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MINNESOTA TRENDS, RISK FACTORS, AND POINT-OF-CARE STRATEGIES FOR NURSES AND MIDWIVES

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Introduction and Objectives

- Understand recent trends in syphilis and congenital syphilis
- Recognize key risk factors in pregnant populations
- Review CDC and MDH screening and treatment recommendations
- Explore the role of nurses and midwives in prevention and response

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Why Focus on Syphilis in Pregnancy?

- Syphilis is preventable but resurging in the U.S.
- Congenital syphilis can cause stillbirth, prematurity, and neonatal death
- Screening and timely treatment are highly effective
- Nurses and midwives play a critical role in early identification and care coordination

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Consequences: Fetal Considerations

Fetal infection during pregnancy:

- Spontaneous abortion
- Stillbirth or perinatal death
- Hydrops
- Perinatal death
- **Overall: 30-40%**

Infection can occur during all trimesters

Early maternal infection **70% fetal infectivity**

Late maternal infection **~ 15% fetal infectivity**

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Consequences: Neonatal, Maternal

- Neonatal death
- Severe anemia, hepatomegaly, osteochondritis
- Maternal complications including increased HIV risk
- Emotional trauma for families

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National Trends: Syphilis Over Time (CDC)

- All-stage syphilis cases increased 74% from 2018 to 2022
- Congenital syphilis cases rose 219% nationally during the same period
- Highest burden among underserved populations
- CDC declares congenital syphilis a public health emergency

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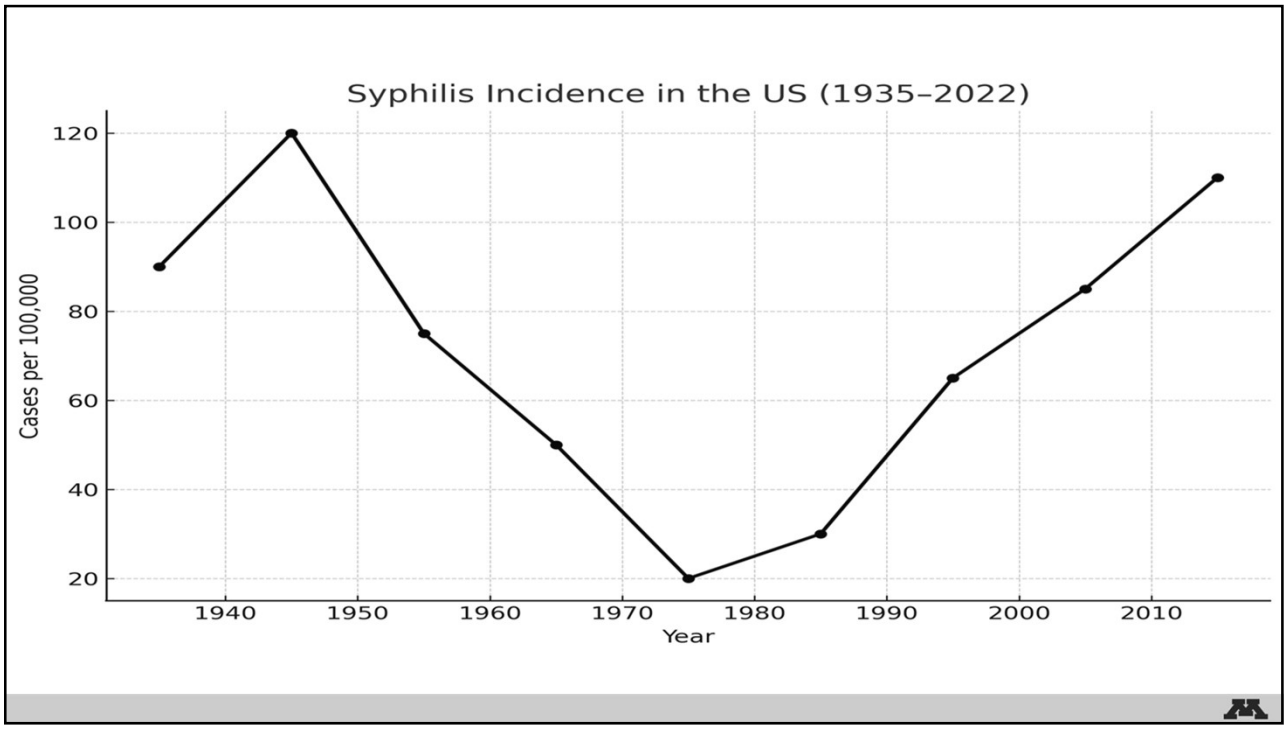

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Minnesota Trends: All Stages (2020–2024)

- Peak in 2022 with 1831 syphilis cases
- Slight decline in 2023–2024, but rates remain elevated
- Primary and secondary cases dropped from 676 (2022) to 440 (2024)
- Continued increases in late/unknown stage syphilis

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Primary & Secondary Syphilis Trends

- Most infectious stages—highest risk for fetal transmission
- Minnesota: 676 cases in 2022 → 440 in 2024
- Shift toward more late-stage presentations
- Timely diagnosis is key to preventing fetal harm

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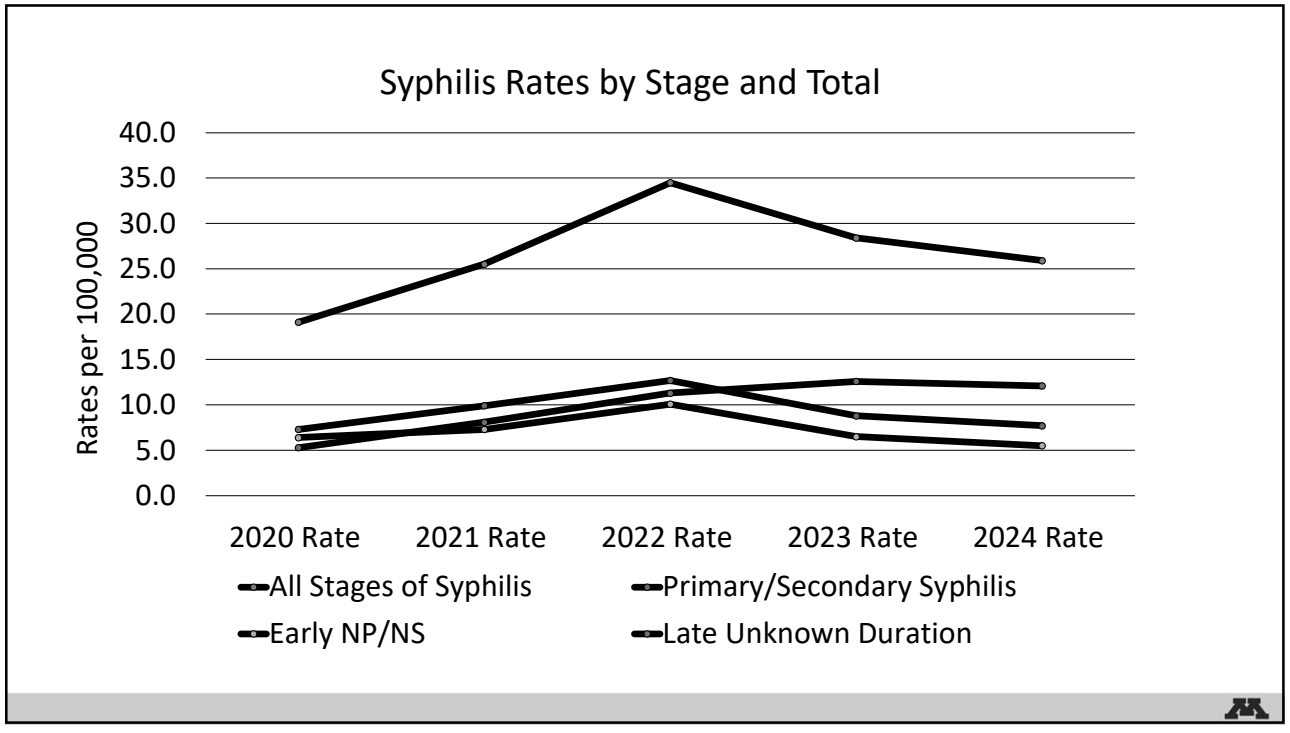

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Congenital Syphilis Rates in Minnesota

- 29 confirmed cases in 2024
- Increased from just 7 cases in 2020
- Rate rose from 11.2 → 47.6 per 100,000 live births
- 314% increase in just 4 years

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Congenital Syphilis Cases Over Time

- Year-over-year increase from 2020 to 2024
- 4x rise in confirmed congenital syphilis cases
- Associated with severe neonatal complications

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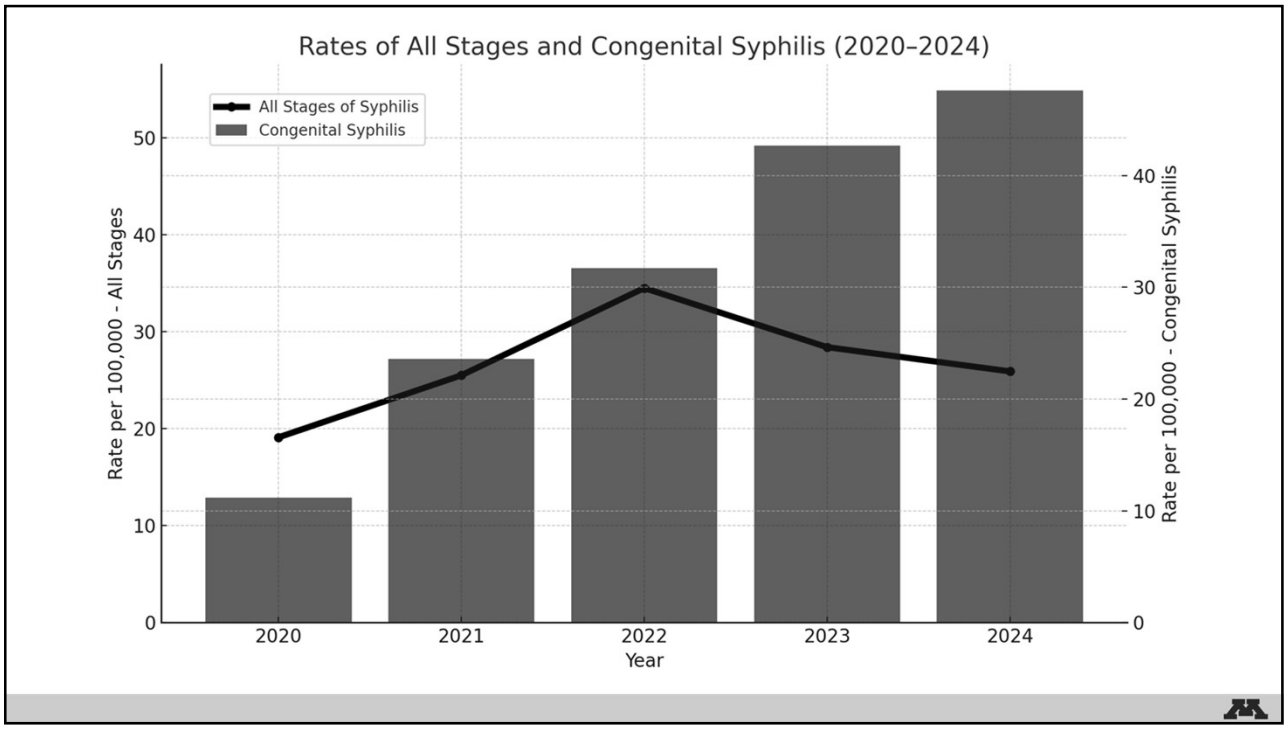

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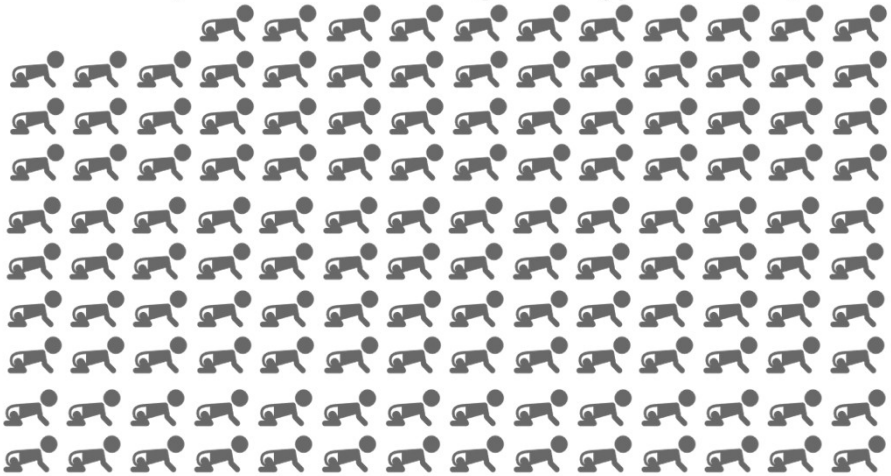
MN Congenital Syphilis Births 2006-2024

From 2006-2015, there were 7 congenital syphilis cases

From 2016-2024, there were 137 congenital syphilis births, most ≥ 2019



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Disparities by Race, Ethnicity, Region

- Higher rates among Black, Indigenous, and Latinx populations
- Geographic hotspots include urban and tribal areas
- Structural barriers: access, trust, language, insurance

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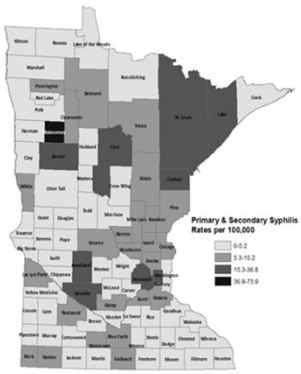
Congenital Syphilis Rates in Minnesota

2022 Minnesota Primary and Secondary Syphilis Rates by County



City of Minneapolis	62.7 per 100,000 (240 cases)
City of St. Paul	29.5 per 100,000 (84 cases)
Suburban*	8.3 per 100,000 (181 cases)
Greater Minnesota	7.0 per 100,000 (171 cases)
Total	12.7 per 100,000 (676 cases)

*7-county metro area, excluding the cities of Minneapolis and St. Paul

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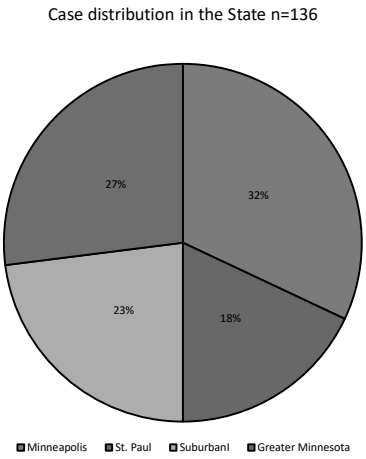
Minnesota Department of Health April 2025



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Key Risk Factors in Pregnant Populations

- Lack of prenatal care or late entry to care
- History of STIs or substance use
- Unstable housing or incarceration (26%)
- Partners with untreated syphilis

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Behavioral and Social Determinants of Risk

- Stigma and fear of judgment
- Mental health and trauma history
- Limited transportation or childcare
- Language and health literacy barriers

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Missed Screening Opportunities in OB Care

- First-trimester testing not always documented
- Third-trimester re-testing inconsistent
- ED visits often missed as screening sites
- Coordination gaps between outpatient and inpatient settings

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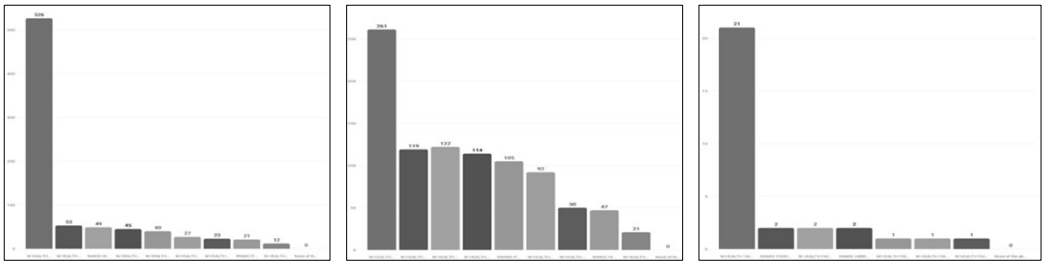
Syphilis Testing in the Emergency Department



- ED visit + Female + Syphilis Test = 793
- ED visit + Female + Pregnancy Test = 925
- ED visit + Female + Pregnancy Test + Syphilis Test = 30
  - Positive test = 2/30 (6.7%)

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CDC & ACOG Screening Recommendations

- Screen all pregnant women at first prenatal visit
- Re-screen in third trimester and at delivery if at high risk
- Use rapid testing in labor/delivery and ED when needed

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Point-of-Care Testing Overview

- Same-day syphilis diagnosis
- Can be used in EDs, clinics, and L&D
- Results within 15–30 minutes
- Enables immediate treatment

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POC Testing Algorithm

- Visual pathway for rapid test interpretation
- Guides providers through confirmatory testing
- Includes treatment initiation protocol
- Tailored for prenatal and ED settings

Wall et. al. NEJM 2025

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Prenatal Testing Gaps and Emergency Department Interventions

- 20% of congenital syphilis cases had ED visits before diagnosis
- OB care not initiated or delayed in many cases
- ED syphilis screening is a key opportunity
- Systems should enable reflex testing and treatment

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Strategies to Reduce Maternal & Congenital Syphilis

The EPIC Electronic Health Record BEST PRACTICE ALERT

- Implementation of a best practice alert (BPA) that alerts providers of Texas State Health and Safety Code 81.090 using IT services at close of chart at any pregnancy encounter visit
- All Harris Health Clinics (UTH and Baylor)

- TEST FOR SYPHILIS
  - First prenatal visit
  - 28 weeks gestation
  - At delivery

Courtesy Dr. Irene Stafford

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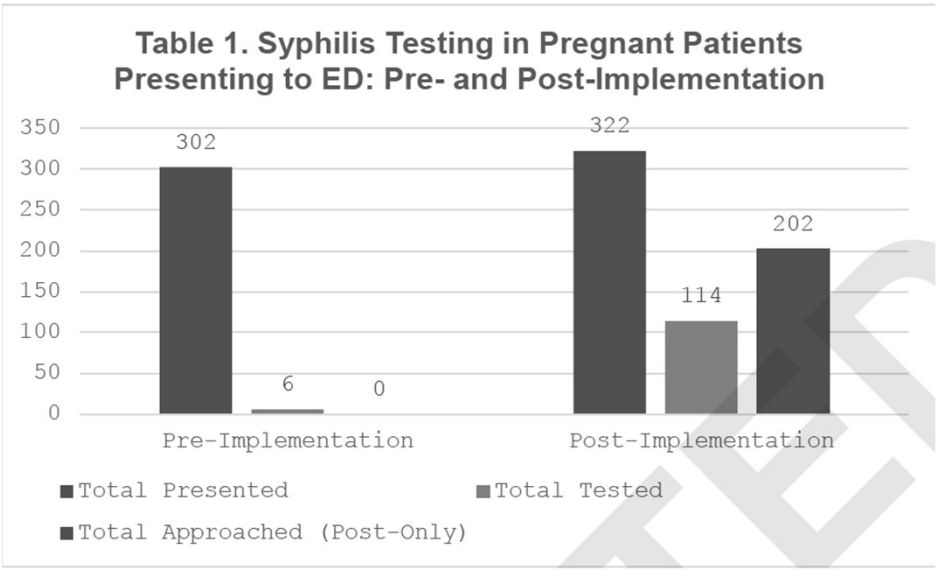

Stafford et. al 2024

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Program Preg-OUT

- In response UTH Ob/Gyn introduced a new quality initiative:

- 1) Implementation of opt-out laboratory-based syphilis screening at the time of any pregnancy testing, including at ED visits with;
- 2) Rapid (point of care -POC) syphilis testing with immediate presumptive treatment at these visits
- Start Date: 03/6/2024 Hermann TMC
- ** Start date Lyndon B Johnson 01/18/25

- Syphilis Health Check by Diagnostics Direct FDA approved and CLIA waived: 96% sensitive. Treponemal only test (IgM and IgG)

Courtesy Dr. Irene Stafford

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Treatment Protocols: Benzathine Penicillin

- Penicillin G benzathine is the only effective treatment
- Administered intramuscularly in 1–3 doses depending on stage
- Must complete full series before delivery for fetal protection

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Partner Management and Follow-Up

- Partners should be tested and treated simultaneously
- Public health departments assist in partner notification
- Reinfection risk is high without partner management

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Rapid Eval Program: Overview and Impact

- Minnesota initiative to expand ED-based syphilis screening
- Focus on pregnant people with no prenatal care
- Offers rapid test and treatment within one visit
- Collaboration between MDH, hospitals, and OB services

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Program Success: Reducing NICU Time & Costs

- Early treatment prevents congenital syphilis
- Reduces need for NICU admission and IV antibiotics
- Saves ~$18,000 in hospital costs per infant avoided
- Improves maternal satisfaction and continuity of care

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Congenital Syphilis: Health Care Costs

Chen et. al. Obstetrics & Gynecology144(2):207-214, August 2024.

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Clinical Scenario: When Testing Saves Lives

- Patient presents to ED at 16 weeks with no prenatal care
- POC test performed: positive
- Penicillin started immediately
- Infant born healthy, avoids NICU and long-term sequelae

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Toolkit & Resources for Nurses and Midwives

- MDH syphilis testing toolkit
- CDC congenital syphilis prevention packet
- ACOG syphilis Practice Advisory
- Quick-reference guides for ED and OB workflows
- Links to partner notification forms

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Action Steps: What You Can Do

- Know your clinic/hospital testing protocols
- Screen all pregnant patients early and again if needed
- Advocate for rapid testing where appropriate
- Educate patients and reduce stigma

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Conclusion and Summary

- Syphilis rates rising — especially congenital cases
- Screening, treatment, and follow-up are effective
- POC testing and care coordination can save lives
- You are key to preventing preventable outcomes

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Questions & Discussion

Thank you for your attention.

Please share your questions or experiences.

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