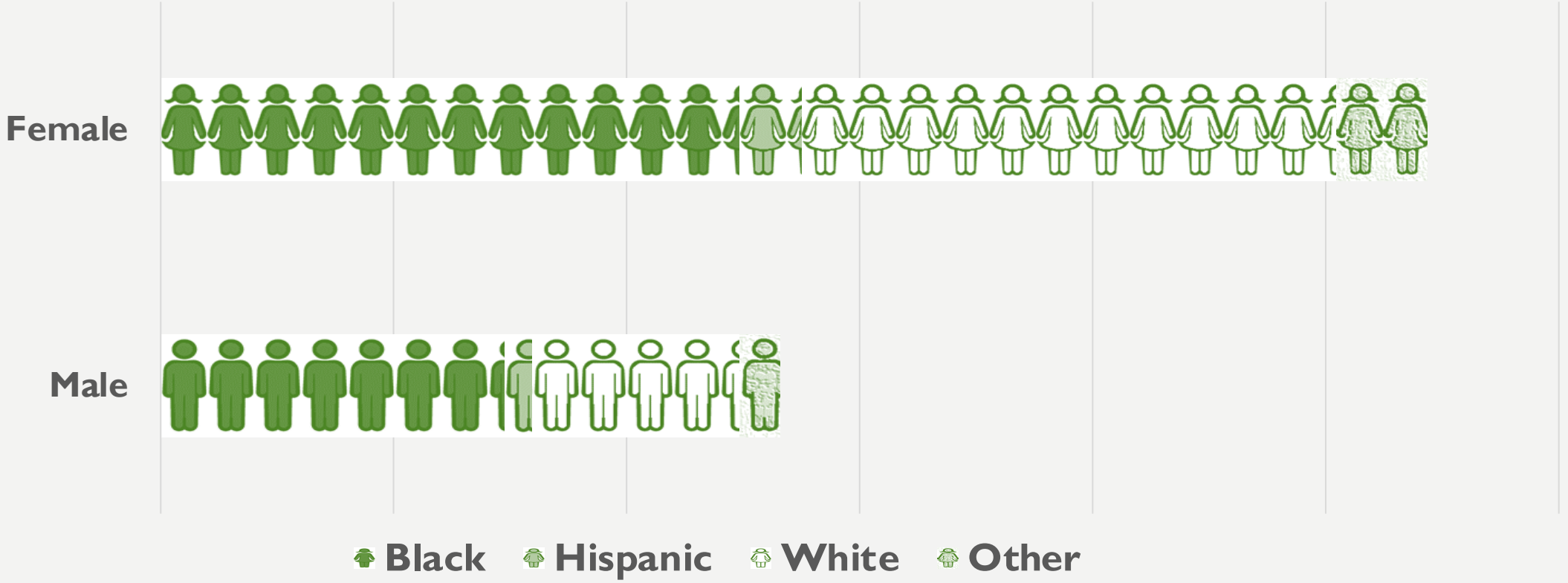
2018 CHLAMYDIA BY AGE



68 percent of Chlamydia cases were diagnosed among patients less than 25 years old

2018 CHLAMYDIA BY SEX AND RACE/ETHNICITY

Women make up **67 percent** of Chlamydia cases largely due to increased screening during routine visits. Black women have a **5.7 times** higher chlamydia rate than white women.



Chlamydia Recommended Treatment Regimen

- **Azithromycin** 1 g orally in a single dose

OR

- **Doxycycline** 100 mg orally twice a day for 7 days

Alternative Regimens

- **Erythromycin** base 500 mg orally four times a day for 7 days

OR

- **Erythromycin** ethylsuccinate 800 mg orally four times a day for 7 days

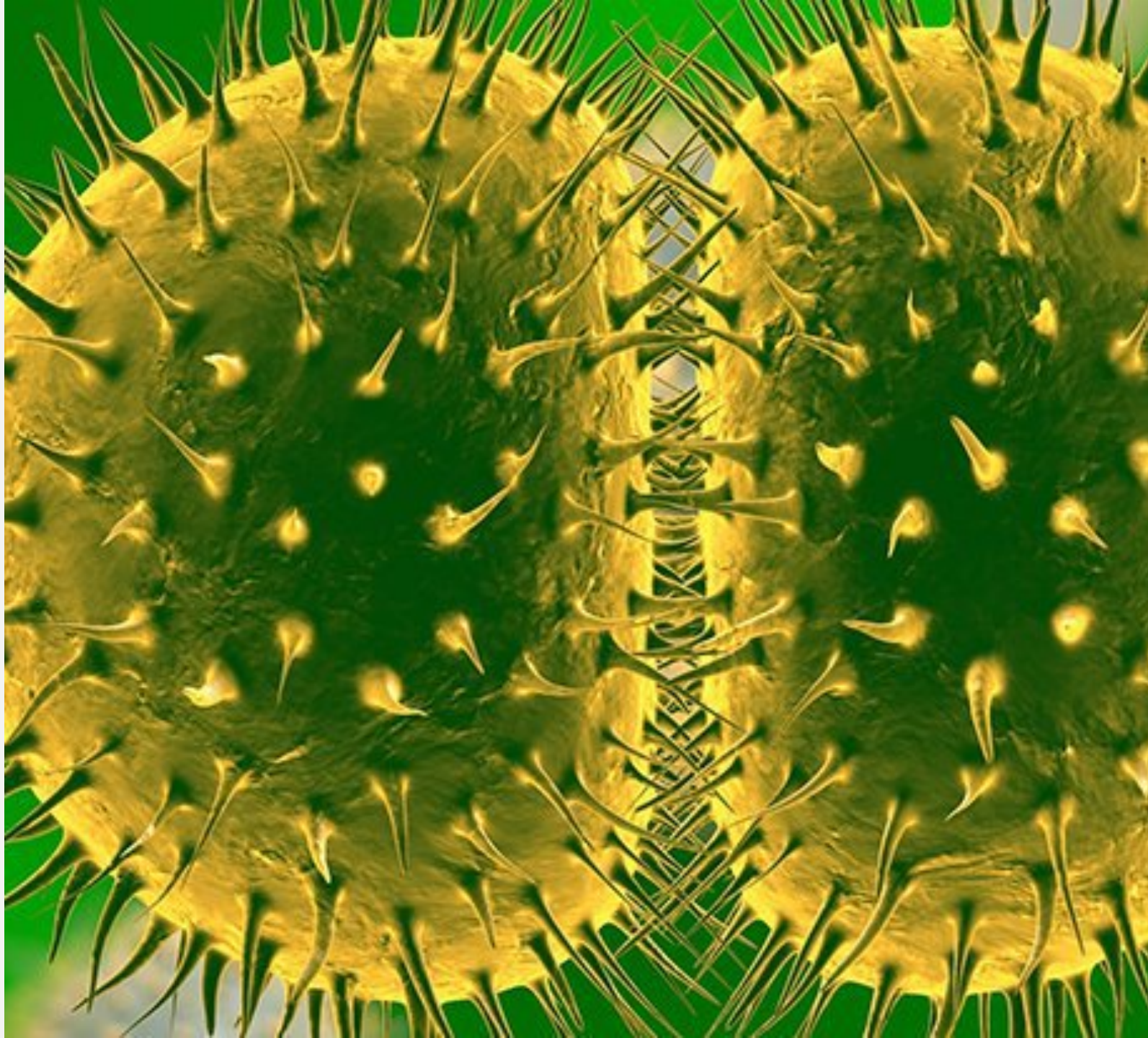
OR

- **Levofloxacin** 500 mg orally once daily for 7 days

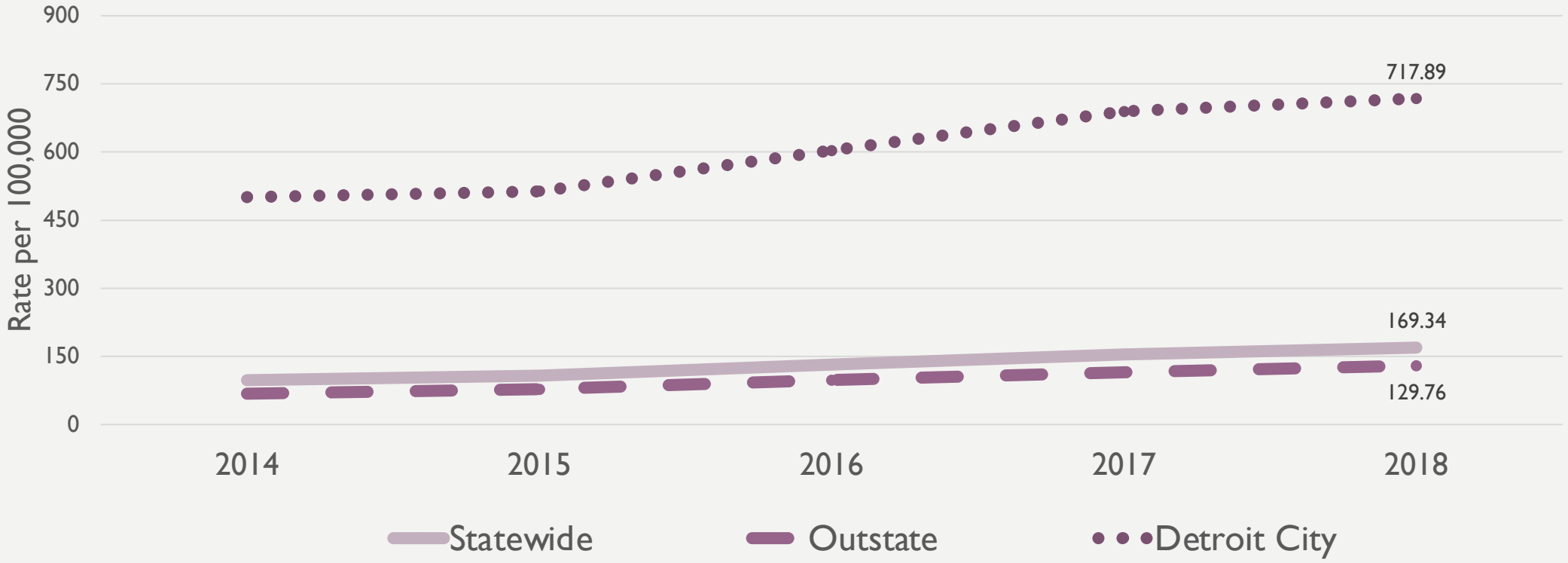
OR

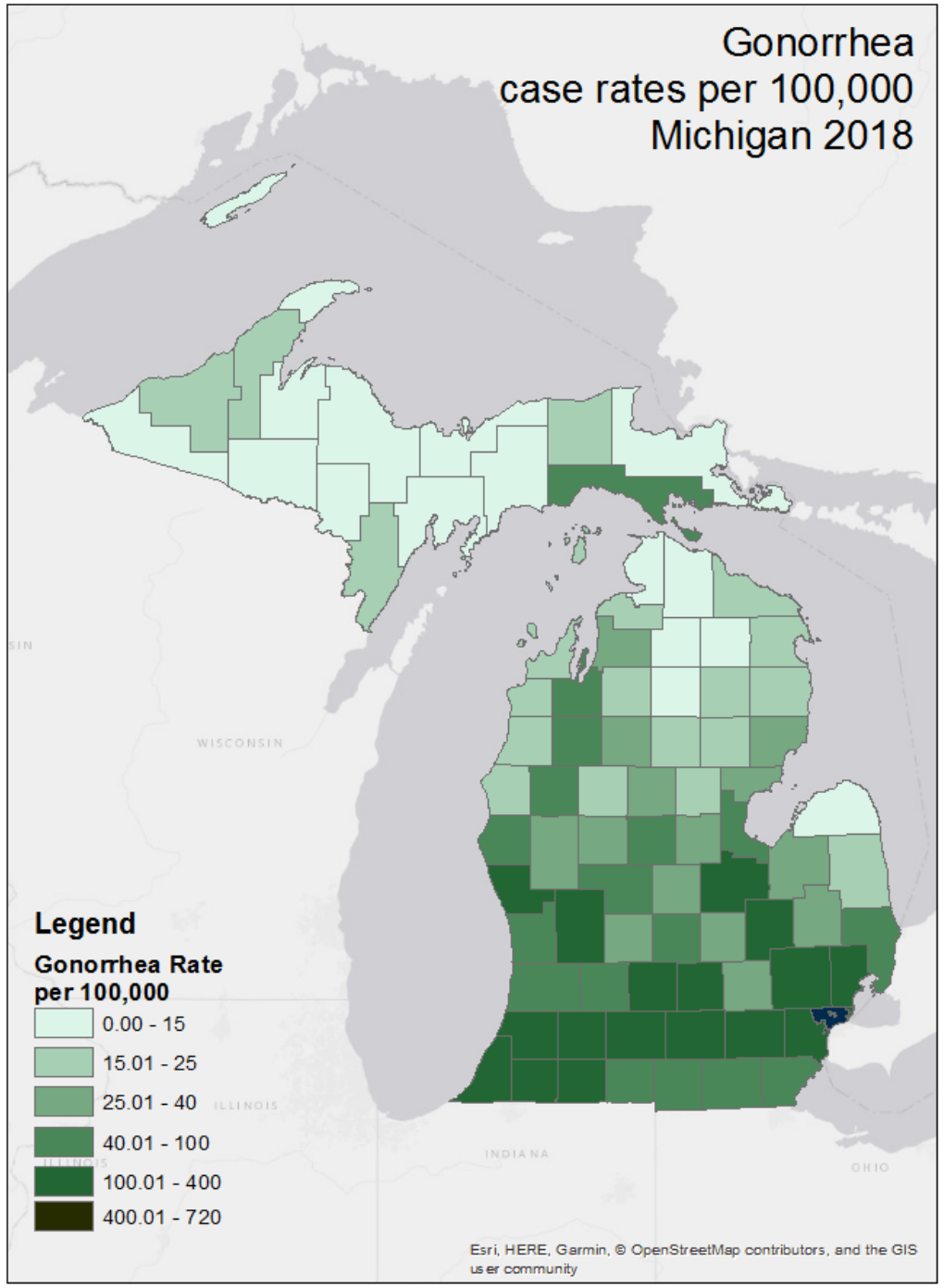
- **Ofloxacin** 300 mg orally twice a day for 7 days

Neisseria gonorrhea?



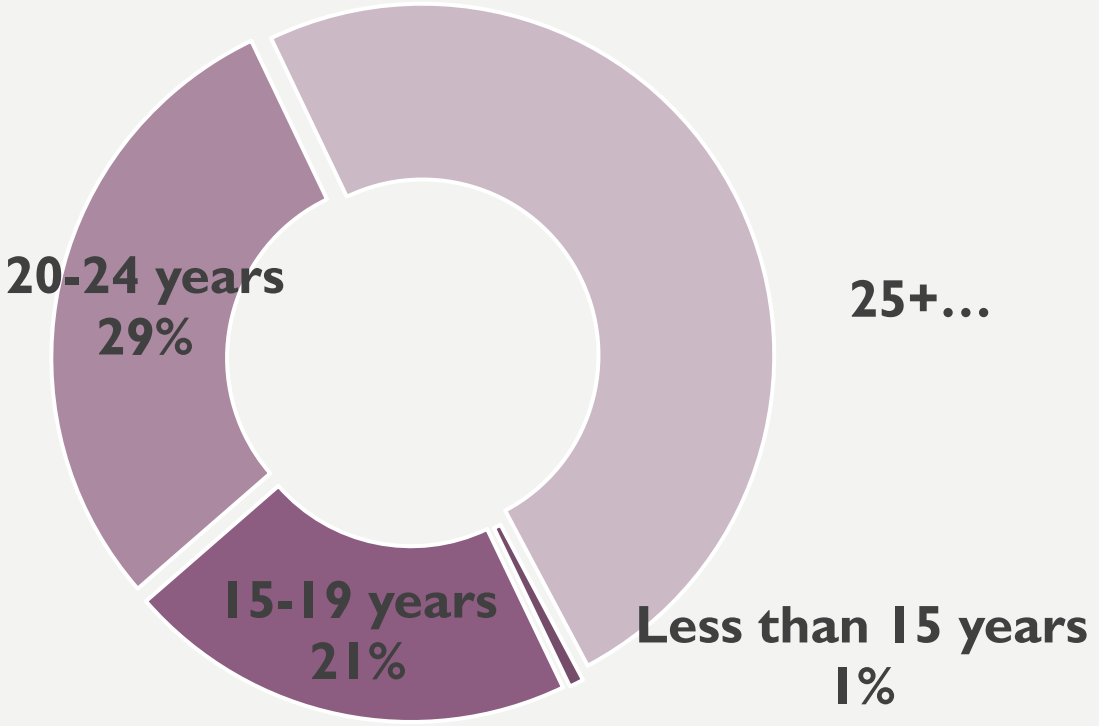
GONORRHEA TREND 2014-2018





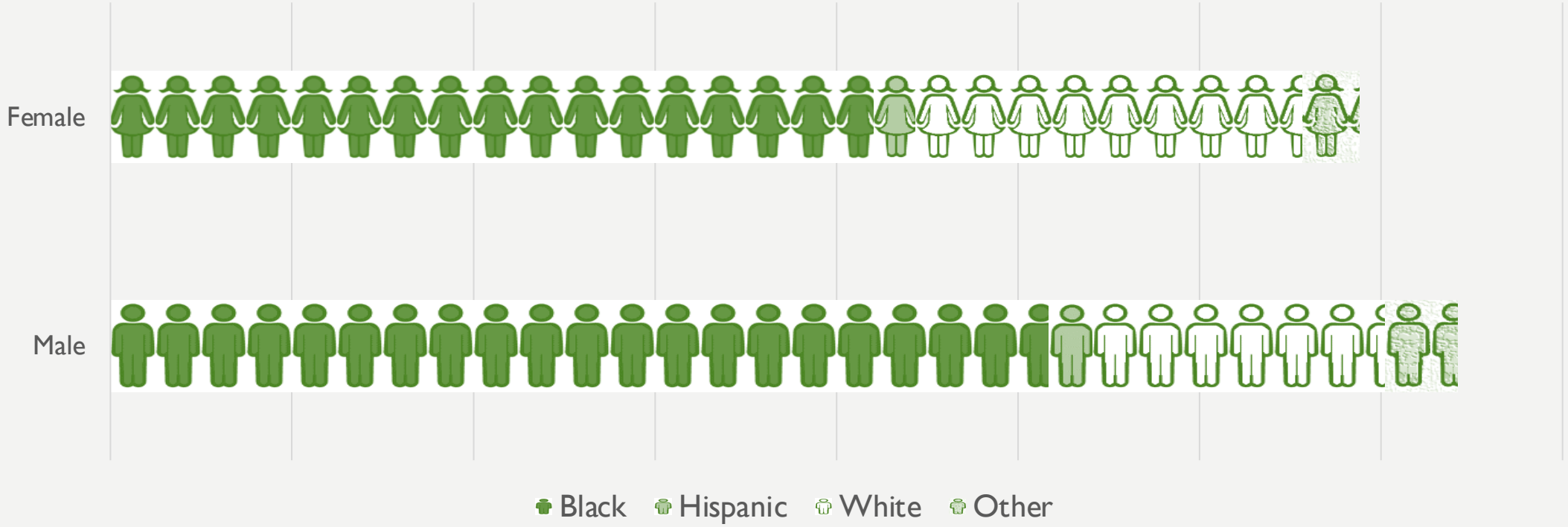
2018 GONORRHEA CASES (N= 15,413)

2018 GONORRHEA BY AGE



2018 Gonorrhea by sex and race/ethnicity

BLACKS/AFRICAN AMERICANS HAVE A 13.6 TIMES HIGHER RATE OF GONORRHEA THAN WHITES. AMONG MEN, THIS DISPARITY IS EVEN HIGHER WITH BLACK MEN 18.2 TIMES MORE LIKELY TO BE DIAGNOSED THAN WHITE MEN.



Recommended Treatment Regimen

Uncomplicated Gonococcal Infections of the Cervix, Urethra, and Rectum
Pharnyx
- **Ceftriaxone** 250 mg IM in a single dose

PLUS
- **Azithromycin** 1g orally in a single dose

Alternative Regimens

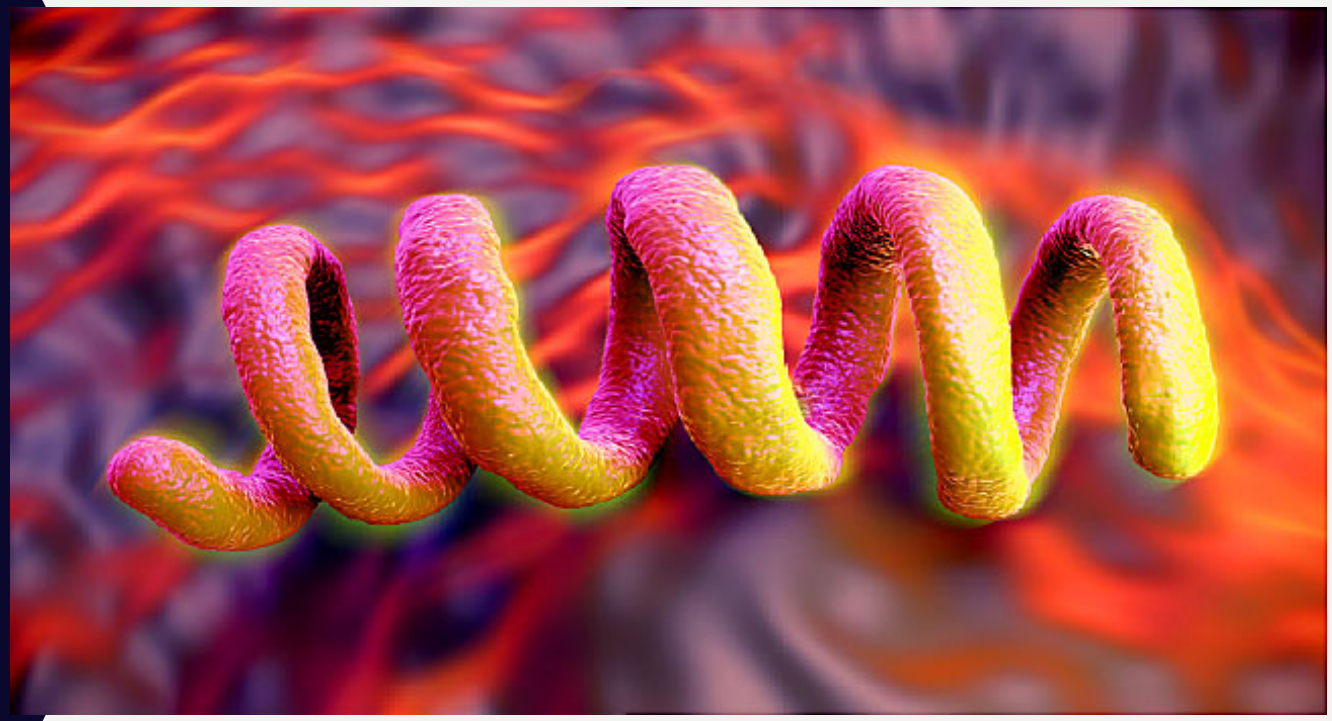
If ceftriaxone is not available:

Cefixime 400 mg orally in a single dose

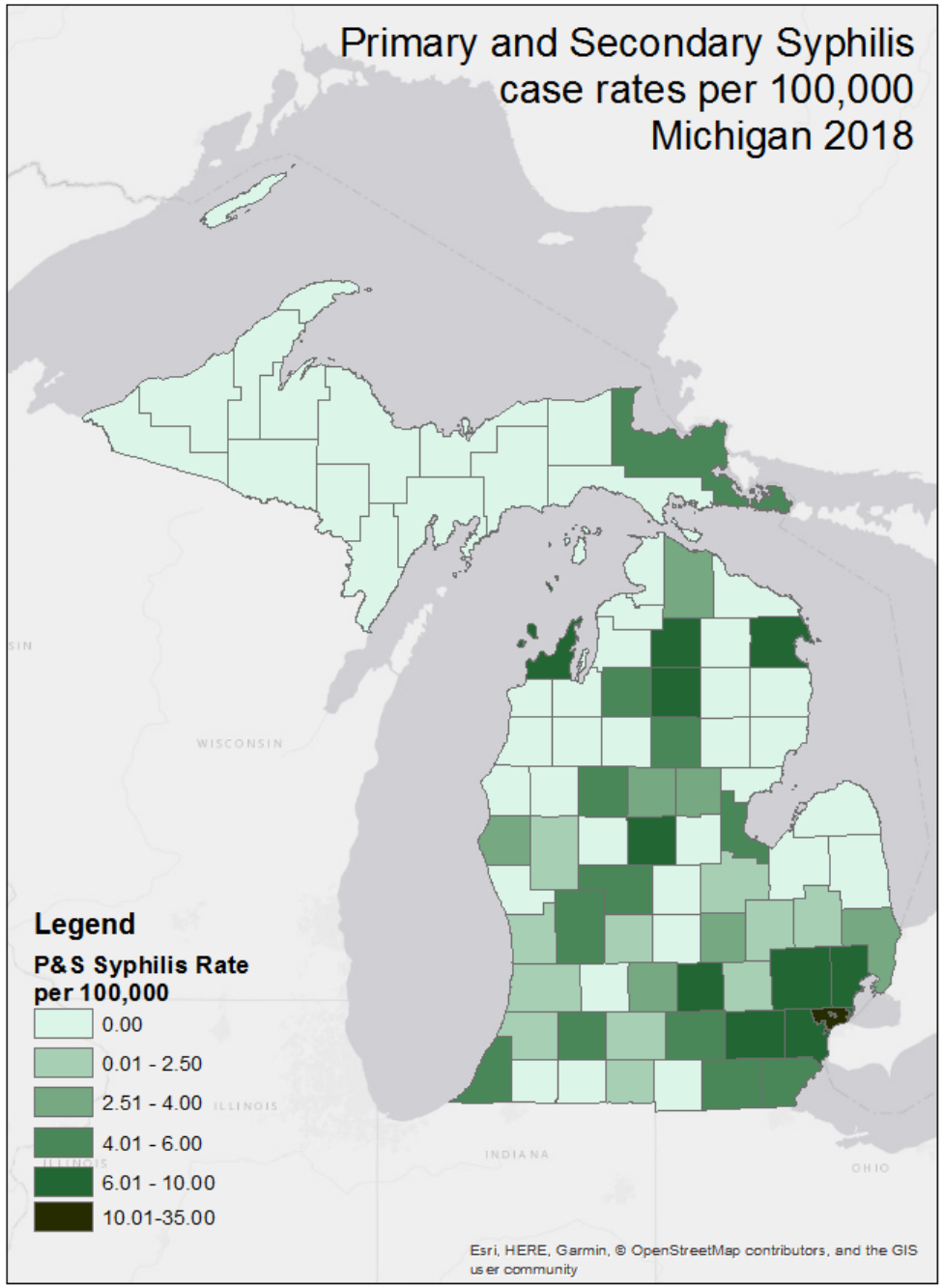
PLUS

Azithromycin 1 g orally in a single dose

**Patients with pharyngeal infection treated with alternative regimen require a test of cure at 14 days.



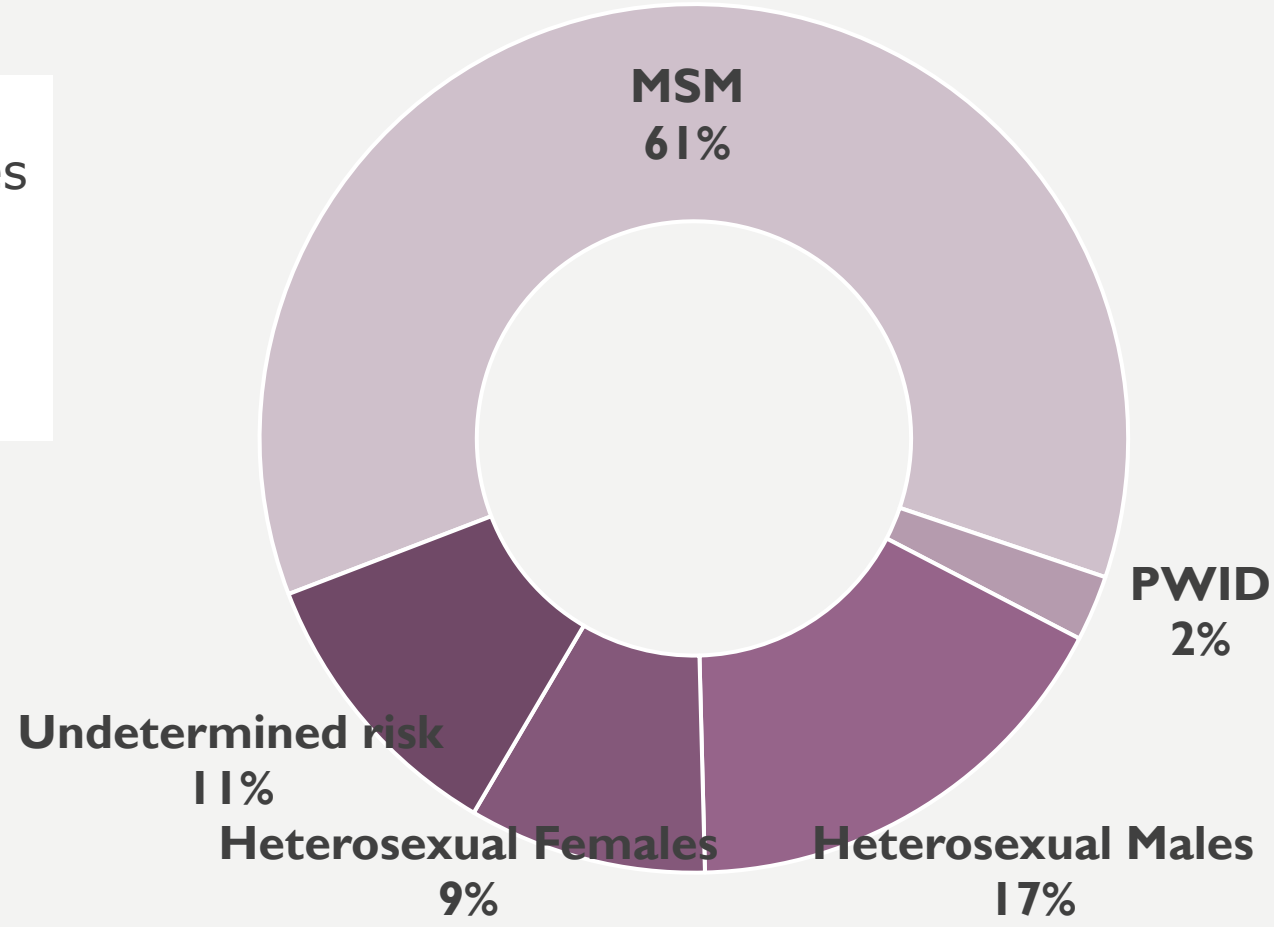
Treponema pallidum? (Syphilis)



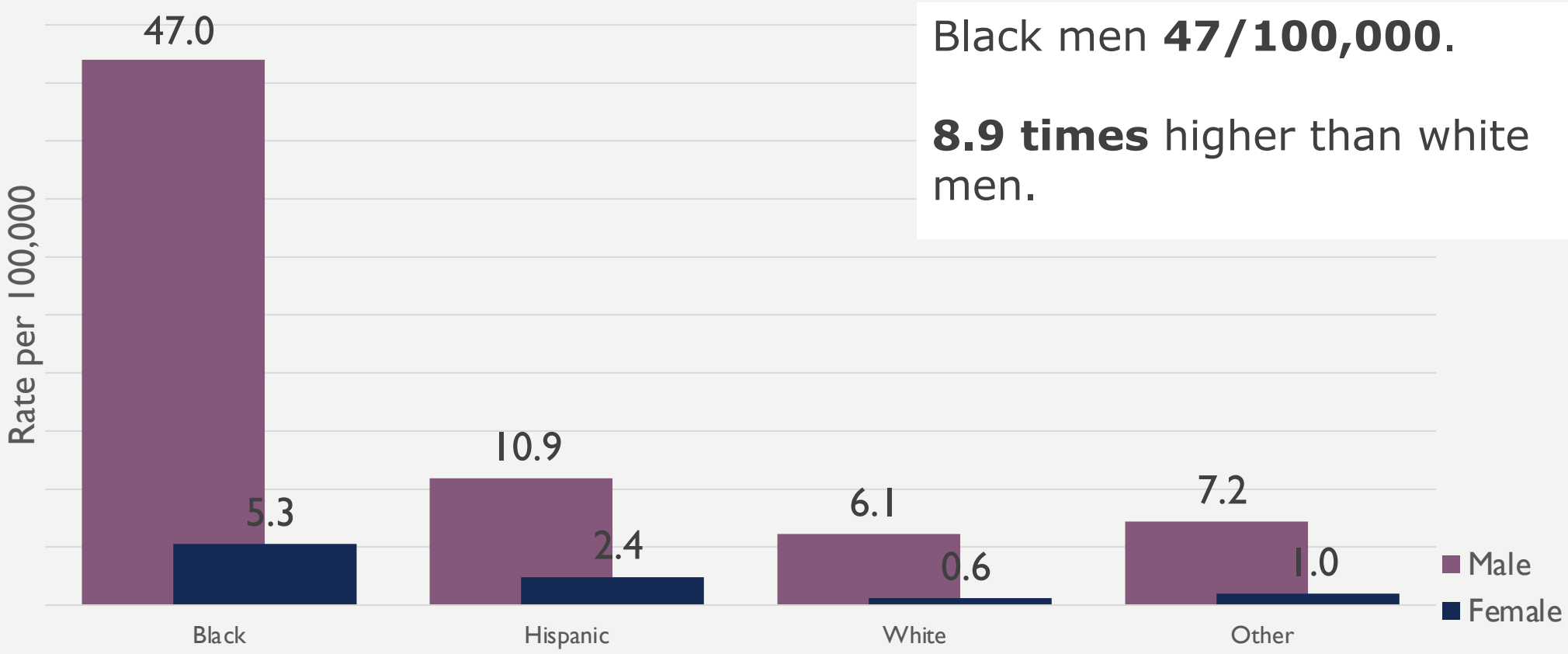
2018 PRIMARY AND SECONDARY SYPHILIS CASES (N= 654)

2018 P & S SYPHILIS CASES BY RISK

- **89 percent** of P&S syphilis cases are men. The majority of those men report sex with other men.



2018 P & S SYPHILIS RATES/100,000 BY RACE AND SEX

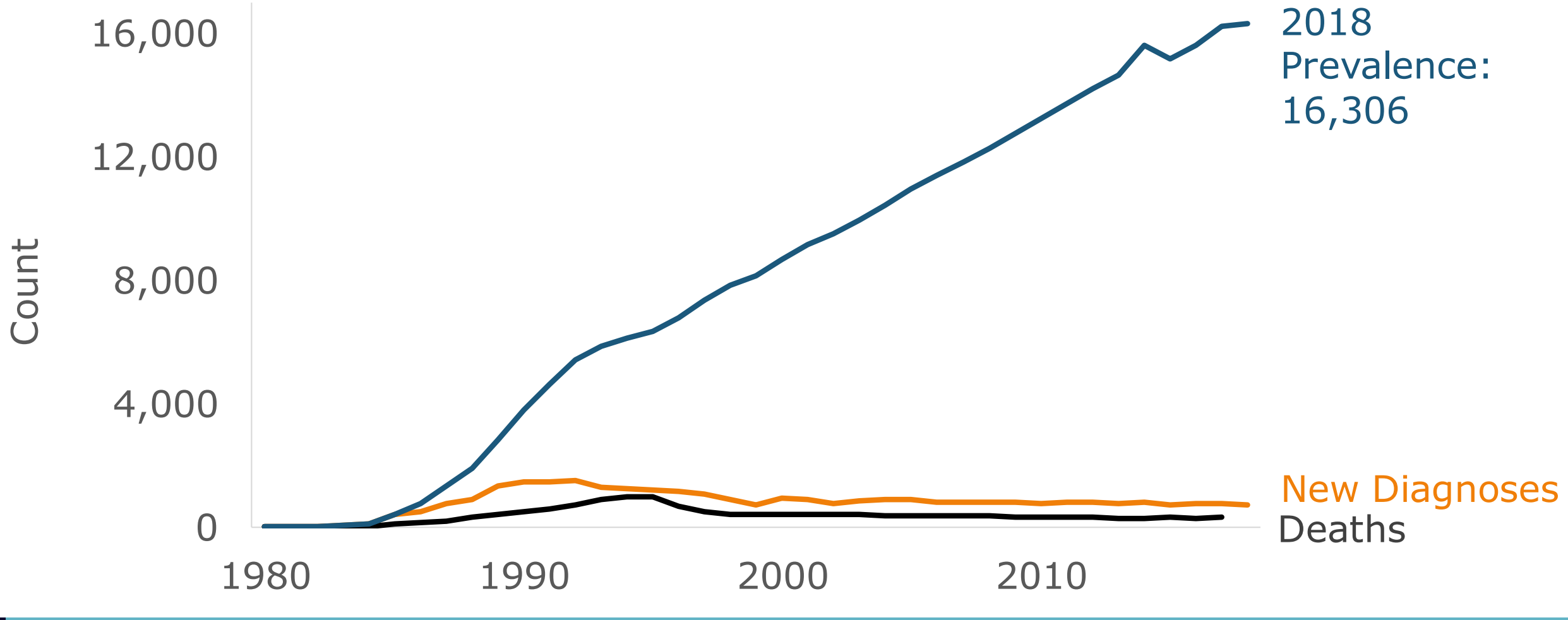


Black men **47/100,000**.

8.9 times higher than white men.

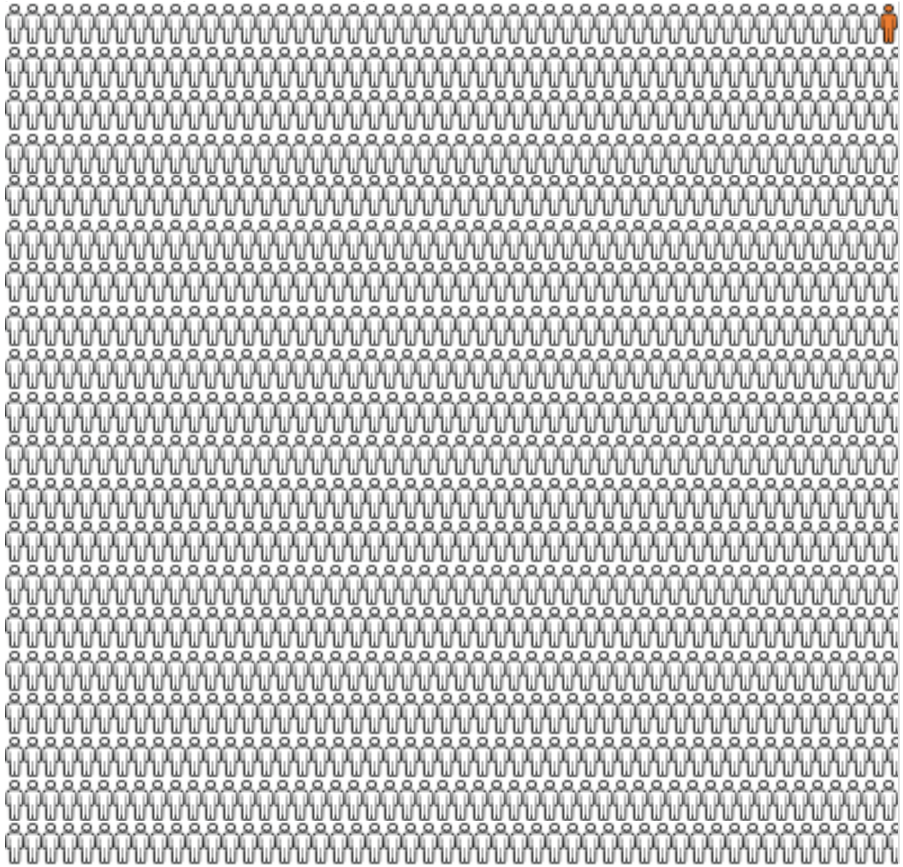
HIV over time in Michigan

New diagnoses and deaths have leveled off. In general, prevalence continues to rise.

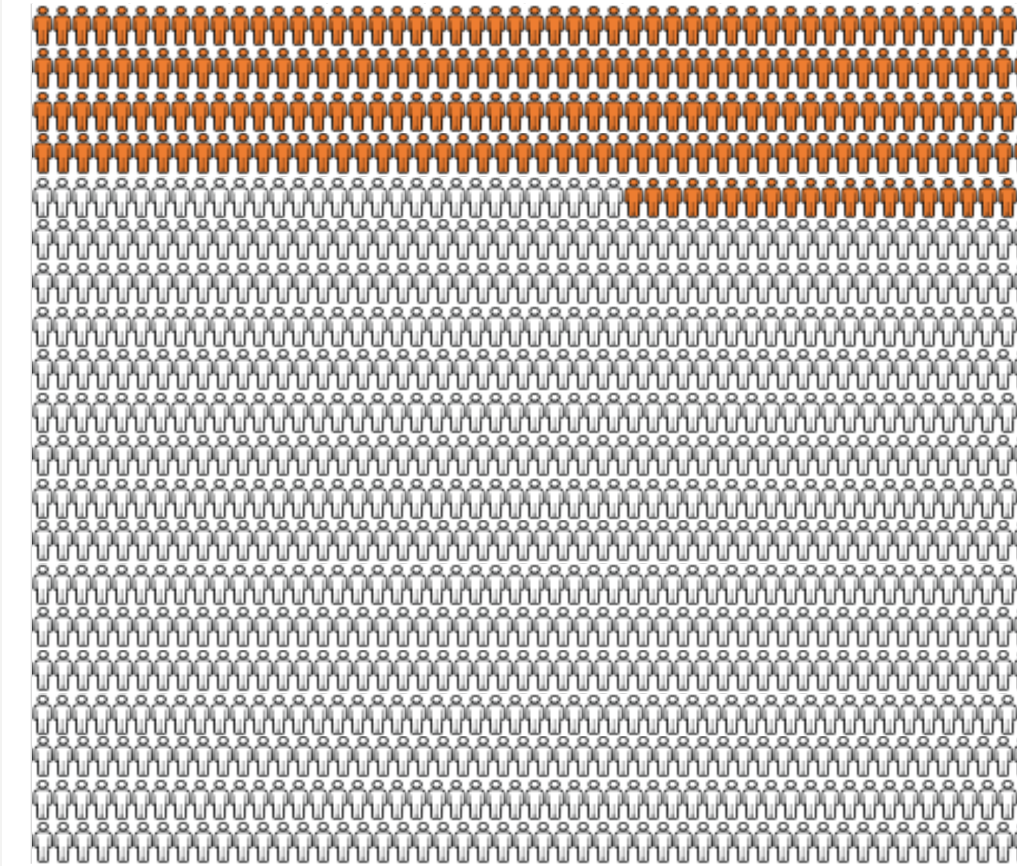


YBMSM are disproportionately affected

Approximately 0.1% of Michigan's population are YBMSM (1 in 1,000)



...but in 2018, 22% of new HIV diagnoses were among YBMSM



ROLES AND RESPONSIBILITIES: PRIVATE PHYSICIANS, LOCAL HEALTH DEPARTMENTS, STATE HEALTH DEPARTMENT

PUBLIC HEALTH ROLES

- Surveillance
- Setting Standards and Guidelines for Private Sector
- Education and Awareness Building
- Contact Tracing/Disease Intervention
- Targeting/Addressing Disparities
- Outbreak Monitoring

EXPEDITED PARTNER THERAPY (EPT)

MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES (MDHHS)

WHAT IS EXPEDITED PARTNER THERAPY (EPT)?

- The practice of treating the sex partners of persons with STDs chlamydia and gonorrhea without an intervening medical evaluation
- EPT allows health care professional to provide patients with antibiotics or prescriptions for their partners without requiring a visit by that partner
- Treatment of the partner is critical to preventing reinfection

WHY IT IS IMPORTANT

- STDs cause at least 24,000 women in the U.S. each year to become infertile
- Untreated trichomoniasis, gonorrhea and *Chlamydia trachomatis* infections can lead to:
  - Pelvic inflammatory disease (PID)
  - Ectopic pregnancy leading to fetal death
  - Infertility
  - Systemic infection of gonorrhea causing arthritis
  - Perinatal transmission leading to pneumonia or conjunctivitis
  - Increased risk of acquiring and transmitting HIV
  - Continued spread of infection

HOW IS IT COST EFFECTIVE

- STDs cost the U.S. health care system an estimated $15.9 billion annually
- A single oral pill for treatment of *Chlamydia trachomatis* infection costs $30/patient while treatment for infertility can cost thousands of dollars per patient
- A single oral pill for treatment of gonorrhea costs $19/patient while treating PID costs over $1000 per patient

WHY EPT IS IMPORTANT IN MICHIGAN?

- There are approximately 60,000 new sexually transmitted infections reported annually in Michigan
- Re-infection rates are very high (20-25% of MDHHS lab run tests)
- With diminishing public health resources, there is not enough staff in local health to provide active partner services (PS) to each of these cases
- Not all patients are willing to divulge the identity of their sexual partners
- Not all partners are willing to go to a health care provider
- Many individuals have challenges seeking medical service, including highly limited access to care

TRADITIONAL PARTNER SERVICE STRATEGIES

- Patient Referral
- DIS Referral
- Provider Referral

**All require partner to see a clinician*

PUBLIC ACT 525 OF 2014

- This amendment to the Public Health Code authorized the use of EPT in Michigan

- Currently EPT can be used for *
  - Partners to chlamydia
  - Partners to gonorrhea (other than in cases involving men who have sex with men)

- *Recommended use is reviewed annually

HOW IS EPT PROVIDED?

- One or more partners are unwilling or unlikely to go for evaluation

- An EPT 'Packet' is given for each partner:
  - EPT Information Sheet (required in law)
  - Medication
  - Prescription
    - Made out to specific person
    - Made out to Expedited Partner Therapy (D.O.B. 1-1-CY)

EPT WORKS!

- EPT is a vital tool in the STD control tool box.
- Allows for treatment of partners who many not otherwise be treated.
- If no treatment of the partner, treatment of index patient not effective.

BENEFITS OF EPT

- Significant decrease in persistence/recurrence rates in index patients
- More likely to report partner treated than if partner referred
- Less likely to have sex with untreated partner
- Cost-saving when compared to standard therapy when sequelae included

IN SUMMARY

- EPT decreases persistent and recurrent STD infections
- More likely the partner is treated than if they are referred
- Reducing infection is particularly important in women because of the risk of PID and other complications
- EPT is at least equivalent and probably more efficacious than standard partner therapy for chlamydia and gonorrhea, and…..

- **Pharmacy is a vital part of this intervention!**

NEISSERIA GONORRHOEAE ANTIMICROBIAL SUSCEPTIBILITY

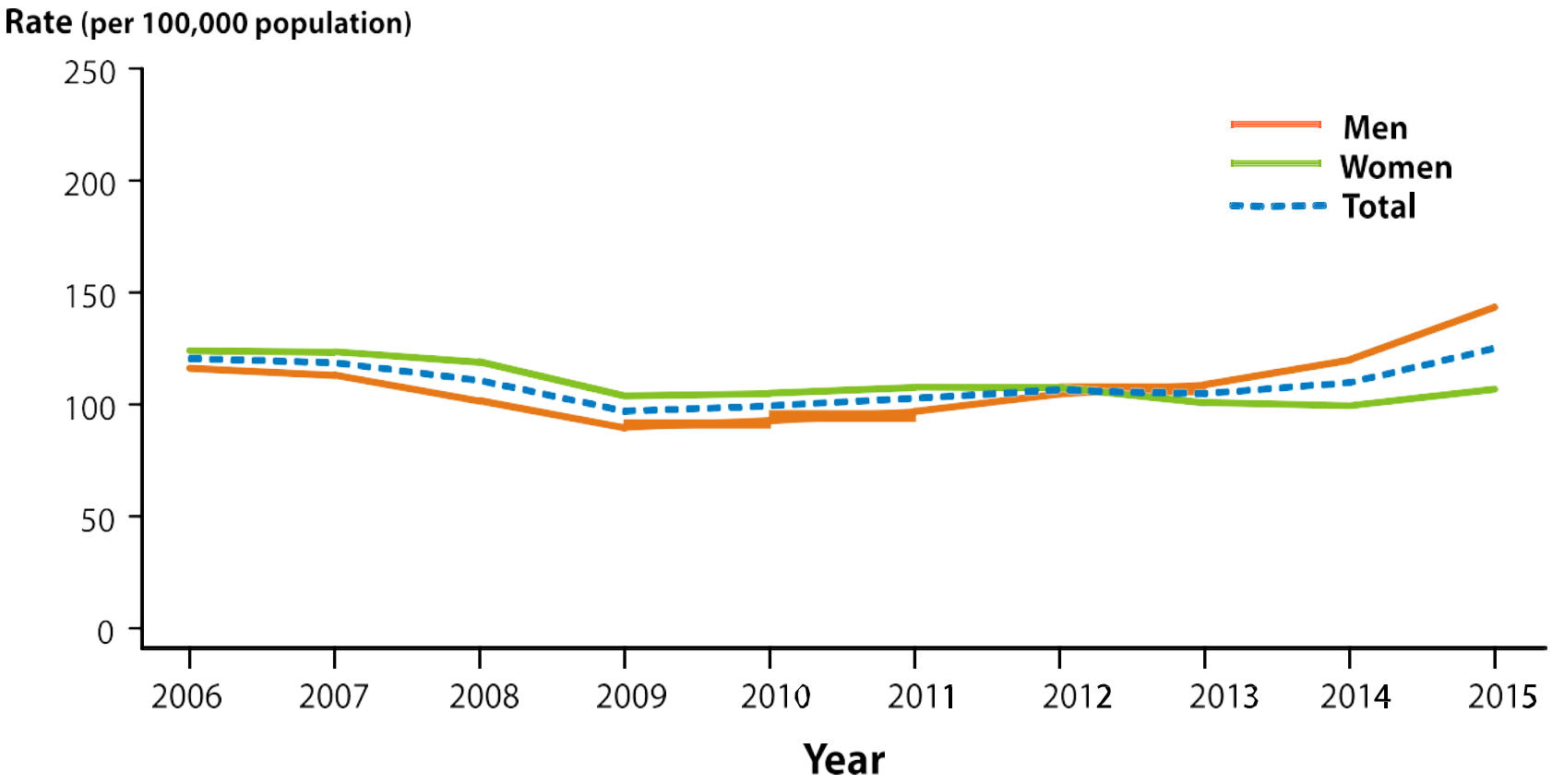
Don't call me resistant!

---Neisseria Gonorrhoeae

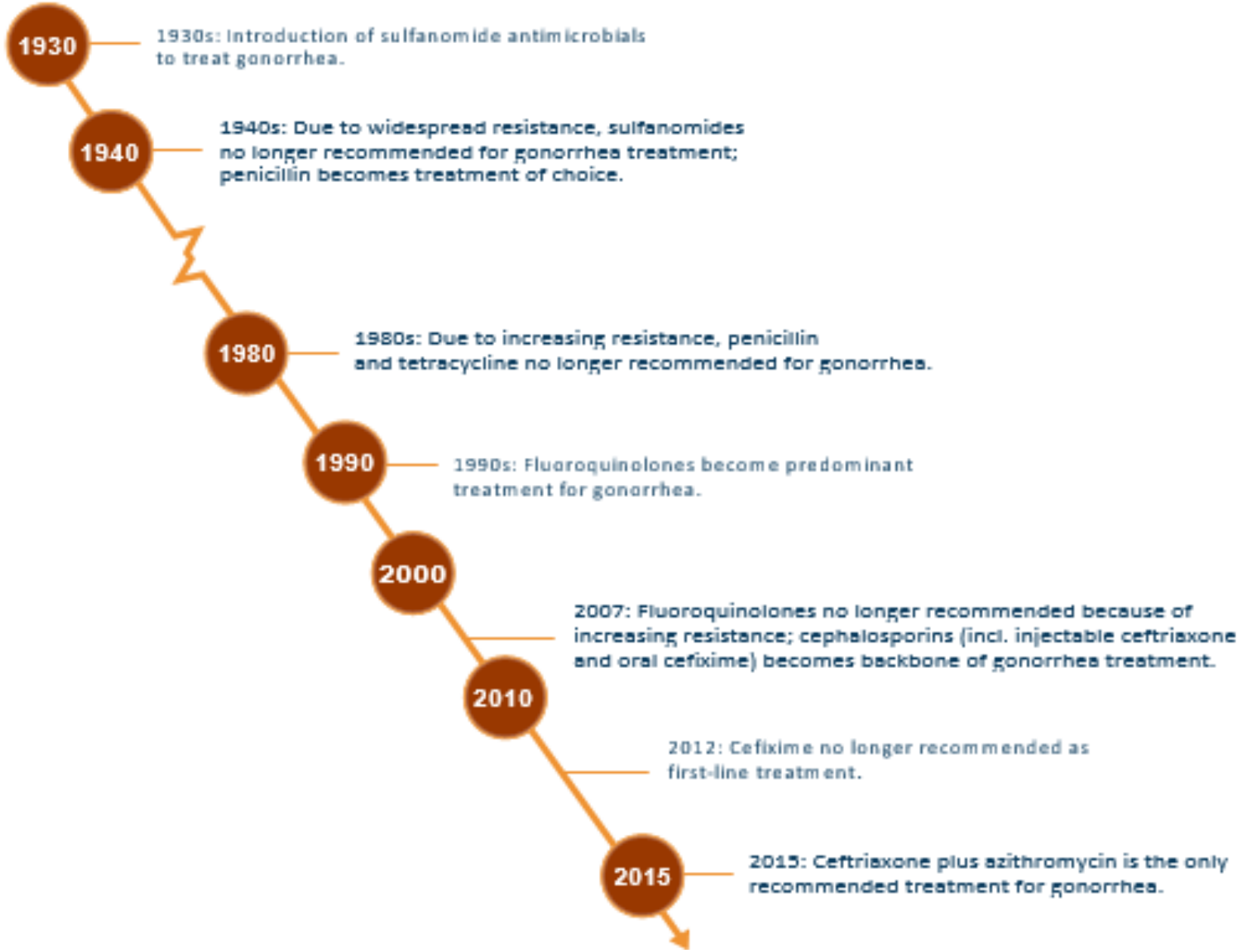
ACKNOWLEDGEMENTS

- Select slides used with permission from Dr. Robert Kirkaldy at the Centers for Disease Control and Prevention.

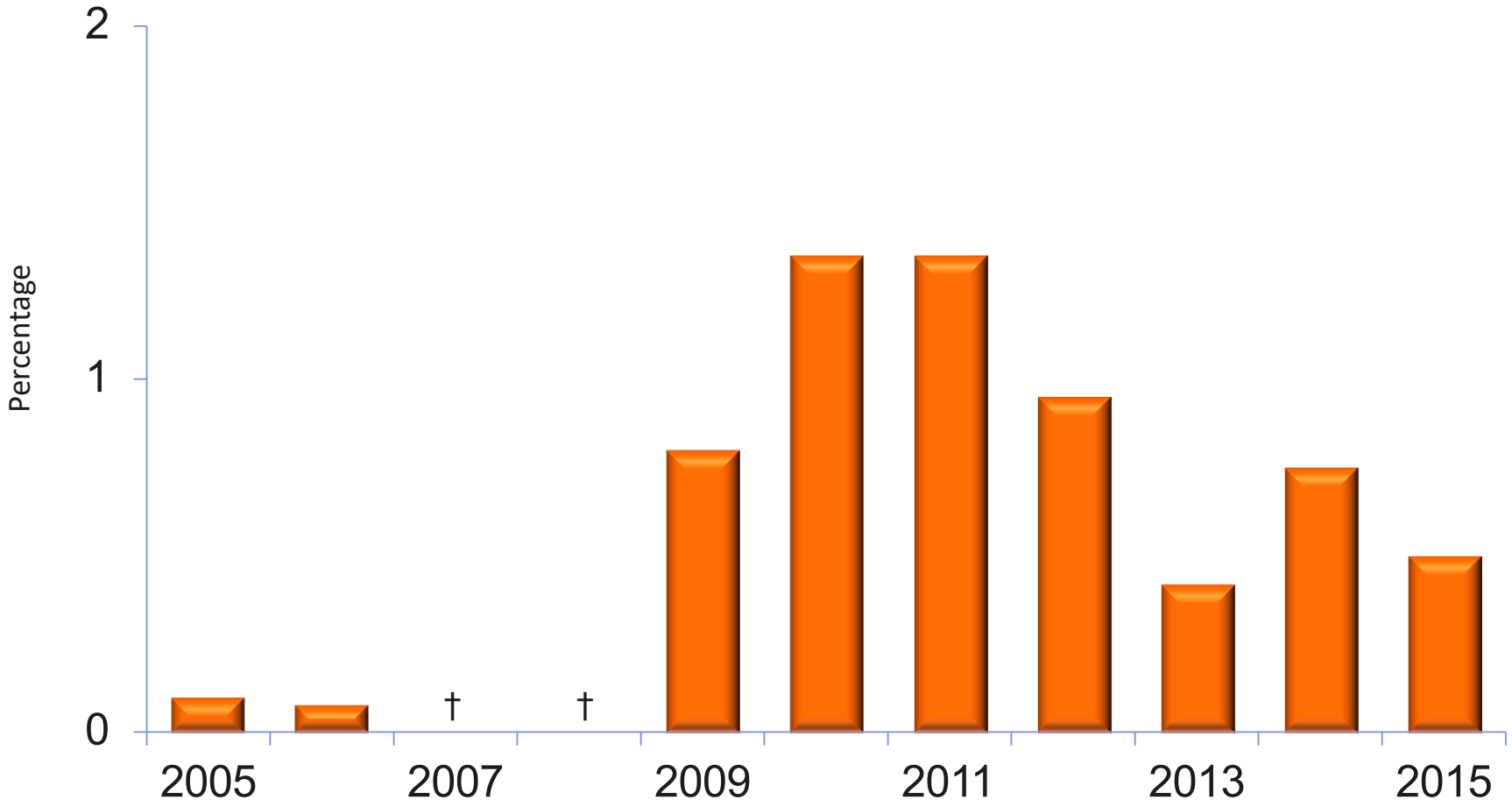
Gonorrhea — Rates of Reported Cases by Sex, United States, 2006–2015



Historical Trends in Drug Resistance and Centers for Disease Control (CDC) Treatment Recommendations[20]

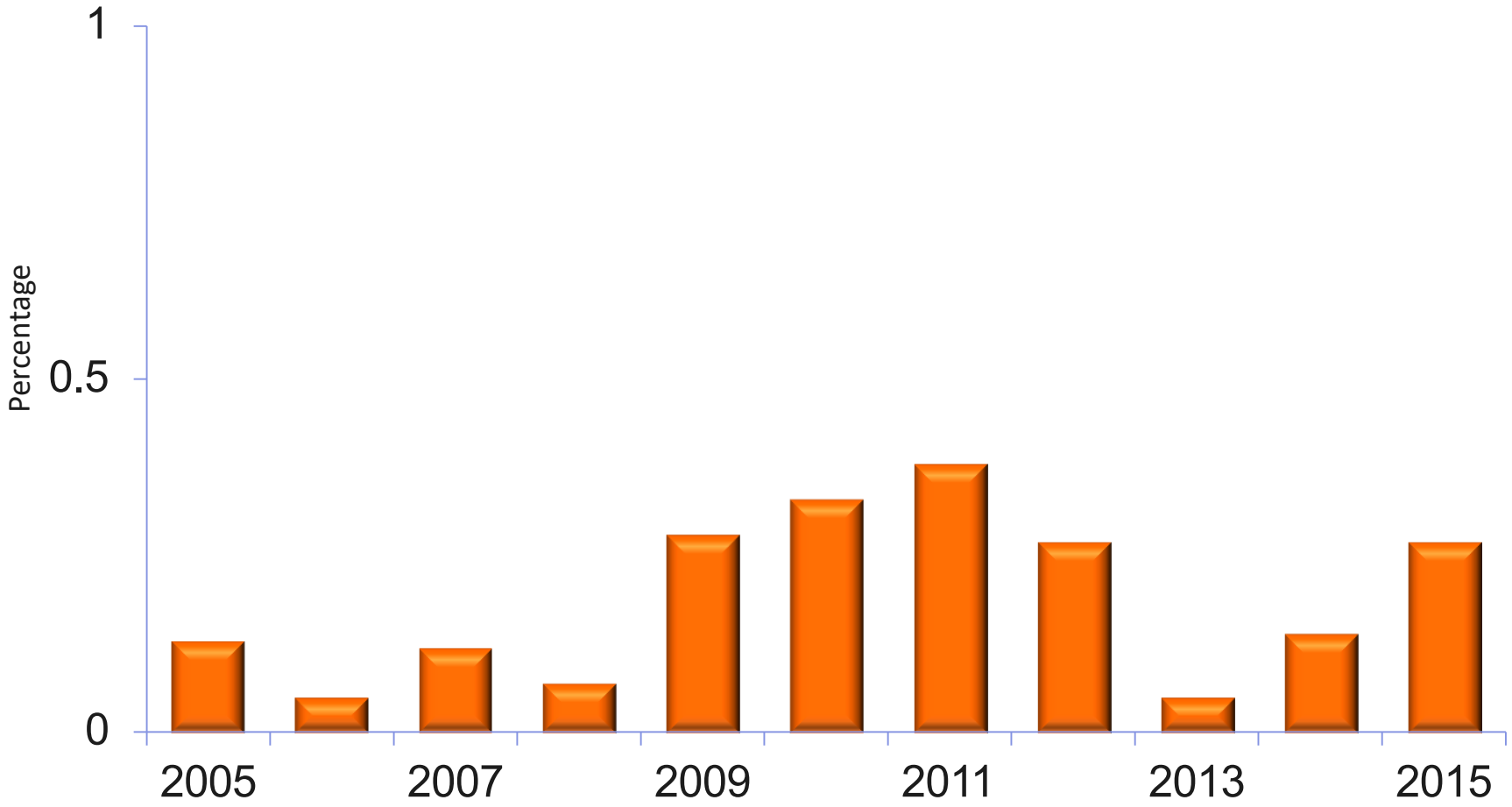


Percentage of Isolates with Reduced Cefixime Susceptibility,* GISP, 2005–2015



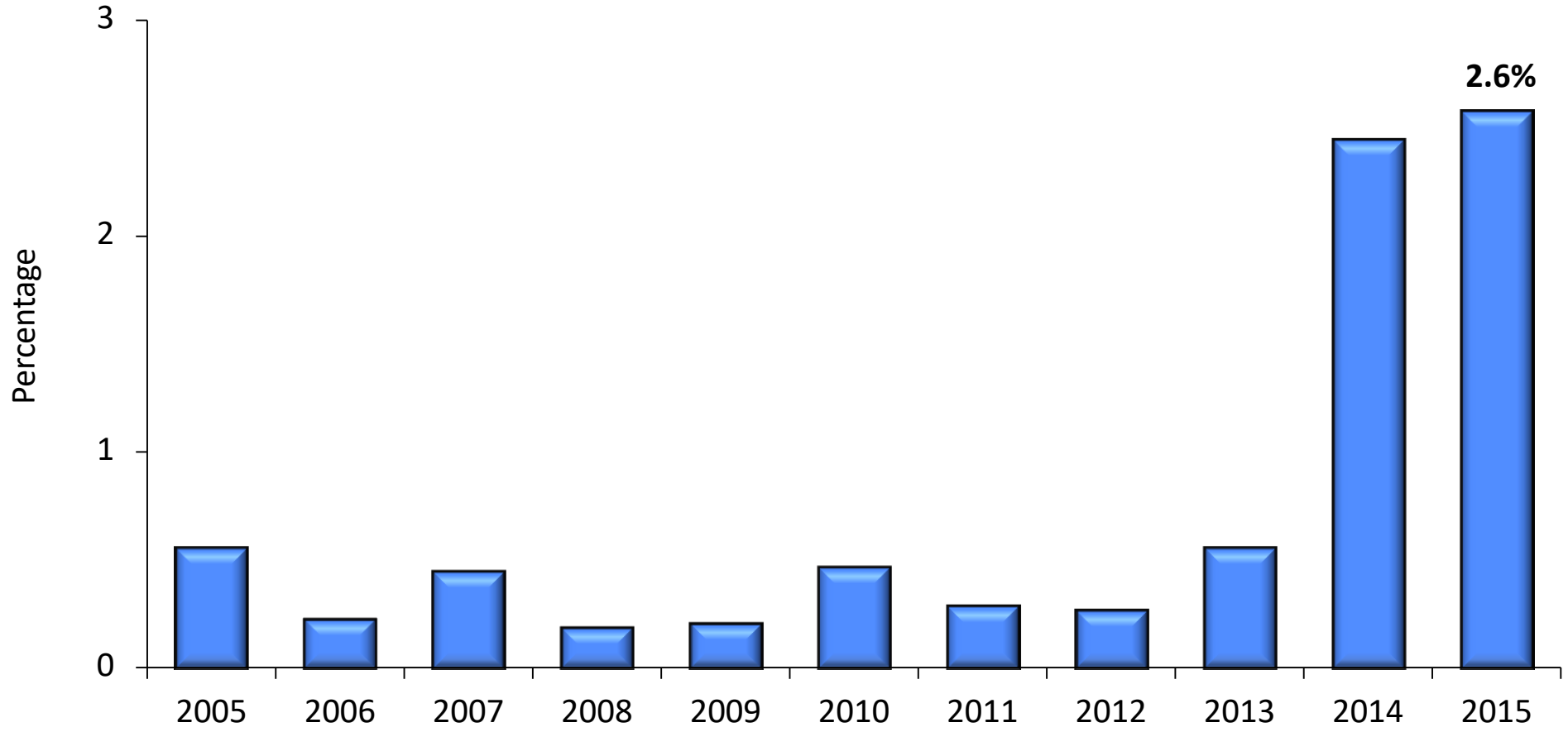
* MIC ≥0.25µg/ml
† Cefixime AST not conducted in 2007/2008

Percentage of Isolates with Reduced Ceftriaxone Susceptibility, GISP, 2005–2015



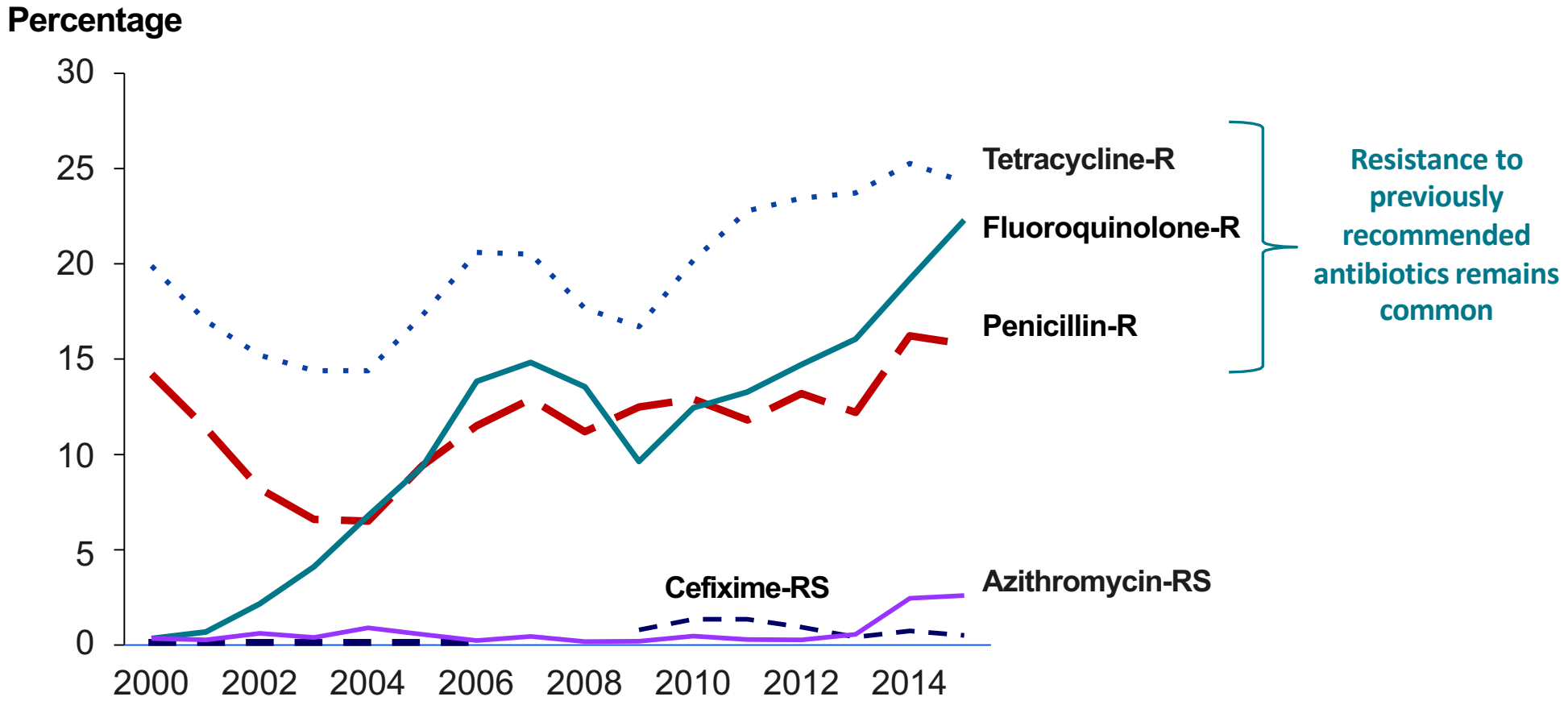
Reduced Susceptibility = MIC ≥0.125 µg/ml

Percentage of Isolates with Reduced Azithromycin Susceptibility, GISP, 2005–2015



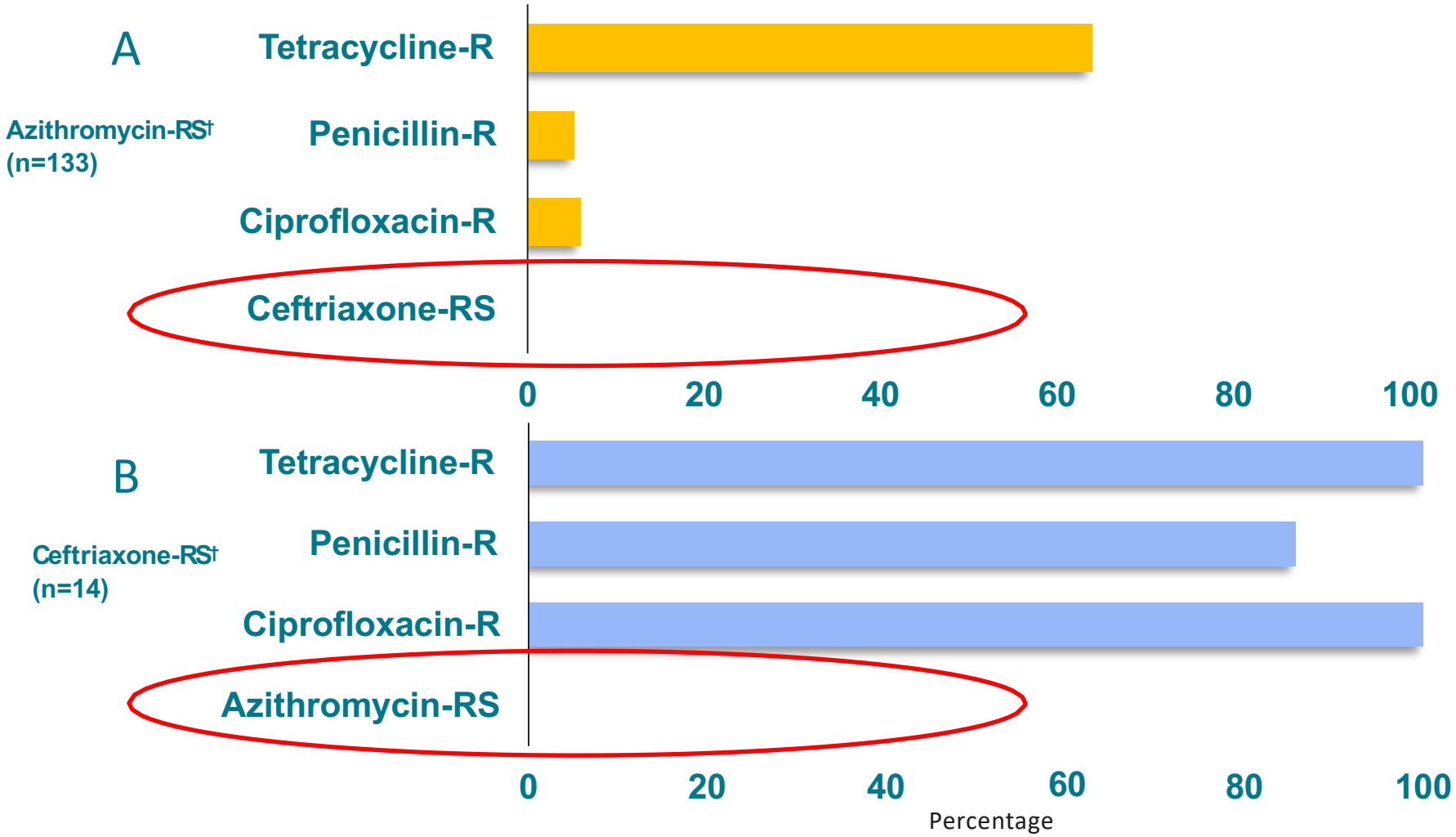
Reduced Susceptibility = MIC ≥ 2.0 µg/ml

Prevalence of Antimicrobial Resistance by Year, GISP, 2000–2015



Azithromycin Reduced Susceptibility (RS) = MIC ≥1 µg/ml (2000-2004); ≥2 µg/ml (2005-2014); Cefixime-RS = MIC ≥0.25 µg/ml; Fluoroquinolone Resistance (R) = Ciprofloxacin MIC ≥1 µg/ml; Penicillin-R = MIC ≥2 µg/ml or β-lactamase positive; Tetracycline-R = MIC ≥ 2 µg/ml
NOTE: Cefixime susceptibility not testing in 2007 and 2008

Percentage of Isolates with (A) Reduced Azithromycin Susceptibility and (B) Reduced Ceftriaxone Susceptibility with Other Resistance Phenotypes, 2015



† Azithromycin-RS=reduced azithromycin susceptibility (MIC ≥2 µg/ml); ceftriaxone-RS=reduced ceftriaxone susceptibility (MIC ≥0.125 µg/ml)
NOTE: Resistance categories are not mutually exclusive

SNEAK PEAK

Discussion for 2020 CDC STD Treatment Guideline change for gonorrhea…

- 500 mg Ceftriaxone?
- Waiting to see final Guidelines later this year.

CLUSTER OF DISSEMINATED GONOCOCCAL INFECTIONS (DGI)

MICHIGAN 2019

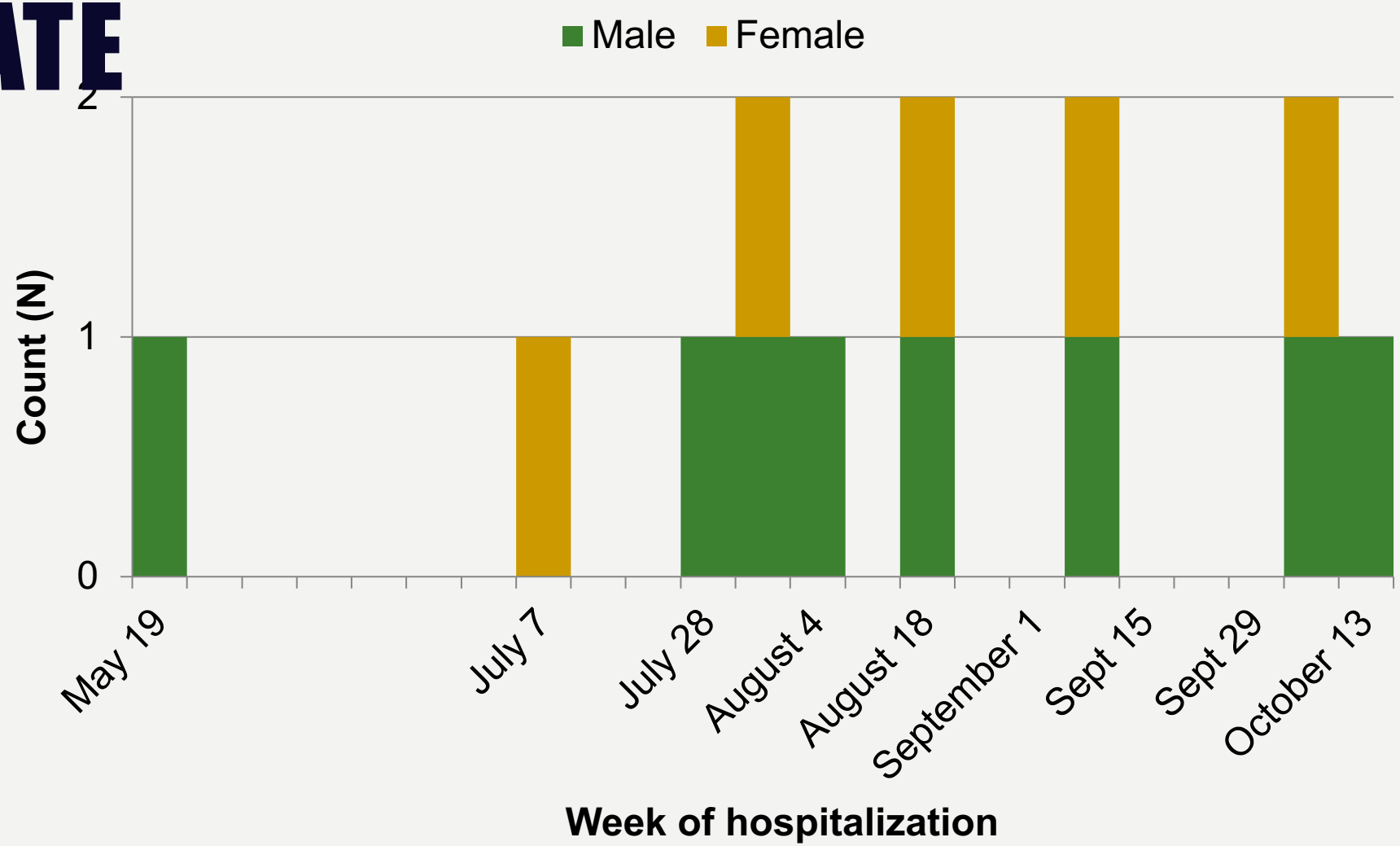
MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES (MDHHS)

DGI BACKGROUND

- Disseminated gonococcal infection
  - Caused by sexual exposure and infection with NG, which rarely spreads to cause serious infection.
  - Septicemia leading to arthritis, skin lesions, endocarditis, or meningitis is thought to occur in 0.5% to 3% of untreated patients (Hook, 2008).
  - Host factors such as immune disorders may contribute to some infections.

- No clusters* of DGI have recently been reported in the U.S.

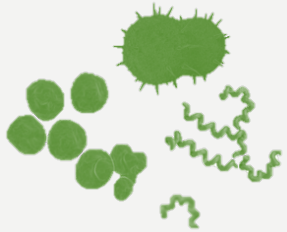
DGI CLUSTER BY HOSPITALIZATION DATE



DGI SURVEILLANCE

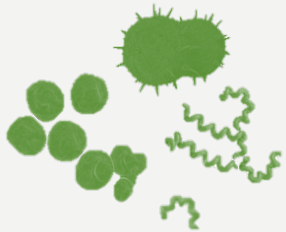
- Michigan has not previously tracked DGI routinely.
- Nearly 17,000 cases of gonorrhea were reported statewide in 2018. Labs report the anatomic site of collection on 60% of reported cases.
- Review of laboratory data January 2018 to July 2019 identified 17 gonorrhea infections that appear to be DGI cases. There were a maximum of three cases per month and no clusters.

CASE SUMMARY



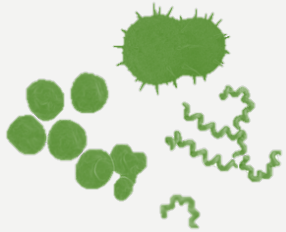
Disseminated gonococcal Infections	
Case status	11 Confirmed 2 Probable
Residence	11 Kalamazoo County 1 St Joseph County 1 Calhoun County
Onset and hospitalization	1 May 0 June 3 July 3 August 3 September 1 October

CASE SUMMARY



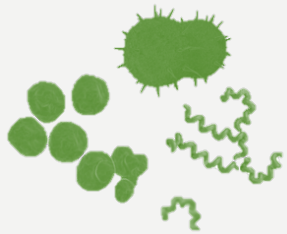
Disseminated gonococcal Infections	
Sex	8 Male
	5 Female
Ages	16 to 52 years
Hospitalized	All 13
Surgical treatment	12
Symptoms	10 patients with septic arthritis 7 knee 3 wrist or hand 3 finger or thumb joint 2 elbow 1 ankle
	2 with tenosynovitis
	1 blood infection with endocarditis

CASE SUMMARY



Disseminated gonococcal Infections	
Concurrent gonorrhea infection (8 total)	6 urogenital 4 pharyngeal 1 rectal
Sexually transmitted infection history	None with HIV 3 with prior CT or GC diagnosis 1 Hepatitis C
Sexual partners	2 bisexual (1M, 1F) 11 heterosexual (7M, 4F)
Drug use	10 methamphetamine 4 marijuana 3 opioids 3 IDU
Unstable housing	4 homeless or insecure housing
Recent prison	3 Yes

LABORATORY SUMMARY



Disseminated gonococcal Infections	
Disseminated cultures recovered	10
Antibiotic sensitivity (10 completed)	All are sensitive to azithromycin ceftriaxone cefixime
Molecular profile (10 completed)	All 10 cluster very closely to each other, compared with historical DGI cases from other areas of MI, and local cases of genital gonorrhea from the same time period

QUESTIONS:

- Amy Peterson
- petersona7@Michigan.gov
- 313-456-4425