Syphilis Among Women of Reproductive Age With or Without HIV in the Southern US enrolled in the STAR Cohort

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BACKGROUND

- Pregnant women with syphilis face heightened risks of preterm birth and of having infants with congenital syphilis.
- From 2017 to 2022, syphilis rates among reproductive-age women and congenital syphilis surged by over 250% in the US.
- In 2021, infants born to Black, Hispanic, or American Indian/Alaska Native mothers were up to eight times more likely to have congenital syphilis compared to those born to white mothers.
- Syphilis, similar to other STIs increases the risk of HIV acquisition.
- Black/African American and Hispanic communities in the Southern US South are disproportionately affected by both HIV and syphilis.
- This study examines syphilis infections among women enrolled in STAR, the largest cohort of reproductive-age women with (WWH) or at risk for HIV (WWOH) in the Southern US (see poster 1258).

METHODS

- **Study Design:** The Study of Treatment and Reproductive Outcomes (STAR) is a longitudinal observational cohort study of up to 2,000 women aged 18-45, either WWH or WWOH with comparable risk behaviors (sexual behaviors, drug use, and other risk factors within 5 years of enrollment).
- HIV status is confirmed with FDA-approved assays.
- **Data Collection:** Included demographic, medical, reproductive health, syphilis history, sexual behavior, and psychosocial variables through interviewer-administered questionnaires, physical exams, and collection of blood sample.
- **Syphilis Testing:** Traditional or Reverse Sequencing
  Non treponemal: Rapid Plasma Reagin (RPR)
  Treponemal: Fluorescent Treponemal Antibody Absorption (FTA-ABS), MHA-TP, and TPPA
- **Syphilis Categories:**
  No syphilis: None or one reactive test
  Prior/current syphilis: two reactive treponemal tests or one reactive treponemal plus one non treponemal
  - Late latent syphilis (no history of syphilis + RPR <1:8)
  - Serofast status (history of syphilis + RPR <1:8).
  - Recent infection (no history of syphilis + RPR ≥1:8)
  - Recent reinfection/reactivation (history of syphilis + RPR ≥1:8)

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In the Southern US, prior/current syphilis is common among reproductive-aged WWH and WWOH and associated low education, unemployment, history of incarceration, and transactional sexual activity

RESULTS

- 791 women underwent syphilis testing.
- Median age was 34 years, the majority of participants were Black/non-Hispanic or Hispanic, and low socioeconomics.
- 25 participants (3.2%) had prior/current syphilis: 3 (12%) recent infection, 2 (8%) reinfection/reactivation, 7 (28%) late latent syphilis, and 13 (52%) serofast status.
- Prior history of other STIs was high (28% chlamydia, 20% gonorrhea, 25% trichomoniasis).
- Among 86 pregnant women, there were 4 (4.55%) cases of prior/current syphilis, and 2 (2.3%) syphilis cases with reinfection/reactivation. Among the 5 cases of infectious syphilis (recent infections/reactivation) 2 occur during pregnancy.
- There were no differences in syphilis prevalence by pregnancy (p=0.340) or HIV status (p=0.659).

Sociodemographics, HIV status, Pregnancy status, Sexual Behaviors by syphilis status

Sociodemographics	Current/Past Syphilis N = 25	No Syphilis N = 766	P-value
Age - n (%)	35 (6)	34 (7)	0.553
Race/Ethnicity - n (%)			0.339
Hispanic	5 (20)	82 (11)	
Non-Hispanic Black	19 (76)	567 (74)	
Non-Hispanic White	1 (4.0)	80 (10)	
Non-Hispanic Other	0 (0)	34 (4.5)	
Education Level - n (%)			<0.001
Less than High School	6 (24)	148 (19)	
High School Graduate or GED	16 (64)	261 (34)	
Some College or Higher	3 (12)	356 (47)	
Marital Status - n (%)			0.571
Married	2 (8.0)	120 (16)	
Not Married but Living with a Partner	4 (16)	95 (12)	
Divorced/Widowed/Separated	3 (12)	125 (16)	
Never Married	15 (60)	410 (54)	
Other	1 (4.0)	15 (2)	
Employment Status - n (%)			0.026
Employed	7 (28)	402 (53)	
Unemployed	18 (72)	362 (47)	
Average Monthly Income - n (%)			0.764
$1500 or less	10 (43)	292 (41)	
$1501 to 3000	8 (35)	221 (31)	
$3001 or more	5 (22)	206 (29)	
Below poverty line - n (%)	10 (43)	292 (41)	0.952
Difficulty Paying for Basics - n (%)			0.239
Very hard	2 (8)	144 (19)	
Somewhat hard	14 (56)	307 (40)	
Not very hard	9 (36)	313 (41)	
Ever incarcerated - n (%)	13 (52)	190 (25)	0.005

HIV, pregnancy, prior STI, and sexual behaviors	Current/Past Syphilis N = 25	No Syphilis N = 766	P-value
HIV Status - n (%)			0.659
WWH	13 (52)	448 (58)	
WWOH	12 (48)	318 (42)	
Ever pregnant	19 (76)	471 (62)	0.216
Pregnancy Status - n (%)			0.34
Currently Pregnant	4 (16)	82 (11)	
Not Currently Pregnant	21 (84)	681 (89)	
Ever told gonorrhea - n (%)	8 (32)	152 (20)	0.225
Ever told had syphilis - n (%)	15 (60)	24 (3.2)	<0.001
Ever told chlamydia - n (%)	7 (28)	210 (28)	>0.999
Ever told had trichomoniasis - n (%)	6 (24)	194 (25)	>0.999
Age at first sexual encounter - n (SD)	15.2 (3.2)	15.2 (3.7)	0.668
Lifetime sexual partners (5 years)	15 (5, 50)	10 (5, 20)	0.055
Transactional sex (5 years) - n (%)	6 (24)	66 (8.6)	0.02
Male Partners in the Past Year - n (%)			0.731
One primary male partner	11 (46)	375 (52)	
More than one male partner	11 (46)	281 (39)	
No male partner	2 (8.3)	59 (8.3)	
Male sexual partner (1 year)	1.00 (1.00, 3.00)	1.00 (1.00, 2.00)	0.552
Unprotected vaginal sex (1 year)	18 (82)	557 (85)	0.76

Syphilis Category

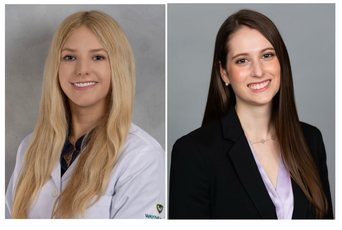
Syphilis Category - n (%)		
Recent infection	3 (12)	N/A
Reinfection/Reactivation	2 (8)	N/A
Late Latent Syphilis	7 (28)	N/A
Serofast Status	13 (52)	N/A
No syphilis	0 (0)	766 (100)

CONCLUSIONS

- Rates of syphilis are high among reproductive-aged women from ethnic minorities and low socioeconomic status with and without HIV living with HIV in the Southern US.
- Campaigns to enhance syphilis testing, including point of care testing, and treatment should be a priority to eliminate the rates of congenital syphilis and potential for HIV transmission.
- Association with low education and socioeconomics, and transactional sexual activity continues to highlight the importance of economic disempowerment as a driver of STI acquisition, including syphilis.
- Innovative approaches to support the diagnosis, treatment, and prevention of syphilis need to address concurrently address social and economic factors.

LIMITATIONS

- Small sample size and does not represent the full range of syphilis infection patterns among reproductive-aged women across the US.
- As a cross-sectional study, there limitations preventing our ability to infer causality from associations.



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STAR Study of Treatment And Reproductive Outcomes

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