Prenatal Syphilis in the US: Characterizing Screening and Treatment During Pregnancy in Publicly and Commercially Insured Individuals

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OBJECTIVES

To assess syphilis screening and treatment during pregnancy among publicly and commercially insured pregnant individuals in the US

BACKGROUND

- Cases of congenital (CS) syphilis have risen 10-fold in the US between 2012-2022
- A 2018 national study suggested that 28% of CS cases were due to a lack of timely prenatal care and syphilis testing, and 31% were due to inadequate maternal treatment in pregnancy
- Current CDC recommendations: 1st trimester screening and again at 28-weeks and delivery if high risk
- Between 2017-2021 in southern US states, first trimester testing rates were 41-64%; third trimester testing was performed in less than 50% of the pregnancies
- Data on syphilis screening rates in pregnancy are lacking from more recent time periods and from across the US and trends in the use and timing of treatment during pregnancy have not been examined in a large national study

METHODS

Cohort identified in Sentinel Distributed Database:

- US claims data: Medicaid (public) and commercial insurers
- Pregnancies resulting in live birth in individuals aged 10-54 years
- Continuous insurance coverage throughout pregnancy

Syphilis screening: 1+ procedure codes

Syphilis case: 2+ dates with diagnosis codes and no screening codes on the same date

Treatment:

- Dispensing records and administration billing codes
- Recommended treatment: Benzathine penicillin G
- Not recommended treatment: other antibiotics used for syphilis
  - Included if treatment occurred up to 30 days following syphilis diagnosis and no recommended treatment received in pregnancy

RESULTS

Table. Cohort characteristics

	Medicaid 2014-2021	Commercial 2010-2023
Number of pregnancies	2,691,021	3,561,802
Maternal age		
10-19 years	299,509 (11.1)	69,350 (1.9)
20-29 years	1,560,671 (58.0)	1,315,295 (36.9)
30-39 years	772,662 (28.7)	2,010,554 (56.4)
40-54 years	58,179 (2.2)	166,603 (4.7)
Race		
American Indian or Alaska Native (AIAN)	56,927 (2.5)	6,011 (0.2)
Asian	86,595 (3.9)	83,015 (2.7)
Black or African American (BAA)	433,697 (19.3)	106,337 (3.5)
Multi-racial	20,120 (0.9)	39,415 (1.3)
Native Hawaiian or Other Pacific Islander (NHOPI)	15,941 (0.7)	875 (0.0)
Unknown	798,602 (35.6)	2,119,311 (70.2)
White	834,080 (37.1)	664,958 (22.0)
Hispanic origin		
Yes	614,034 (27.3)	77,573 (2.6)
No	1,453,825 (64.7)	642,023 (21.3)
Unknown	178,103 (7.9)	2,300,326 (76.2)
Pregnancy-related care in 1st trimester	2,254,140 (83.8)	3,359,174 (94.3)
Preterm	403428 (15.0)	393,072 (11.0)

Figure 1. Screening prevalence in pregnancy by select covariates

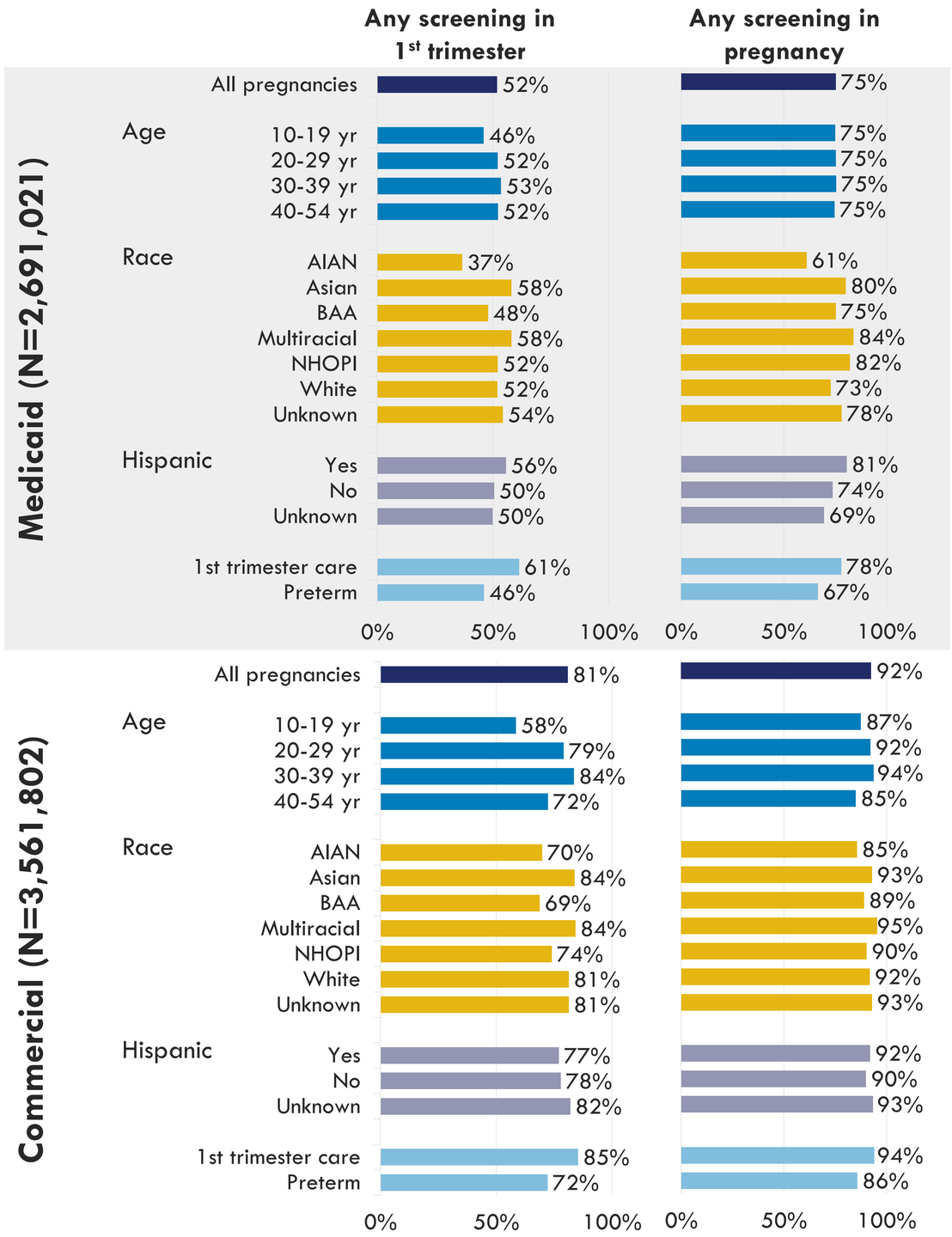


Figure 2. Timing of first screening in pregnancy

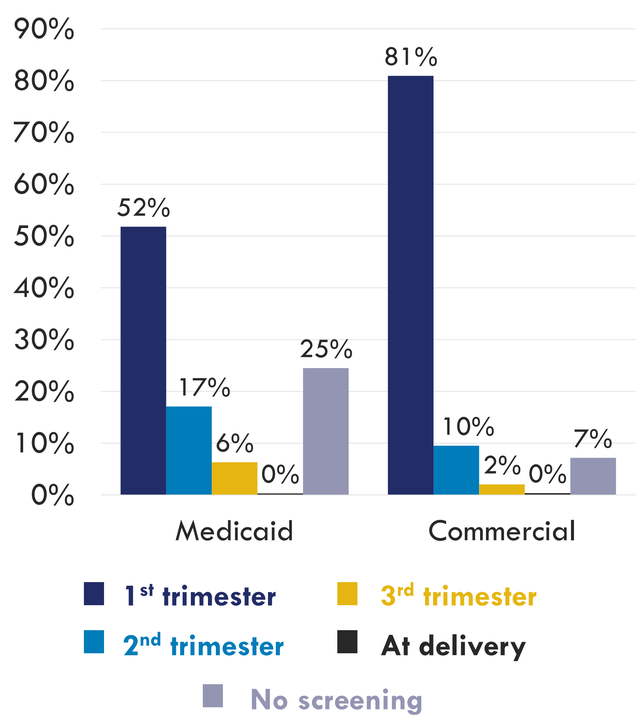


Figure 3. Screening prevalence over time

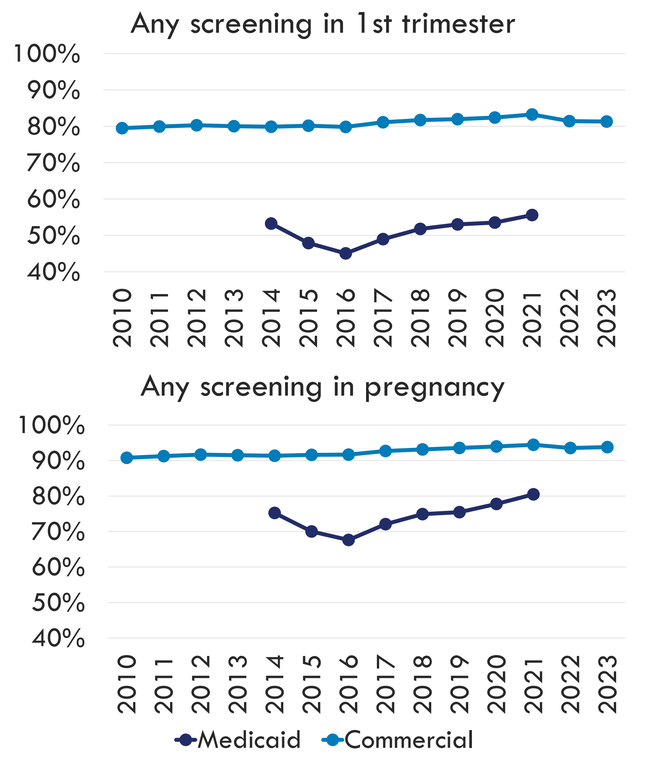
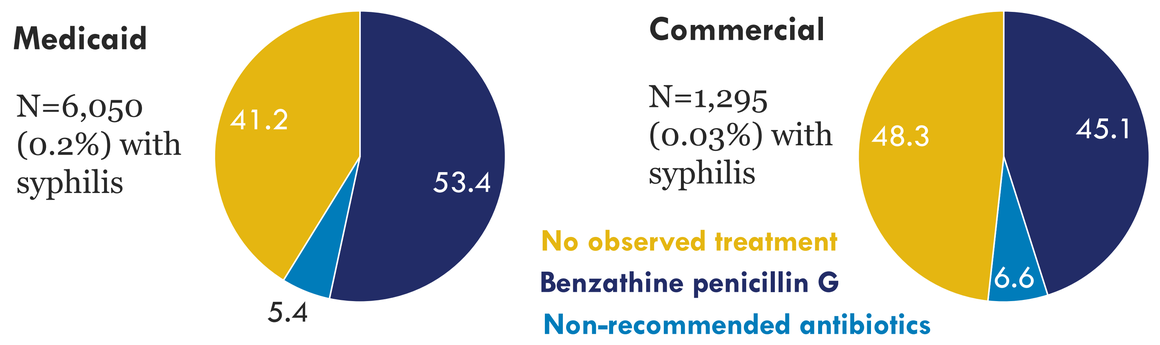


Figure 4. Proportion treated among pregnancies with syphilis diagnosis



CONCLUSION

- Medicaid-insured pregnant individuals were less likely be screened in first trimester (52% vs 81%) and less likely to have any screening in pregnancy (75% vs 93%) than commercially-insured pregnant individuals
- Screening prevalence did not vary notably over time or by covariates.
- 53% of Medicaid-insured and 45% of commercially-insured syphilis-diagnosed pregnant individuals had billed treatment with benzathine penicillin G; this is likely an undercount due to limitations in capturing treatment in these data.

LIMITATIONS

- Results of syphilis testing are not available in claims data; therefore, positive cases were approximated using diagnosis codes.
- Treatment may be under-captured due to receipt of treatment outside of traditional health care (i.e., at local health department) and inpatient setting due to bundled payments.

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