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Master of Public Health Program

## Background

Cuyahoga County Board of Health (CCBH) is located at 5550 Venture Dr, Parma, OH, 44130. This practicum was completed with Epidemiology, Surveillance, and Informatics Services (ESI) which leads CCBH's efforts to collect and monitor infectious and chronic diseases in the community, as well as emergency preparedness planning efforts. ESI also provides technical support for CCBH programs such as data analysis and public health informatics activities.

## Population

CCBH serves residents of Cuyahoga County and Northeastern Ohio. CCBH strives to create the conditions in which all people who live, learn, work and play in Cuyahoga County and its surroundings have the opportunity to be healthy.

The population of focus for this project were the residents of the Northeast Ohio six-county Region 3 (Ashtabula, Cuyahoga, Geauga, Lake, Lorain, and Medina counties) ≥ 13 years, diagnosed with HIV and/or syphilis in 2019 - 2023. The general population of Region 3 is estimated to be 2,158,8932 for 2023, or 18% of the entire population of the state of Ohio (11.79 million). There are 6,037 people living with HIV in Region 3 (as of December 31, 2022, Ohio Department of Health).

## Learning Objectives

1. Evaluate surveillance systems and understand the limitations of surveillance data.
2. Analyze, characterize and interpret epidemiological data. Collect and monitor the amount of infectious diseases in the community, with a special focus on HIV/STI in Cuyahoga County and Region 3.
3. Recommend control measures, public health interventions and/or prevention programs based on the data analysis.

## Activities

- ✓ Analyze the data from Ohio Disease Reporting System (ODRS)
- ✓ Work with large data set with individual responses from the interviews conducted by CCBH disease intervention specialists (DIS). All interviewed individuals had positive syphilis diagnosis.
- ✓ Perform data clean-up
- ✓ Learn to navigate the CCBH HIV/STI data dashboard
- ✓ Create charts and graphs
- ✓ Compile data report
- ✓ Conduct literature review of peer-reviewed articles on PrEP hesitancy among women
- ✓ Obtain PrEP Navigator's Certification

## Deliverables

1. HIV/STI Data Sources Guide for delivery to and utilization by CCBH staff
2. HIV/STI Data Report to be delivered in document and presentation to CCBH staff.

## Lessons Learned

Epidemiological data shows that the number of syphilis cases is increasing in Region 3 (see Chart 1). Syphilis infection is significantly higher among men than women, ( $p < 0.01$ ), though the infection rate in women is consistently increasing over time. Syphilis has been indicated to play a promotion role in HIV acquisition and sexual transmission. HIV co-infections are slightly increasing among women in Region 3 (see Chart 2).

CDC recommends Pre-Exposure Prophylaxis (PrEP) as a prevention strategy to reduce the risk of acquiring HIV. Candidates include individuals with recent bacterial STI (such as syphilis), history of inconsistent or no condom use, have sexual partner with HIV or inject drugs.

Although PrEP is highly effective when used correctly, women severely underutilize this medication. In 2022, 90% of PrEP users in Ohio were male and 9.3% were female (see Chart 3 for PrEP use in Region 3). Racial disparities also exist: PrEP use is significantly higher among White population, compared to Black and Hispanic populations.

Data from DIS interviews shows that over the last 5 years, individuals diagnosed with syphilis in Region 3 are:

- a) declining PrEP at increasing rates
- b) being referred to PrEP services at decreasing rates
- c) cisgender women in particular continue underutilizing PrEP (see Graph1 and 2 for PrEP utilization trends by gender)
- d) Only small percentage of individuals with syphilis are using PrEP at the time of the DIS interviews. This is a downward trend for women: less women diagnosed with syphilis are PrEP users (see Chart 4).

PrEP-to-Need Ratio (PNR) - the ratio of the number of PrEP users in geographic area or demographic subgroup to the number of people newly diagnosed with HIV. PNR is the measure of equity: low PNR indicates high unmet need for PrEP. In Ohio, Black people with HIV, as well as women with HIV have the lowest PNR compared to other groups, which means they have the highest unmet need (see Figures 7 and 8). Yet, nationally, Black cisgender women are facing the risk of acquiring HIV that is 14.6 times higher compared to White cisgender women (AIDSvu, 2023).

Women face unique barriers to PrEP uptake: misinformation about PrEP; low perceived risk of acquiring HIV; not realizing that PrEP as prevention method could benefit them; stigma associated with PrEP uptake; lack of awareness; limited accessibility and more.

## Public Health Implications

Underutilization of PrEP as HIV prevention strategy, especially among individuals with STI co-infections is a public health issue. It is imperative to understand women's perspectives about PrEP and the perceived risks of acquiring HIV/STIs so that effective interventions can be developed and implemented. It is also crucial to remove barriers to entering into care for the newly-diagnosed individuals from vulnerable sub-populations.

The HIV/STI Data Sources Guide and HIV/STI Data Report will help CCBH staff outside of ESI to access up-to-date region-specific epidemiological data on HIV/STIs and PrEP utilization with the option to compare it to the national trends.

## Acknowledgements

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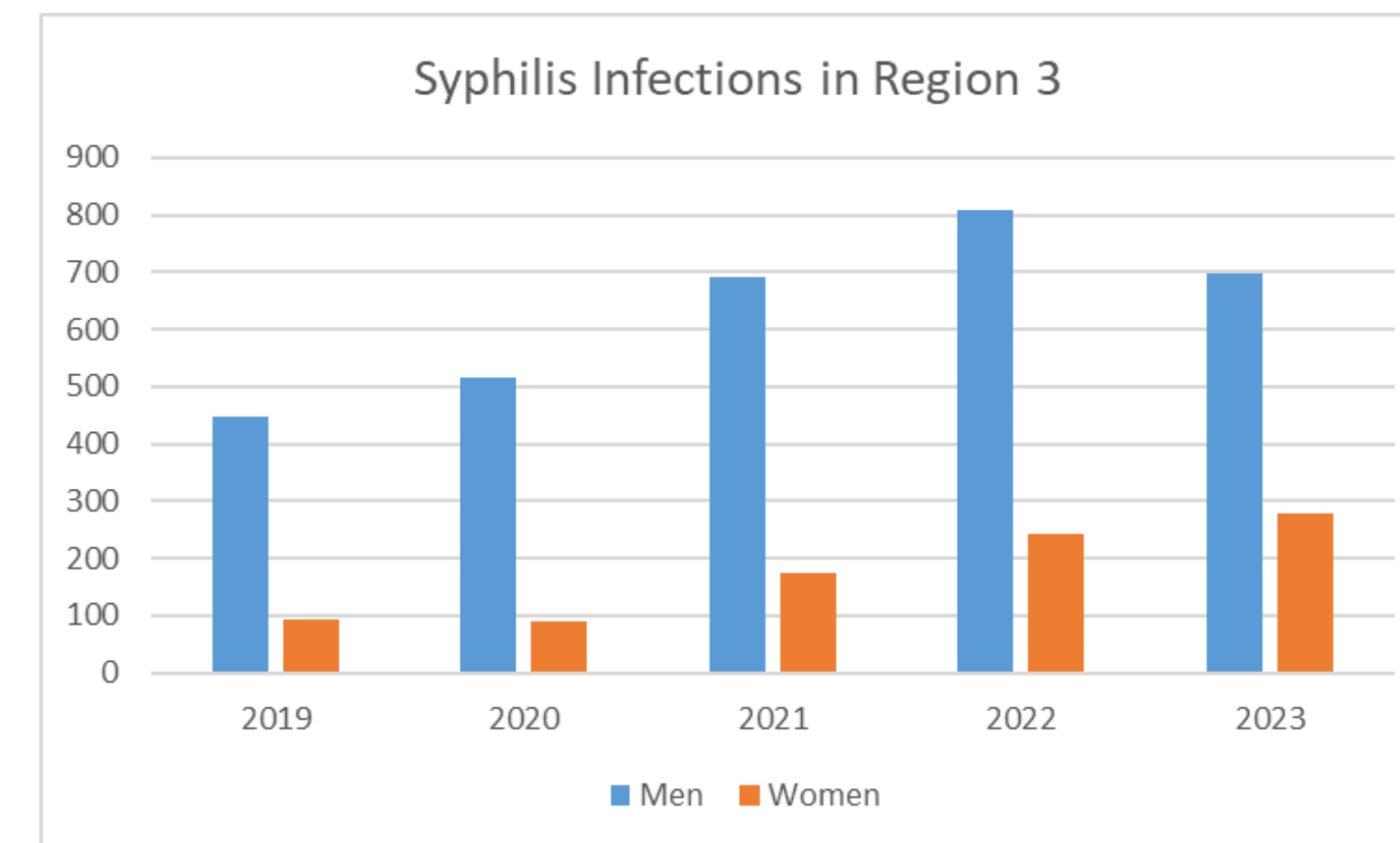


Chart 1: Syphilis infections in Region 3 among men and women over a 5-year period

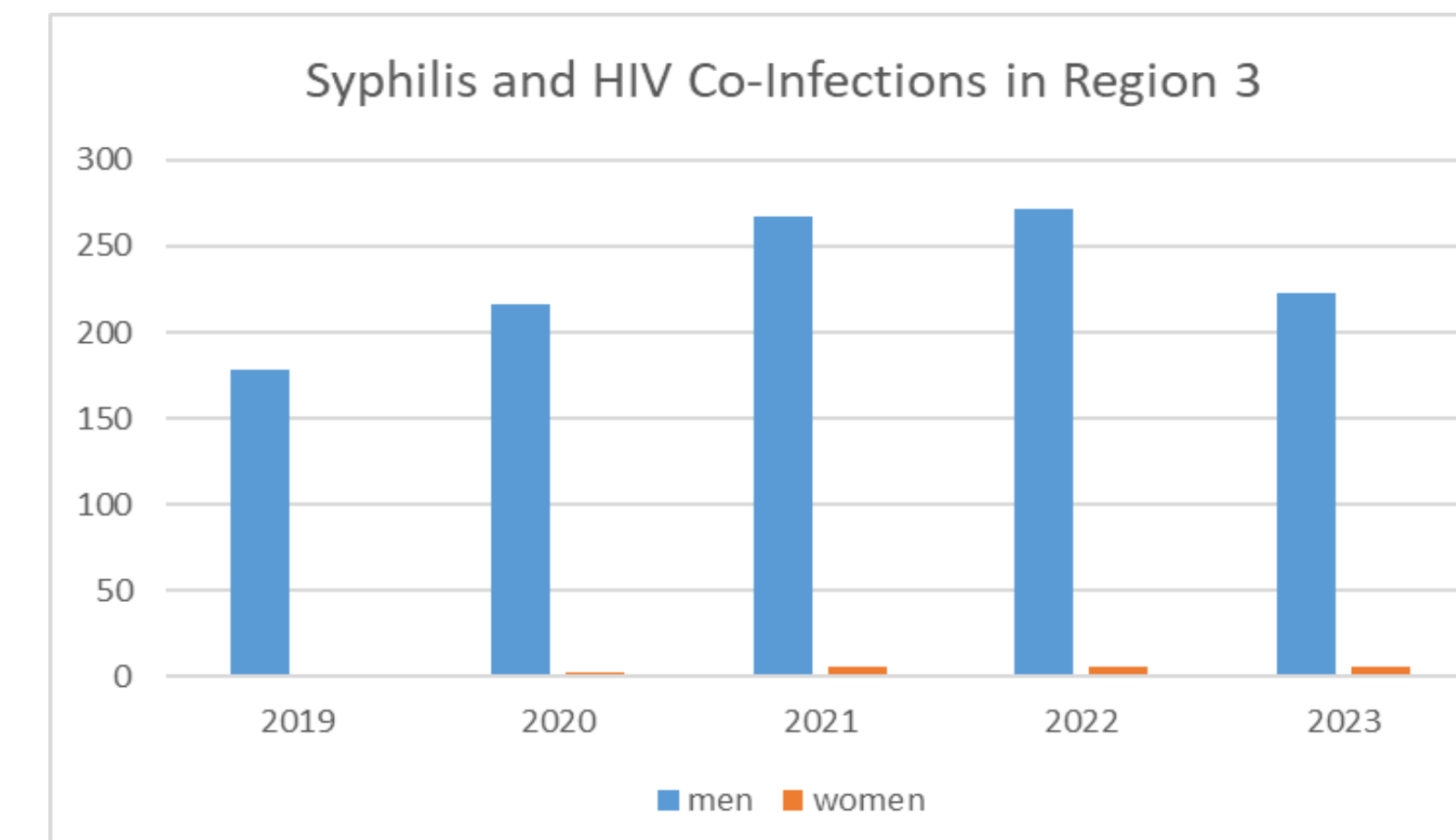
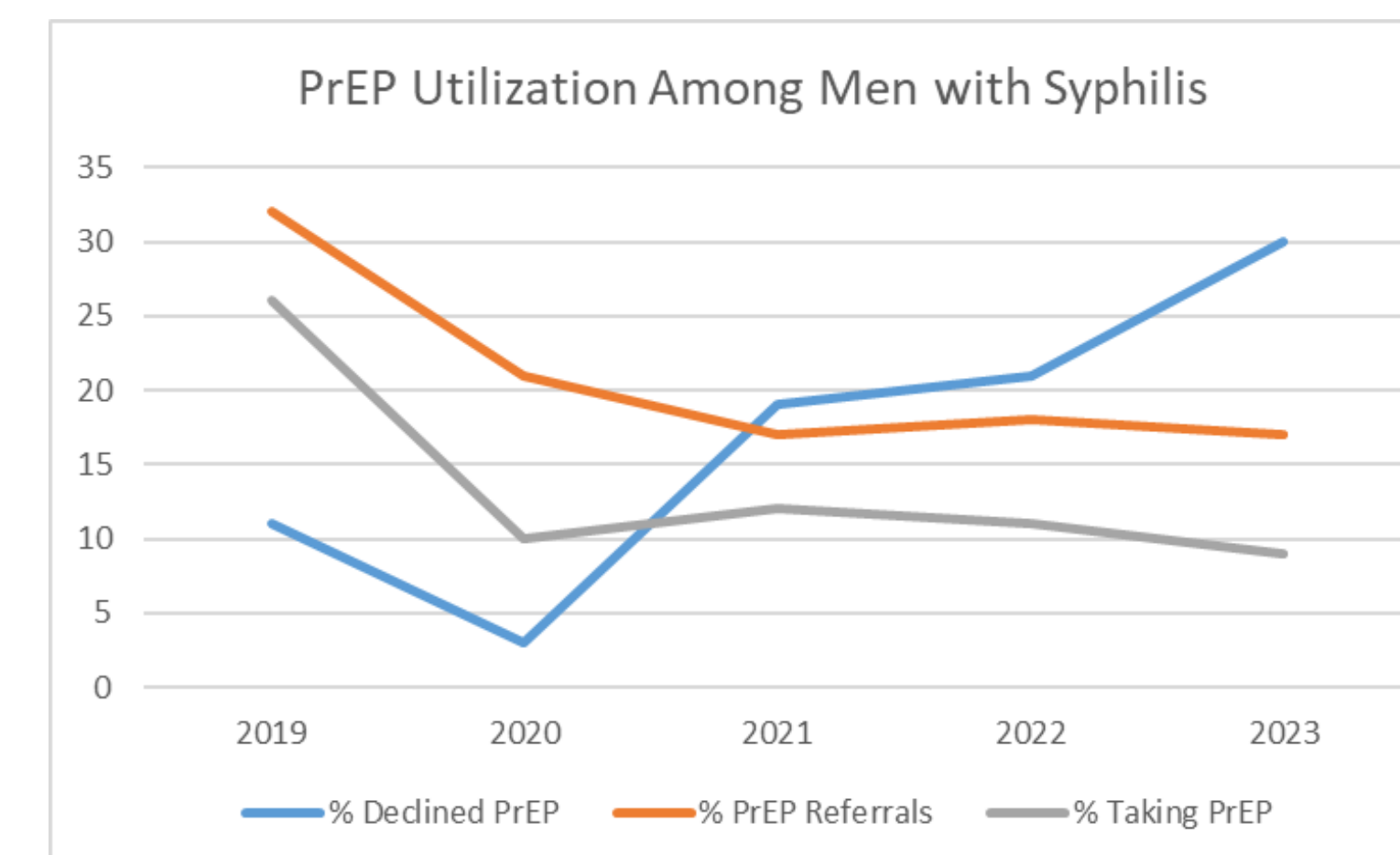
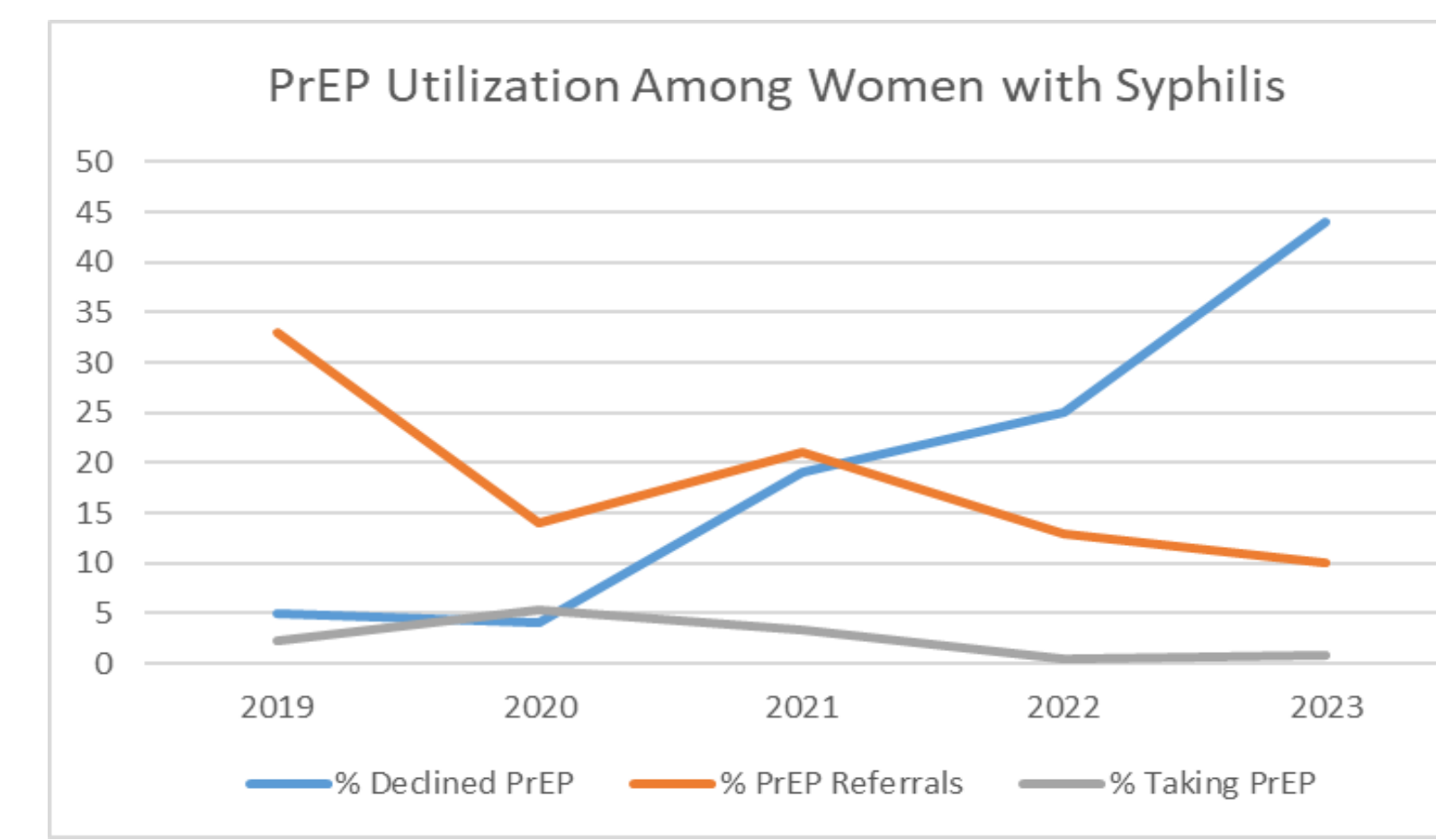


Chart 2: Syphilis and HIV co-infections in Region 3 among men and women over a 5-year period



Graph 1: PrEP utilization trends in Region 3 among men with syphilis infections over a 5-year period



Graph 2: PrEP utilization trends in Region 3 among women with syphilis infections over a 5-year period

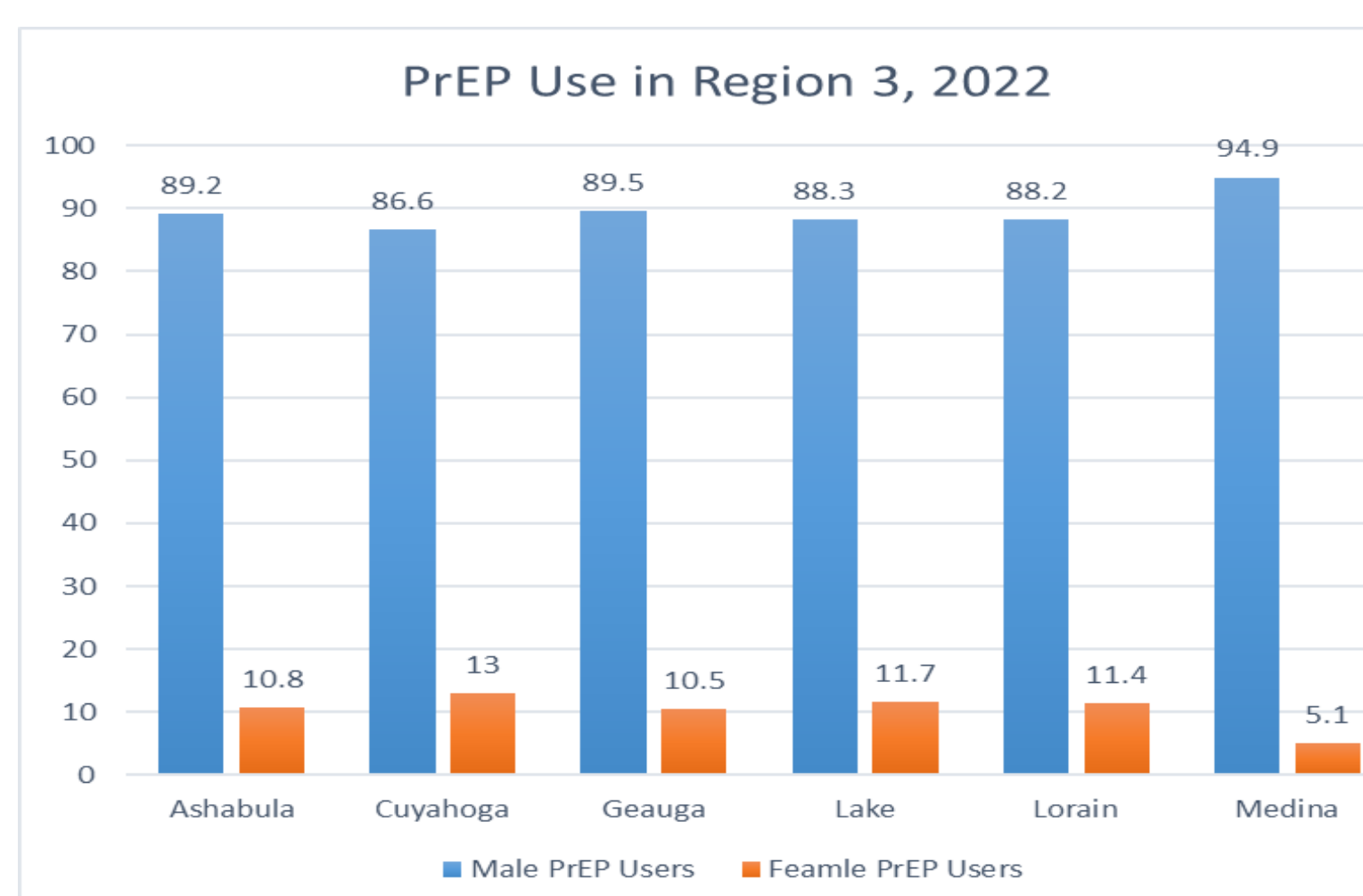


Chart 3: PrEP use among men and women in Region 3 by county

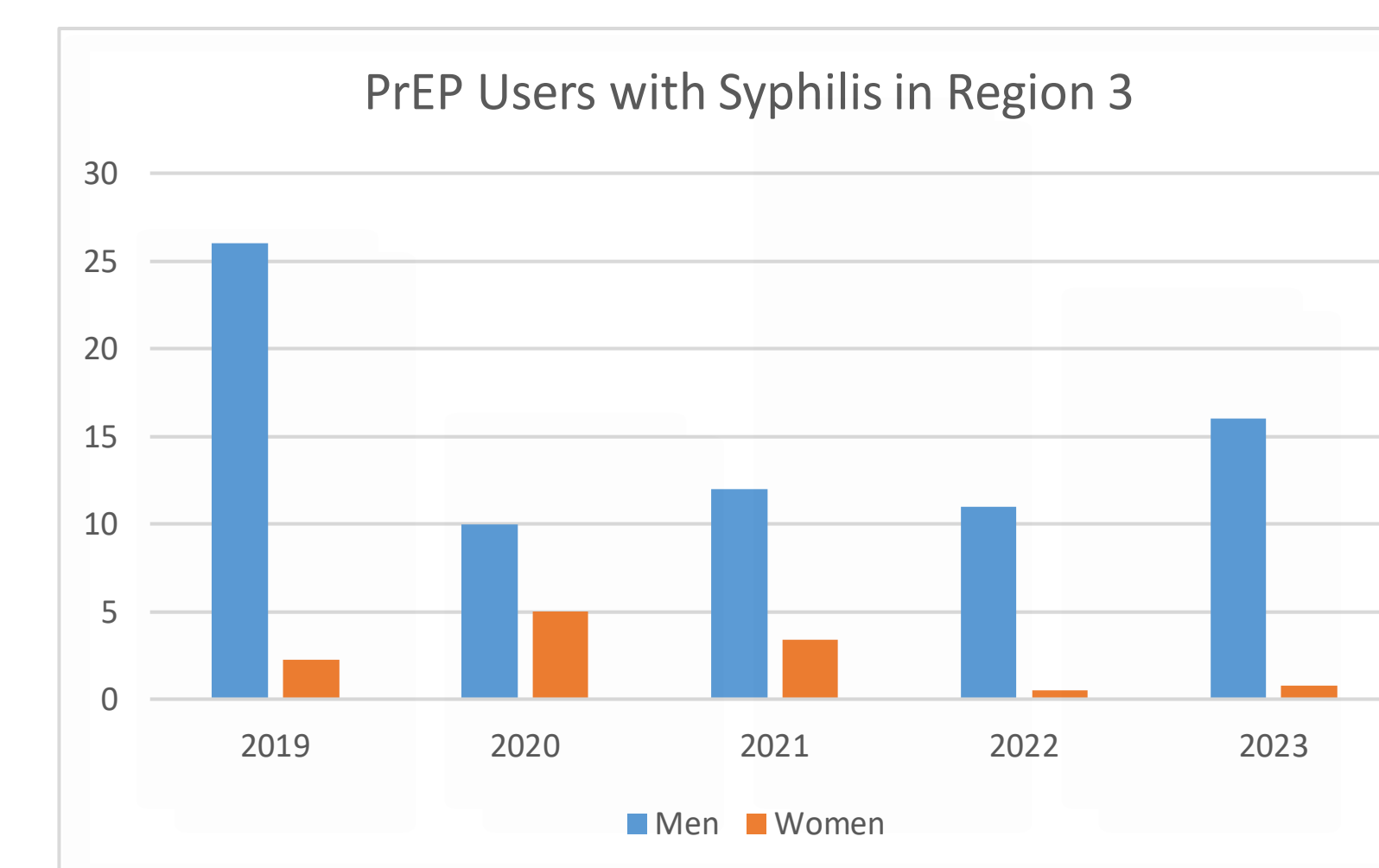


Chart 4: The percentages of individuals with syphilis who used PrEP at the time of the DIS interviews

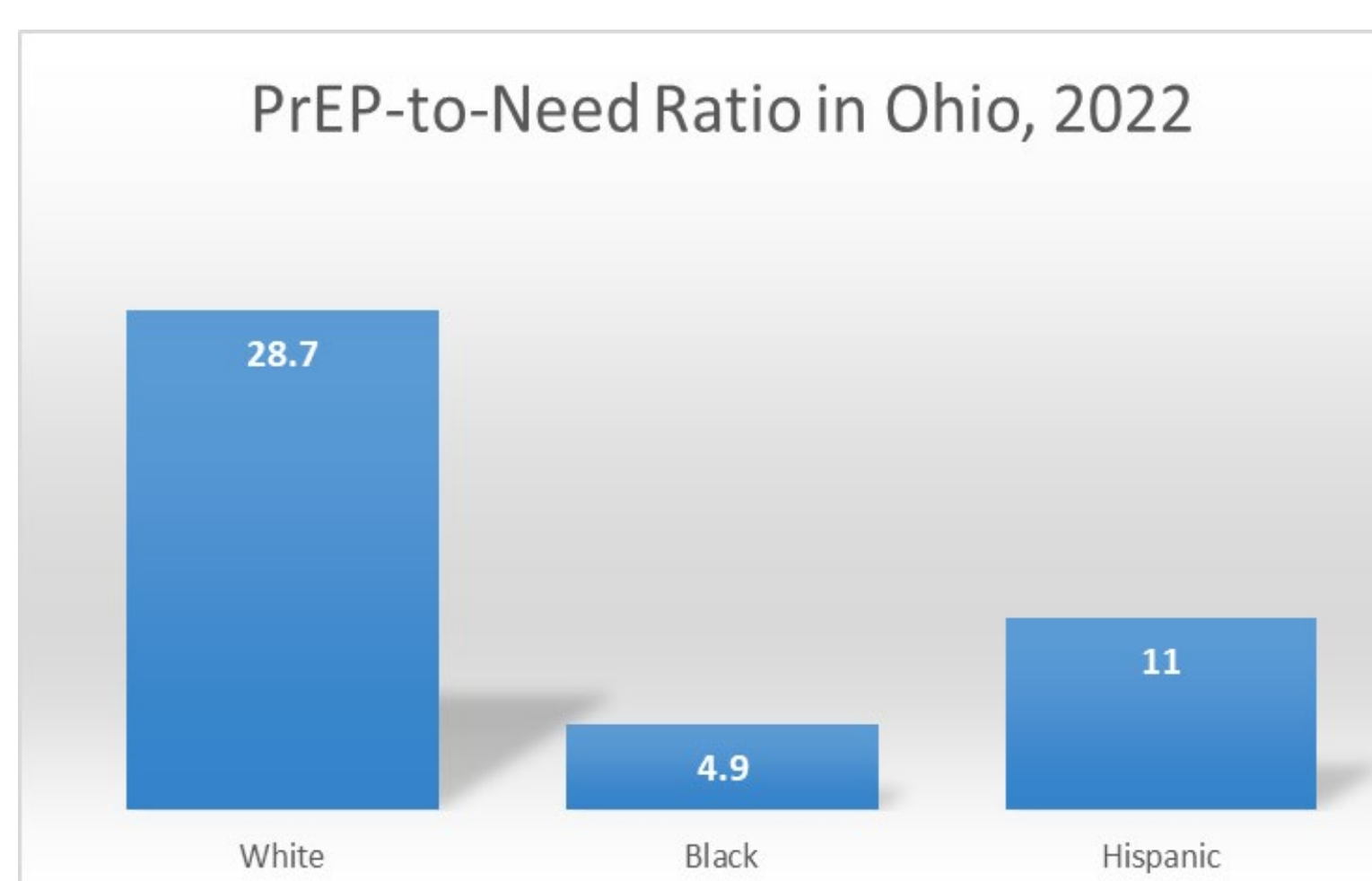


Figure 1: PrEP-to-need ratios by race in Ohio, 2022

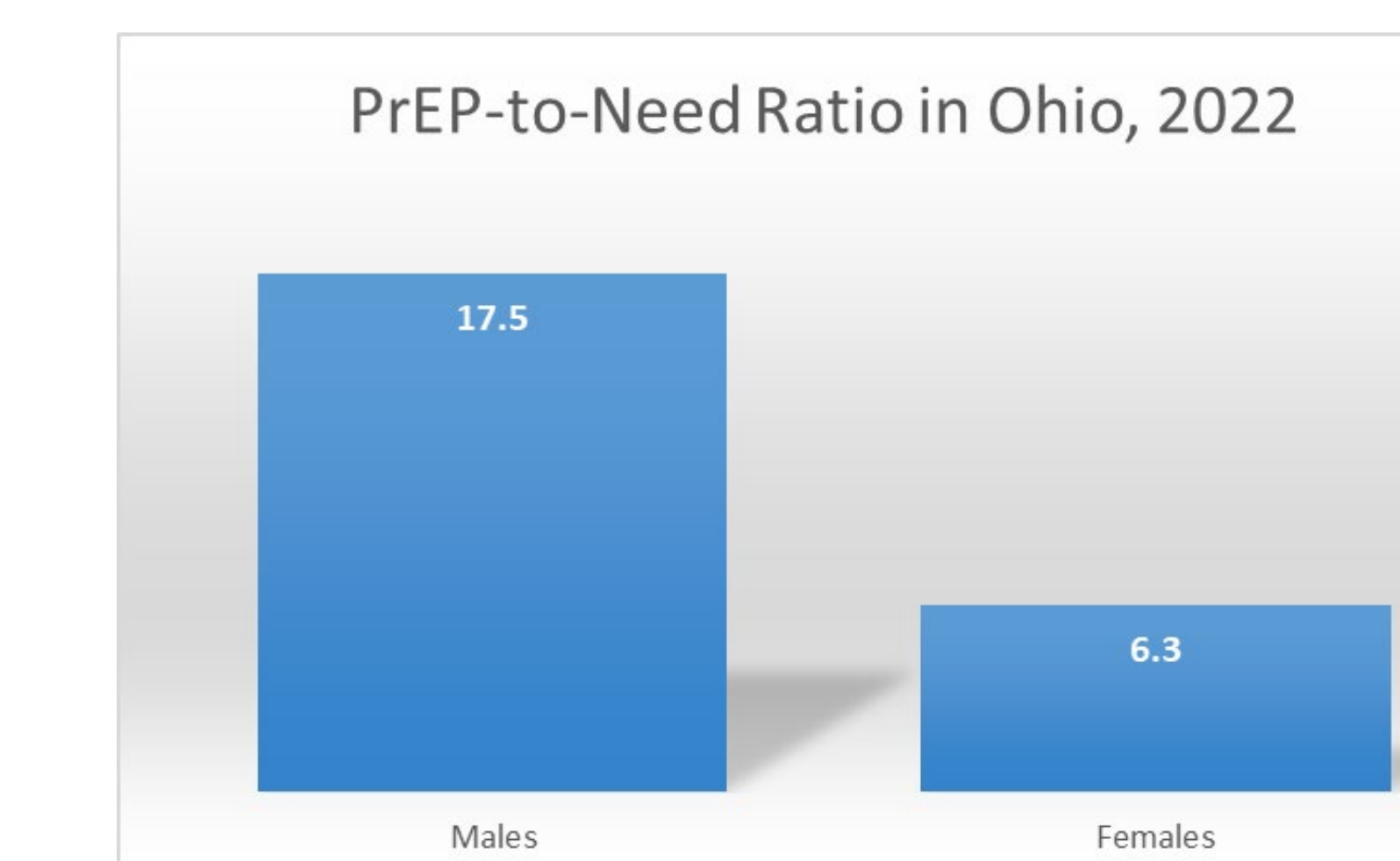


Figure 2: PrEP-to-need ratios by gender in Ohio, 2022