

Prenatal and Congenital Syphilis in the US: Characterizing Screening and Treatment

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OBJECTIVES

To assess syphilis screening and treatment during pregnancy among publicly and commercially insured pregnant women 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 USPSTF recommendations: 1st trimester screening and again at 28-weeks and delivery if high risk
- Between 2017-2021 among Medicaid-insured 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 4 national commercial insurers
- Pregnancies resulting in live birth in women aged 10-54 years
- Continuous insurance coverage throughout pregnancy

Syphilis screening: 1+ procedure codes

Repeat screening: screening in more than one trimester

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

Treatment:

- Outpatient pharmacy dispensing records and administration billing codes
- Recommended antibiotic: Benzathine penicillin G (as advised by the CDC)
- Non-recommended antibiotics: other antibiotics
 - Only included if treatment occurred up to 30 days following syphilis diagnosis and no benzathine penicillin G received in pregnancy

RESULTS

Table. Cohort characteristics

	Medicaid (2014-2021)	Commercial (2010-2023)
Number of pregnancies, N	2,691,021	3,479,840
Maternal age, N (%)		
10-19 years	299,509 (11.1)	69,584 (2.0)
20-29 years	1,560,671 (58.0)	1,273,229 (36.6)
30-39 years	772,662 (28.7)	1,974,520 (56.7)
40-54 years	58,179 (2.2)	162,507 (4.7)
Race, N (%)		
American Indian or Alaska Native	56,927 (2.5)	4,807 (0.2)
Asian	86,595 (3.9)	82,950 (2.8)
Black or African American	433,697 (19.3)	78,765 (2.7)
Multi-racial	20,120 (0.9)	42,066 (1.4)
Native Hawaiian or Other Pacific Islander	15,941 (0.7)	906 (0.0)
White	834,080 (37.1)	633,478 (21.4)
Unknown	798,602 (35.6)	2,115,783 (71.5)
Hispanic origin, N (%)		
Yes	614,034 (27.3)	69,556 (2.4)
No	1,453,825 (64.7)	576,545 (19.5)
Unknown	178,103 (7.9)	2,312,654 (78.2)
Pregnancy-related care in 1 st trimester, N (%)	2,254,140 (83.8)	3,292,230 (94.6)
Preterm, N (%)	403,428 (15.0)	369,277 (10.6)

Figure 1. Screening prevalence over time

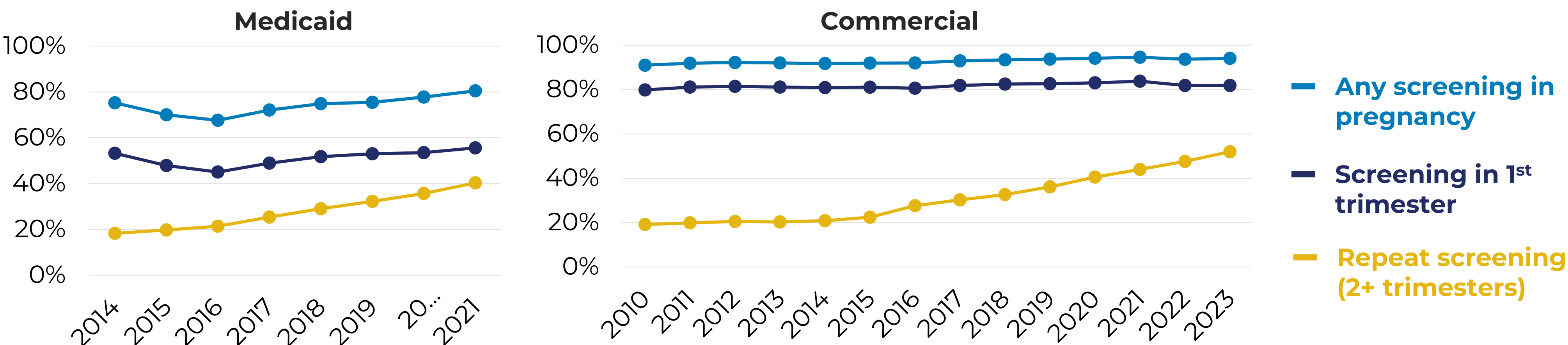


Figure 2. Timing of first syphilis screening in pregnancy

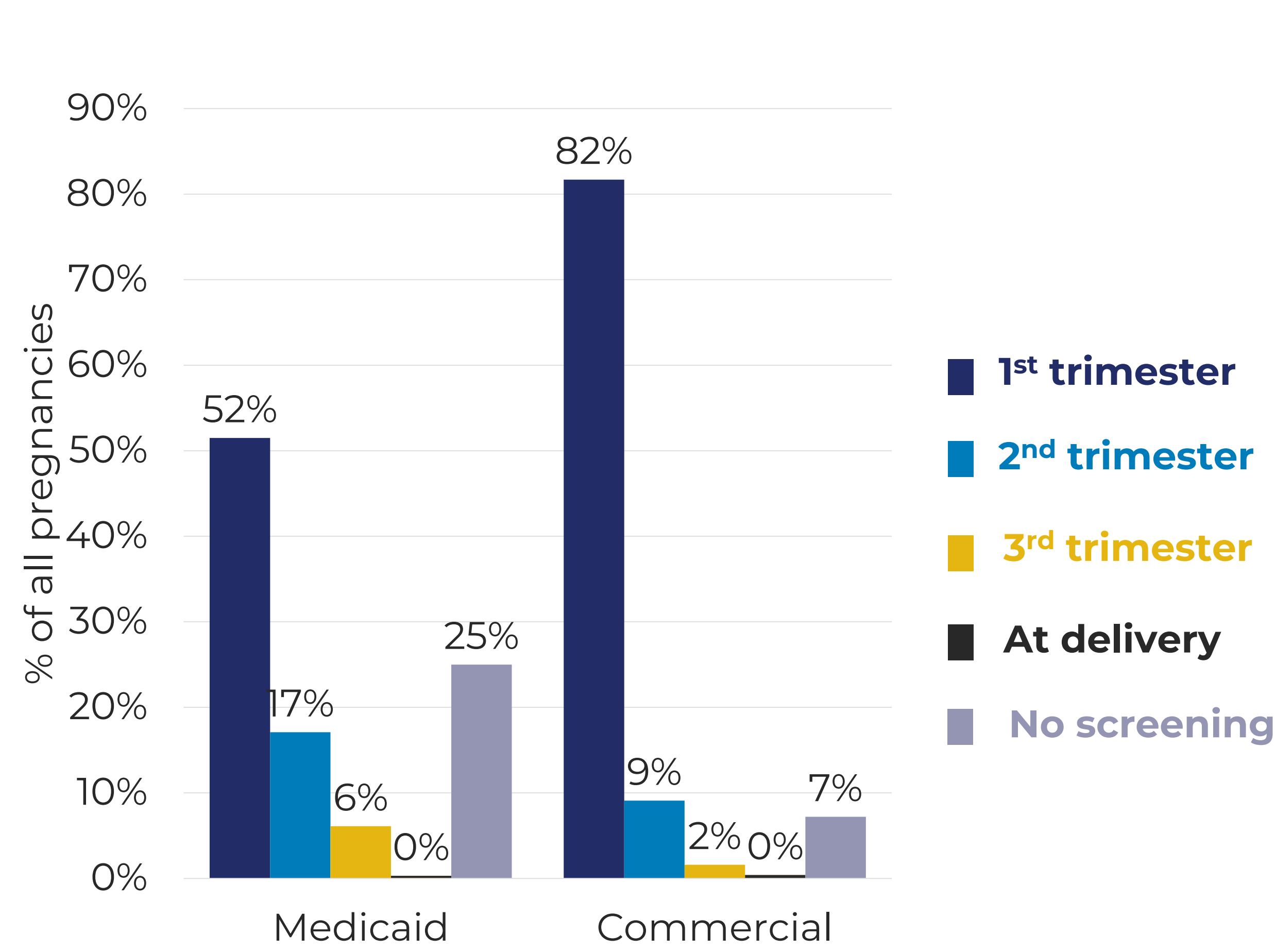


Figure 3. Proportion treated among pregnancies with syphilis diagnosis

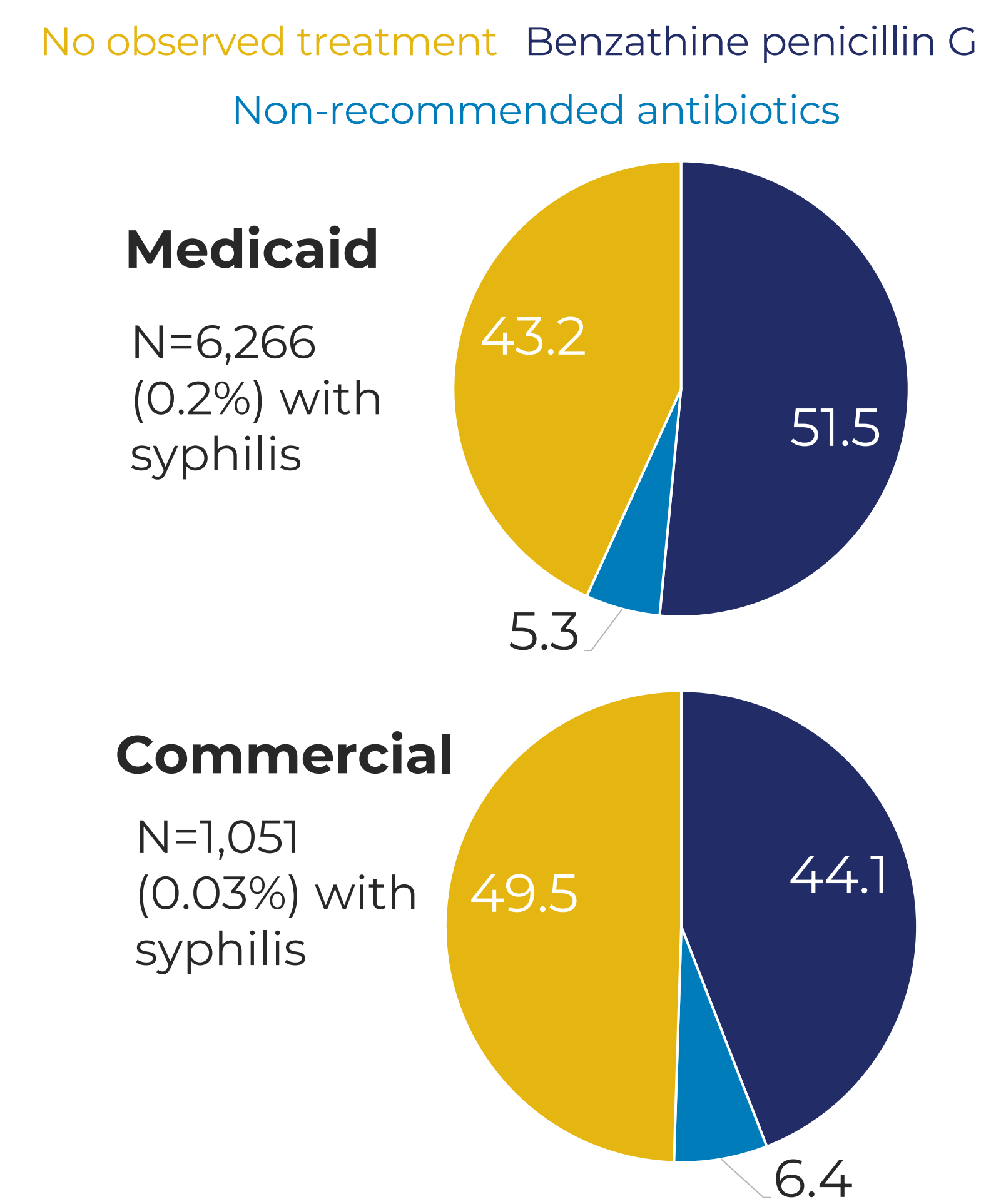
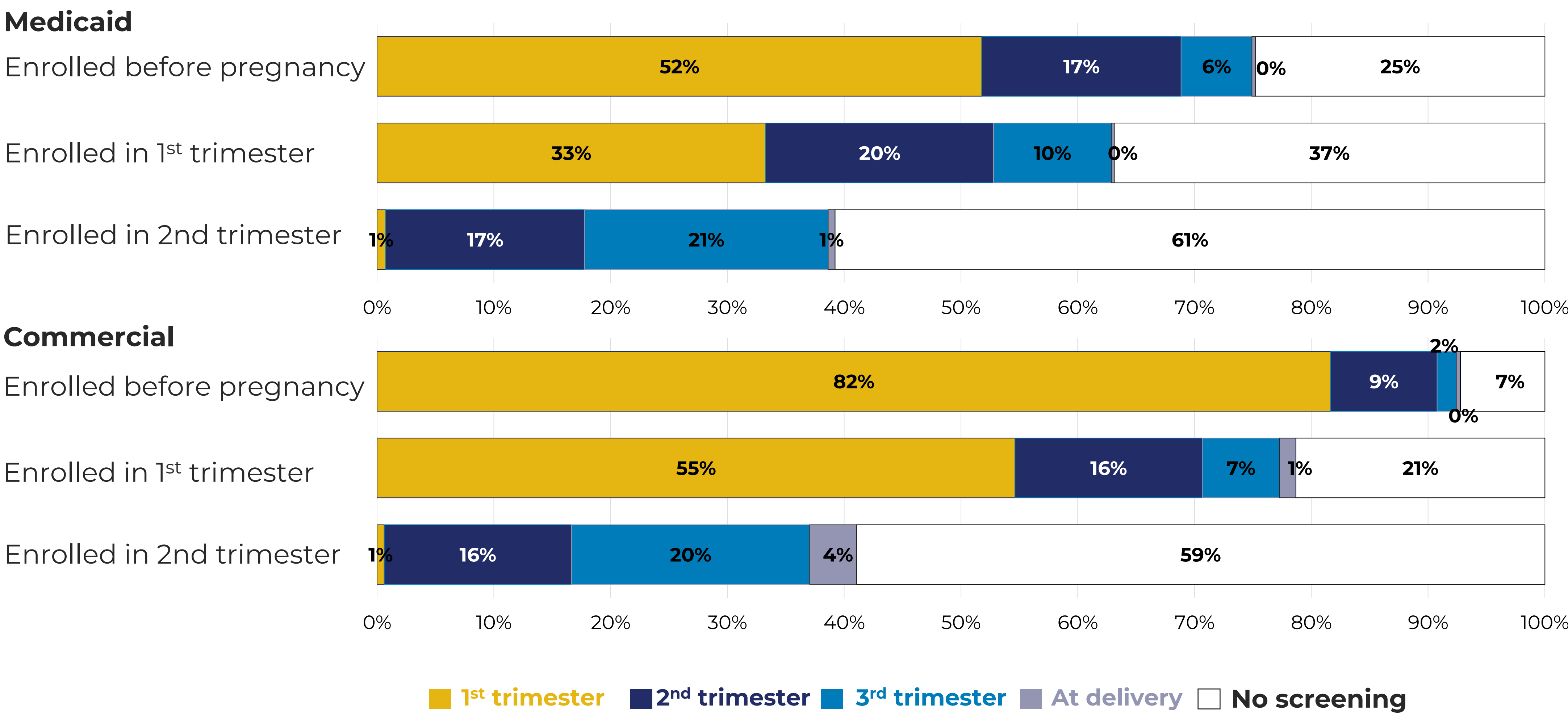


Figure 4. Timing of first syphilis screening among pregnancies by timing of enrollment



CONCLUSION

- Medicaid-insured pregnancies were less likely be screened in first trimester (52% vs 82%) and less likely to have any screening in pregnancy (75% vs 93%) than commercially-insured pregnancies
- Repeat screening more than doubled over the study period.
- 52% of Medicaid-insured and 44% of commercially-insured syphilis-diagnosed pregnancies 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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